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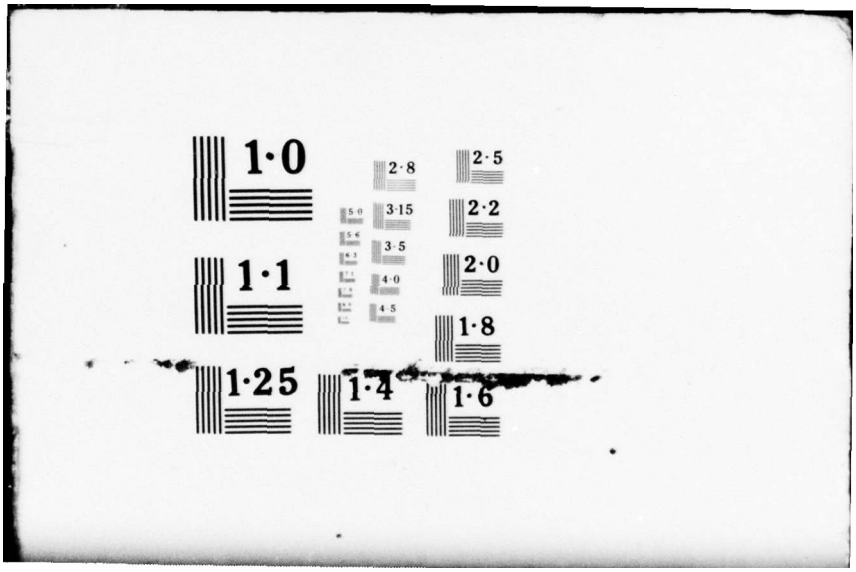
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HYBRID TECHNOLOGY COST REDUCTION IMPROVEMENT STUDY PROGRAM

VOLUME II

ABSTRACTS OF ARTICLES ON HYBRID MICROCIRCUITS

Contract N00163-77-C-0299

FINAL REPORT

APRIL 1978

149 P.

Prepared for:

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Indianapolis, Indiana 46218

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  9   205 THIN FILM CIRCUITS
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Language: SLOVENE

1097194 C77023148
A VERSATILE, EASILY ASSIMILATED MICROCOMPUTER FOR INSTRUMENTATION DEVELOPMENT APPLIED TO DIRECT PHOTOGRAPHIC MASK GENERATION
SCHMALZEL, J.L.; D'LUNA, L.J.; LUCAS, M.S.P.; GALLAGHER, R.P.
DEPT. OF ELECTRICAL ENGNG., KANSAS STATE UNIV., MANHATTAN, KS, USA
IEEE
IECI ANNUAL CONFERENCE PROCEEDINGS ON INDUSTRIAL APPLICATIONS OF MICROPROCESSORS 174-9 1977
21-23 MARCH 1977 PHILADELPHIA, PA., USA
IEEE NEW YORK, USA
A LOW-COST MICROCOMPUTER WITH AN APPLICATION TO DIRECT PHOTOGRAPHIC MASK GENERATION IS DESCRIBED. THE MICROCOMPUTER REPRESENTS AN EFFORT TO EXTEND THE POWER OF MICROPROCESSOR SOLUTIONS TO SYSTEMS WHERE THE MICROCOMPUTER REPRESENTS A SIGNIFICANT PORTION OF THE TOTAL SYSTEM COST. 512 BYTES OF 1702A PROM AND 256 BYTES OF RAM WITH THE CPU AND ALL ASSOCIATED CONTROL CIRCUITRY ARE CONTAINED ON A SINGLE 3.5 INCHES •4.5SECONDS CARD. THE MICROCOMPUTER SPEEDS PROTOTYPE DEVELOPMENT BECAUSE IT IS TREATED AS A MODULE IN SYSTEM DESIGN. THE TIME-CONSUMING PREPARATION OF CUT-MASTER ARTWORK FOR THICK-FILM CIRCUIT FABRICATION HAS BEEN ELIMINATED BY INCORPORATING THE MICROCOMPUTER IN A DIRECT PHOTOGRAPHIC MASK GENERATION SYSTEM. PAD LOCATIONS ARE ENTERED WITH A KEYBOARD AND THE PATTERN IS TRANSFERRED TO PHOTOGRAPHIC FILM BY CONTROLLING THE MOVEMENT OF AN X-Y TABLE WITH RESPECT TO A COLLIMATED LIGHT SOURCE (2 Refs)
Descriptors: MASKS; COMPUTERISED CONTROL
Identifiers: MICROCOMPUTER; DIRECT PHOTOGRAPHIC MASK GENERATION; SYSTEM COST; CONTROL CIRCUITRY; KEYBOARD; COLLIMATED LIGHT SOURCE; CUT MASTER ARTWORK TIME CONSUMING PREPARATION; THICK FILM CIRCUIT; PAD LOCATION
06
Section Class Codes: C7490, C3370N

1096305 B77032245, C77022297
MICROCOMPUTER IN THE THIN FILM HYBRID TECHNOLOGY
BELIC, A.; BUTINA, V.; GRUDEN, D.; HERCOG, D.; JERMOL, P.; KERZIC, A.; KOSTEVC, D.; LOKOVSEK, J.; MAJCEN, J.; MESAR, J.; MLAKAR, J.; MRAK, V.; OZBOLT, S.; PRELOVSEK, A.; RAIC, D.; RAZINGER, J.; ROZMAN, V.; RUNOVC, F.; SLIVNIK, T.; STAVANJA, P.; STRLE, D.; TRONTELJ, J.; TRONTELJ, L.
ELEKTROTEH. VESTN. (YUGOSLAVIA) VOL.43, NO.4 189-92
SEPT.-OCT. 1976 Coden: ELVEA2
A SURVEY OF THE MICROCOMPUTER FE A20 IS GIVEN IN THE PAPER AS AN EXAMPLE OF APPLICATION OF THIS TECHNOLOGY
Descriptors: HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS; MICROCOMPUTERS
Identifiers: THIN FILM HYBRID TECHNOLOGY
02
Section Class Codes: B2220J, B2220E, C5410

1092802 B77032254
RESISTANCE INCREASES IN GOLD ALUMINUM INTERCONNECTS WITH TIME AND TEMPERATURE
BUSHMIRE, D.W.
SANDIA LABS., ALBUQUERQUE, NM, USA
IEEE TRANS. PARTS, HYBRIDS AND PACKAG. (USA) VOL.PHP-13, NO.2 152-6 JUNE 1977 Coden: IEPHAA
INCREASES IN THE RESISTANCE OF GOLD ALUMINIUM INTERCONNECTS WITH TIME AND TEMPERATURE WERE INVESTIGATED. ALUMINIUM WIRE WAS ULTRASONICALLY BONDED TO CR-AU AND TIPD-AU THIN-FILM METALLIZATION ON CERAMIC SUBSTRATES. THE INTERCONNECTS WERE EXPOSED TO TEMPERATURES FROM 150 TO 300 DEGREESC FOR TIMES UP TO 400 H. THE RESISTANCE OF THE INTERCONNECTS WERE MEASURED PERIODICALLY DURING THE EXPOSURE TO ELEVATED TEMPERATURES. THERE WERE SIGNIFICANT INCREASES IN RESISTANCE ON BOTH TYPES OF METALLIZATION. SOME MEASUREMENTS INDICATED ELECTRICALLY OPEN INTERCONNECTS, BUT THE MECHANICAL STRENGTH REMAINED HIGH. IF SYSTEMS CONTAINING GOLD ALUMINIUM INTERCONNECTS ARE ANTICIPATED TO BE PROCESSED OR USED AT OR ABOVE 150 DEGREESC, SERIOUS CONSIDERATION SHOULD BE GIVEN TO THE EFFECTS OF INCREASED RESISTANCE ON CIRCUIT PERFORMANCE (8 Refs)
Descriptors: LEAD BONDING; METALLISATION; GOLD; ALUMINIUM; ULTRASONIC APPLICATIONS; THIN FILM CIRCUITS; CONTACT RESISTANCE; HYBRID INTEGRATED CIRCUITS
Identifiers: AU AL INTERCONNECTS; ULTRASONIC WIRE BONDING; EXPERIMENTAL RESULTS; CR-AU THIN FILMS METALLISATION; TIPD-AU THIN FILM METALLISATION; TEMPERATURE EFFECTS; TIME EFFECTS; RESISTANCE INCREASES
02
Section Class Codes: B2240, B7820, B2220J

1092643 B77032043
DESIGN AND PROCESS CONSIDERATIONS FOR HYBRID ACTIVE FILTER APPLICATIONS
SHIPP, R.E.
HELIPOT DIV., BECKMAN INSTRUMENTS INC., FULLERTON, CA, USA
IEEE
1977 IEEE INTERNATIONAL SYMPOSIUM ON CIRCUITS AND SYSTEMS PROCEEDINGS 309-12 1977
25-27 APRIL 1975 PHOENIX, ARIZ., USA
IEEE NEW YORK, USA
A CHRONOLOGY OF PRODUCT DEVELOPMENT SHOWS THE EVOLUTION OF THE DESIGN AND PROCESS TECHNIQUES FOR CONSTRUCTION OF ACTIVE RC FILTERS. CERMET THICK FILM CIRCUITS FOR THE TELECOMMUNICATIONS INDUSTRY WERE DESIGNED TO BE ACTIVELY TRIMMED TO VALUE. AT THIS JUNCTURE, THE DECISION WAS MADE TO ACTIVELY FUNCTIONALLY TUNE THE FILTER PARAMETERS OF CENTER FREQUENCY, Q, AND GAIN. THIS WAS ACCOMPLISHED USING A COMPUTER-CONTROLLED LASER SYSTEM WHICH WAS THEN EXTENDED TO PRECISION MILITARY FILTER APPLICATIONS. TO MEET THESE TIGHTER REQUIREMENTS, ANOTHER FILTER WAS DEVELOPED WHICH EMPLOYED THIN FILM TECHNOLOGY TO INCREASE TIME AND TEMPERATURE STABILITY (6 Refs)
Descriptors: ACTIVE FILTERS; INTEGRATED CIRCUIT TECHNOLOGY; THICK FILM CIRCUITS; THIN FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS
Identifiers: HYBRID ACTIVE FILTER; CHRONOLOGY; EVOLUTION; DESIGN; PROCESS TECHNIQUES; ACTIVE RC FILTERS; THICK FILM CIRCUITS; THIN FILM TECHNOLOGY; TEMPERATURE STABILITY; ACTIVE TRIMMING; COMPUTER CONTROLLED LASER SYSTEM
06
Section Class Codes: B1270E, B2220J

1092642 B77032042
A SET OF THICK FILM R-C ACTIVE FILTERS FOR PCM APPLICATION
SIN, D.K.
GTE LENKURT INC., SAN CARLOS, CA, USA
IEEE
1977 IEEE INTERNATIONAL SYMPOSIUM ON CIRCUITS AND SYSTEMS PROCEEDINGS 304-8 1977
25-27 APRIL 1975 PHOENIX, ARIZ., USA
IEEE NEW YORK, USA
WIDE TOLERANCE EQUAL VALUED CAPACITORS ARE USED FOR EASIER PRODUCIBILITY AND LOW COST, AND A VERY FAST DETERMINISTIC TRIMMING PROCEDURE IS USED FOR HIGH VOLUME PRODUCTION. THE FIRST PART OF THE PAPER DESCRIBES SPECIFIC CIRCUITS AND DESIGN METHODS USED. IN THE SECOND PART THE TRIMMING PROCEDURES ARE DESCRIBED. A DISCUSSION OF THE PERFORMANCE OF THE FILTERS AND FUTURE DEVELOPMENTS FOLLOWS (11 Refs)
Descriptors: ACTIVE FILTERS; INTEGRATED CIRCUIT TECHNOLOGY; PULSE-CODE MODULATION; THICK FILM CIRCUITS
Identifiers: PCM; EQUAL VALUED CAPACITORS; PRODUCIBILITY; COST; DETERMINISTIC TRIMMING PROCEDURE; HIGH VOLUME PRODUCTION ; DESIGN METHODS; PERFORMANCE; THICK FILM RC ACTIVE FILTERS
06
Section Class Codes: B1270E, B2220G

1092322 B77031396
NONHERMETICITY OF POLYMERIC LID SEALANTS
TRAEGER, R.K.
SANDIA LABS., ALBUQUERQUE, NM, USA
IEEE TRANS. PARTS, HYBRIDS AND PACKAG. (USA) VOL.PHP-13, NO.2 147-52 JUNE 1977 Coden: IEPHAA
ORGANIC ADHESIVES ARE USEFUL LID SEALANTS BECAUSE THEY ARE PROCESSED AT LOW TEMPERATURES, ARE INEXPENSIVE, AND ARE EASY TO REWORK. HOWEVER, THERE HAS BEEN CONCERN ABOUT THE DEGREE OF PROTECTION ORGANICS CAN PROVIDE MOISTURE-SENSITIVE COMPONENTS. DATA PRESENTED IN THIS PAPER SHOW THAT ORGANIC ADHESIVES CAN SEAL PACKAGES WHICH PASS GROSS AND FINE LEAK TESTS BUT ALLOW WATER VAPOR TO PERMEATE RAPIDLY. PERMEATION MEASUREMENTS ON HYBRID MICROCIRCUIT PACKAGES GAVE SEAL PERMEABILITIES OF 3-7*10/SUP -11/ G/CM-S-TORR; THESE PERMEABILITIES AGREE WITH THOSE LISTED FOR EPOXIES IN THE LITERATURE. WITH THIS PERMEABILITY RANGE AND THE PACKAGE CONFIGURATION USED IN THIS STUDY, THE INTERIOR HUMIDITY OF A PACKAGE WILL REACH 50 PERCENT OF THE EXTERIOR HUMIDITY IN 6-10 H (15 Refs)
Descriptors: ENCAPSULATION; POLYMERS
Identifiers: POLYMERIC LID SEALANTS; HYBRID MICROCIRCUIT PACKAGES; WATER VAPOUR PERMEABILITY; 3 TO 7 X 10/SUP -11/ G/CM-S-TORR PERMEABILITIES; PERMEABILITY MEASUREMENTS; SEMICONDUCTOR DEVICE ENCAPSULATION; NONHERMETICITY; IC ENCAPSULATION
02
Section Class Codes: B0170J

1086837 B77028422, C77020548
SPECIAL REPORT' ACTIVE FILTERS RIDE THE CREST OF NEW TECHNOLOGY
RIEZENMAN, M.J.
ELECTRONICS (USA) VOL.50, NO.11 119-24 26 MAY 1977 Coden: ELECAD
BI-FET OP AMPS IMPROVED THICK-FILM INKS, AND COMPUTER OPTIMIZED DESIGN ARE DISCUSSED (3 Refs)
Descriptors: CIRCUIT CAD; HYBRID INTEGRATED CIRCUITS; OPERATIONAL AMPLIFIERS; THICK FILM CIRCUITS; ACTIVE FILTERS
Identifiers: ACTIVE FILTERS; NEW TECHNOLOGY; BIFET OPERATIONAL AMPLIFIERS; THICK FILM INKS; COMPUTER OPTIMISED DESIGN
02
Section Class Codes: B1270E, B1220, B2220G, C7410D

1086133 B77028624, C77020104
FUSING MECHANISM OF NICHROME THIN FILMS
DAVIDSON, J.L.; GIBSON, J.D.; ROSSITER, T.J.; HARRIS, S.A.
HARRIS SEMICONDUCTOR, MELBOURNE, FL, USA
ONDE ELECTR. (FRANCE) VOL.57, NO.5 373-80 MAY 1977 Coden: ONELAS
CONDUCTION ELECTRONS IN NICHROME HAVE A SHORT MEANFREE PATH. THIS MAXIMIZES I/SUP 2/R HEATING AND PRECLUDES ELECTROMIGRATION IN THE DIRECTION OF ELECTRON FLOW AS A FUSING MECHANISM. TRANSMISSION ELECTRON MICROSCOPY IS THE ONLY EFFECTIVE ANALYTICAL TOOL TO CHARACTERIZE THE PROGRAMMED FUSE GAP STRUCTURE. PROGRAMMING FUSIBLE NICHROME IS DONE BY MOLTEN METAL (NICKEL, CHROME), IONS MOVING IN THE PRESENCE OF AN ELECTRIC FIELD. THE FINAL STRUCTURE RESEMBLES A FROZEN SPLASH AND IS DESCRIBED BY FLUID DYNAMICS. THERMAL ANALYSIS COUPLED WITH EMPIRICAL PROGRAMMED FUSE DATA INDICATE A THRESHOLD POWER DENSITY FOR FUSING. IF THIS POWER DENSITY IS EXCEEDED, WHICH CAN BE ASSURED IF THE PROGRAMMING TIME UTILIZED IS AS SPECIFIED, THE FUSE GAP WILL BE WIDE AND RELIABLE. IF THIS POWER DENSITY THRESHOLD IS ONLY MATCHED, IT IS POSSIBLE TO CREATE A MARGINAL FUSE. LIFE TEST RESULTS INDICATE PROGRAMMED PROM RELIABILITY IS EQUIVALENT TO DEVICES OF THE SAME COMPLEXITY THAT DO NOT UTILIZE FUSIBLE LINKS. (25 Refs)
Descriptors: READ-ONLY STORAGE; THIN FILM DEVICES; THIN FILM CIRCUITS
Identifiers: NICHROME THIN FILMS; MEANFREE PATH; ELECTROMIGRATION; FUSE GAP STRUCTURE; FLUID DYNAMICS; THRESHOLD POWER DENSITY; PROGRAMMED PROM; FUSING MECHANISM; THERMAL ANALYSIS; TRANSMISSION ELECTRON MICROSCOPY
02
Section Class Codes: B2220E, B2190, C5320Z
Language: FRENCH

1079111 B77024610, C77018862
RESEARCH INSTITUTE FOR TELECOMMUNICATION INDUSTRY (THICK AND THIN FILM CIRCUITS)
HIRADASTECHNIKA (HUNGARY) VOL.27, NO.12 357-8 DEC. 1976 Coden: HIRAAG
A BRIEF REPORT IS GIVEN OF THE ACTIVITIES OF THE INSTITUTE IN THE FIELD OF THIN AND THICK FILM INTEGRATED CIRCUITS DEVELOPED TO CUSTOMERS' REQUIREMENTS. THE RESULT OF SEVERAL YEARS' DESIGN EFFORT IS A FAMILY OF ACTIVE RC FILTERS AND A SYSTEM OF COMPUTER PROGRAMS WHICH ENABLES THE DESIGN AND REALIZATION IN HYBRID INTEGRATION OF MINIMUM COST FILTER SYSTEMS MATCHED TO A GIVEN TOLERANCE SCHEME. THE STRUCTURES OF A VOLTAGE-TO-FREQUENCY CONVERTOR (HUF-01) AND 4/10 BIT D/A CONVERTORS ARE OUTLINED
Descriptors: THIN FILM CIRCUITS; THICK FILM CIRCUITS; ACTIVE FILTERS; CONVERTORS; CIRCUIT CAD; DIGITAL-ANALOGUE CONVERSION
Identifiers: INTEGRATED CIRCUITS; ACTIVE RC FILTERS; D/A CONVERTORS; VOLTAGE/FREQUENCY CONVERTOR; HUNGARY; THIN FILM CIRCUITS; THICK FILM CIRCUITS
02
Section Class Codes: B2220E, B1270E, B1290B, B2220G, B1130B, C7410D
Language: HUNGARIAN

1070189 B77026440
THICK FILM NICKEL CONDUCTORS FOR DC GAS DISCHARGE DISPLAYS
PATTERSON, F.K.; MARCUS, S.M.; BACHER, R.J.
ELECTRONIC MATERIALS DIV., PHOTO PRODUCTS DEPT., DUPONT CO., WILMINGTON, DE, USA
INF. DISP. (USA) VOL.13, 24-5 SPRING 1977 Coden: INFDAB
DISCUSSES A LOW-FIRING, NICKEL-CONDUCTOR COMPOSITION, DUPONT NO.9530, PROCESSABLE ON SODA-LIME GLASS TO FORM CATHODES. IT ALSO MAKES AVAILABLE COMPATIBLE DIELECTRIC AND SILVER COMPOSITIONS FOR THE AIR FIREABLE NICKEL METALLIZATION. OF SPECIAL SIGNIFICANCE, FIRING IN A CONVENTIONAL AIR-FLOW BELT FURNACE ELIMINATES THE NEED FOR ATMOSPHERE CONTROL
Descriptors: DISPLAY DEVICES; GAS-DISCHARGE TUBES; THICK FILM CIRCUITS; CONDUCTORS (ELECTRIC)
Identifiers: DC GAS DISCHARGE DISPLAYS; DC PLASMA PANEL DISPLAYS; ALL GLASS DISPLAY; LOW FIRING TEMPERATURE NI CONDUCTOR COMPOSITION; THICK FILM NI CONDUCTORS; AIR FIREABLE THICK FILMS; SODA LIME GLASS COMPATIBLE THICK FILMS
02
Section Class Codes: B7260, B2220G, B2380

1068966 A77044397, B77024894
ETCH SPUTTERING OF BULK MATERIALS UNDER CONTROLLED ATMOSPHERE
MISIANO, C.; SIMONETTI, E.
SELENIA INDUSTRIE ELETTRONICHE ASSOCIATE SPA, ROMA, ITALY
VIDE (FRANCE) VOL.31, NO.184 138-41 AUG.-OCT. 1976
Coden: VIDEAA
THE AUTHORS HAVE INVESTIGATED RF ETCH SPUTTERING OF BULK GE AND INSB UNDER A CONTROLLED ATMOSPHERE OF AR WITH EITHER O/SUB 2/, N/SUB 2/, H/SUB 2/ OR H/SUB 2/O. THE ETCH RATES WERE MEASURED AS A FUNCTION OF THE ATMOSPHERE, AND SURFACES OBSERVED BY SEM. THE RESULTS HAVE BEEN APPLIED TO THE ELIMINATION OF CONTAMINATION AS WELL AS TO MINIMIZING THE THICKNESS OF MASKING MATERIAL. THE OPTIMIZATION OF THE ATMOSPHERE DURING ETCH SPUTTERING HAS LED TO THE FABRICATION OF THIN FILM MICROWAVE CIRCUITS WITH MINIMUM MASKING THICKNESS AND EXCELLENT DEFINITION (9 Refs)
Descriptors: R.F. SPUTTERING; ETCHING; GERMANIUM; INDIUM ANTIMONIDE; III-V SEMICONDUCTORS; ELEMENTAL SEMICONDUCTORS; SEMICONDUCTOR TECHNOLOGY; SCANNING ELECTRON MICROSCOPE EXAMINATION OF MATERIALS; THIN FILM CIRCUITS; SCANNING ELECTRON MICROSCOPE EXAMINATION OF MATERIALS
Identifiers: BULK MATERIALS; CONTROLLED ATMOSPHERE; RF ETCH SPUTTERING; GE; INSB; ETCH RATES; SEM; CONTAMINATION; MASKING MATERIAL; THIN FILM MICROWAVE CIRCUITS; SEMICONDUCTOR
02
Section Class Codes: A8160, B2550E, B2220E

1068737 B77024629
APPLICATION OF TAPE AUTOMATED BONDING TECHNOLOGY TO HYBRID MICROCIRCUITS
OSWALD, R.G.; DE MIRANDA, W.R.
HONEYWELL INC., ST. PETERSBURG, FL, USA
SOLID STATE TECHNOL. (USA) VOL.20, NO.3 33-8 MARCH 1977 Coden: SSTEAP
THE PRESENT TAPE AUTOMATED BONDING (TAB) TECHNOLOGY IS REVIEWED UNDER THE FOLLOWING EIGHT HEADINGS' (1) WAFER METALLIZATION AT CHIP CONNECTION PADS; (2) SUBSTRATE MANUFACTURING; (3) TAPE/CARRIER MANUFACTURING; (4) DIE SEPARATION; (5) INNER LEAD BONDING (ILB); (6) OUTER LEAD BONDING; (OLB) (7) ELECTRICAL TESTING; (8) REWORK METHODOLOGY (4 Refs)
Descriptors: INTEGRATED CIRCUIT MANUFACTURE; INTEGRATED CIRCUIT TECHNOLOGY; HYBRID INTEGRATED CIRCUITS; LEAD BONDING
Identifiers: TAPE AUTOMATED BONDING TECHNOLOGY; HYBRID MICROCIRCUITS; SUBSTRATE MANUFACTURING; CARRIER MANUFACTURING; DIE SEPARATION; INNER LEAD BONDING; ILB; OUTER LEAD BONDING; OLB; TAPE MANUFACTURING; TAB TECHNOLOGY; INTEGRATED CIRCUIT MANUFACTURING
02
Section Class Codes: B2240, B2220J

1068734 B77024626
THIN FILM RESISTOR NETWORKS IN HYBRID CIRCUITS
GROTH, L.
HELIPOT DIV., BECKMAN INSTRUMENTS INC., FULLERTON, CA, USA
SOLID STATE TECHNOL. (USA) VOL.20, NO.3 45-9 MARCH 1977 Coden: SSTEAP
THE USE OF THIN FILM PRECISION RESISTOR NETWORKS IS INCREASING IN THICK FILM HYBRIDS, WHERE THEIR TIGHTER TOLERANCES, LOWER TCR, BETTER TCR TRACKING AND SMALL SIZE MAKE POSSIBLE BETTER PERFORMANCE AT HIGHER PACKAGING DENSITIES. THIS ARTICLE DISCUSSES THE ADVANTAGES AND DISADVANTAGES OF THIN FILM CHIP NETWORKS. ASPECTS OF HYBRID DESIGN WITH CHIP NETWORKS AND CHIP DESIGN ARE OUTLINED. SEVERAL HYBRID CONVERTORS AND AN ACTIVE FILTER ARE DISCUSSED TO ILLUSTRATE THE THICK FILM/THIN FILM HYBRID COMBINATION (3 Refs)
Descriptors: THIN FILM RESISTORS; THIN FILM CIRCUITS; THICK FILM RESISTORS; THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS
Identifiers: HYBRID CIRCUITS; THICK FILM HYBRIDS; TCR; HYBRID DESIGN; HYBRID CONVERTORS; ACTIVE FILTER; THIN FILM RESISTOR NETWORKS; THICK FILM RESISTOR NETWORKS; TEMPERATURE COEFFICIENT OF RESISTANCE
02
Section Class Codes: B2220J, B2220E, B2120

1068733 B77024625
SCREENING PROCEDURE FOR ADHESION DEGRADATION DUE TO SOLDER LEACHING IN THICK-FILM HYBRID MICROCIRCUITS
LEVEN, S.S.
WESTINGHOUSE ELECTRIC CORP., BALTIMORE, MD, USA
SOLID STATE TECHNOL. (USA) VOL.20, NO.3 39-44 MARCH 1977 Coden: SSTEAP
THE RESULTS OF AN EXPERIMENT TO DETERMINE PRACTICAL SCREENING AND QUALITY ASSURANCE PROCEDURES TO PRECLUDE EXCESSIVE ADHESION DEGRADATION, DUE TO SOLDER LEACHING, IN GOLD ALLOY/SOLDER SYSTEMS IN THICK-FILM HYBRID MICROCIRCUITS ARE DESCRIBED. THESE RESULTS INCLUDE A COMPARATIVE RATING AMONG THE MATERIALS TESTED, ALONG WITH CRITERIA FOR RATING DIFFERENT MATERIALS. FOUR ENVIRONMENTAL STRESSES WERE COMPARED TO DETERMINE WHICH ONE TO USE AS A QUALITY ASSURANCE TEST FOR ADHESION DECAY. THE RESULTS ARE PRESENTED TO SHOW THE RELATIVE DEGRADATIONS OF THE DIFFERENT MATERIALS. BASED ON THE RESULTS OF THE EXPERIMENT, THE TEMPERATURE CYCLING STRESS APPEARS TO BE THE MOST PRACTICAL STRESS TO USE AS A SCREENING PROCEDURE FOR SOLDER LEACHING. GUIDELINES ARE PRESENTED FOR PERFORMING THE SCREENING TEST AND DETERMINING A RATING FOR ANY MATERIAL COMBINATION (7 Refs)
Descriptors: QUALITY CONTROL; THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS
Identifiers: ADHESION DEGRADATION; SOLDER LEACHING; PRACTICAL SCREENING; QUALITY ASSURANCE; GOLD ALLOY/SOLDER SYSTEMS; TEMPERATURE CYCLING STRESS; SCREENING PROCEDURE; THICK FILM HYBRID MICROCIRCUITS; INTEGRATED CIRCUIT SCREENING
02
Section Class Codes: B2220J, B0170L, B2220G

1068731 B77024623
HYBRID THICK-LAYER TECHNIQUE IN MICRO ELECTRONICS
POLYTECH. TIJDSCHR. ELEKTROTECH. ELEKTRON. (NETHERLANDS) VOL.32, NO.4 201-4 APRIL 1977 Coden: PTEEBR
COMPARES HYBRID THICK-LAYER TECHNIQUES WITH THIN-LAYER ONES AND MONOLITHIC INTEGRATED CIRCUITS. PRODUCTION METHOD AND PROPERTIES OF THICK-LAYER CIRCUITS ARE DISCUSSED. THEY ARE USED IN MEDICAL EQUIPMENT, SPACE TECHNOLOGY, MILITARY APPARATUS, TELECOMMUNICATIONS, AND CONSUMER GOODS. RELATIVE COSTS OF HOUSING (CAPSULATING) METHODS ARE TABULATED
Descriptors: INTEGRATED CIRCUIT TECHNOLOGY; THICK FILM CIRCUITS; THIN FILM CIRCUITS; INTEGRATED CIRCUIT MANUFACTURE; HYBRID INTEGRATED CIRCUITS
Identifiers: MICRO ELECTRONICS; MONOLITHIC INTEGRATED CIRCUITS; HYBRID THICK LAYER TECHNIQUES; HYBRID THIN LAYER TECHNIQUES; CAPSULATION
02
Section Class Codes: B2220J, B2220G, B2220E
Language: DUTCH

1068595 B77024465
A FAST-RESPONSE DUAL CONTROLLED COMPARATOR EMPLOYING HYBRID-THIN-FILM CONSTRUCTION
BAKHTIAROV, G.D.; MANRO, V.M.; VAVILOV, V.A.; VENTSEL, G.I.
RADIOTEKHNIKA, MOSKVA (USSR) VOL.31, NO.5 80-4 MAY 1976 Coden: RATEAO
Trans of: TELECOMMUN. AND RADIO ENG. PART 2 (USA) VOL.31, NO.5 107-9 MAY 1976 Coden: TRERBS
MODERN TRENDS IN THE DEVELOPMENT OF FAST-RESPONSE COMPARATORS AND THEIR PARAMETERS ARE DISCUSSED. A DIFFERENTIAL TYPE OF COMPARATOR EMPLOYING A HYBRID-THIN-FILM CONSTRUCTION IS DESCRIBED. THE APPLICATION POSSIBILITIES OF COMPARATORS ARE EXAMINED (7 Refs)
Descriptors: COMPARATORS (CIRCUITS); HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS
Identifiers: DUAL CONTROLLED COMPARATOR; HYBRID THIN FILM CIRCUITS; FAST RESPONSE; DIFFERENTIAL TYPE COMPARATOR
02
Section Class Codes: B1290, B2220J, B2220E

1052209 B77020582
MASKS FOR PRINTING THICK-FILM CIRCUITS
DUBEY, G.C.
SOLIDSTATE PHYS. LAB., DELHI, INDIA
MICROELECTRON. AND RELIAB. (GB) VOL.16, NO.1 69-73 1976 Coden: MCRLAS
THICK-FILM CIRCUITS ARE PRINTED ON ALUMINA SUBSTRATES BY OFF-CONTACT OR CONTACT PRINTING PROCESS THROUGH A CORRECTLY GENERATED PATTERN ON SCREENS. THE PRESENT PAPER DESCRIBES THESE AND COMPARES THE VARIOUS TYPES USED FOR PRINTING THICK-FILM CIRCUITS. THOUGH METAL MASKS ARE SUITABLE FOR FINE LINE PRINTING, FOR MOST APPLICATIONS SENSITIZED BICHROMATED EMULSIONS OR DIAZO EMULSIONS CAN BE USED TO GENERATE A MASK (14 Refs)
Descriptors: THICK FILM CIRCUITS; MASKS; INTEGRATED CIRCUIT TECHNOLOGY
Identifiers: ALUMINA SUBSTRATES; CONTACT PRINTING; BICHROMATED EMULSIONS; DIAZO EMULSIONS; MASK; OFF CONTACT PRINTING; THICK FILM CIRCUITS
02
Section Class Codes: B2220G

1051272 B77013120, C77011215
COMPUTER-AIDED THERMAL ANALYSIS OF A HYBRID MULTISTAGE ACTIVE BANDPASS FILTER/AMPLIFIER
COOK, K.D., JR.; KERNS, D.V., JR.; NAGLE, H.T., JR.; SLAGH, T.D.; RUWE, V.W.
DEPT. OF ELECTRICAL ENGNG., AUBURN UNIV., AUBURN, AL, USA
IEEE TRANS. PARTS, HYBRIDS AND PACKAG. (USA) VOL.PHP-12, NO.4 344-50 DEC. 1976 Coden: IEPHAA
DESCRIBES THE THERMAL ANALYSIS OF A HYBRID MICROCIRCUIT TO BE USED AS A SIGNAL AMPLIFIER AND CONDITIONER FOR AN INFRARED TRACKING SYSTEM. IT IS THE PURPOSE OF THIS PAPER TO DESCRIBE THE USE OF COMPUTER-AIDED ANALYSIS TO DETERMINE THE THERMAL PERFORMANCE OF THE CIRCUIT AND TO PRESENT A COMPUTER-AIDED APPROACH TO THE THERMAL DESIGN OF HYBRID MICROELECTRONIC CIRCUITS. THERMAL ANALYSIS AND MEASUREMENTS ARE MADE, REVEALING THE TEMPERATURE DISTRIBUTION AND POWER-DISSIPATING CAPABILITY. THESE RESULTS ALSO PROVIDE DESIGN GUIDELINES FOR THE LAYOUT OF HEAT-DISSIPATING DEVICES SUCH AS AMPLIFIER CHIPS. PACKAGE CONVECTION AND RADIATION AS WELL AS INTERNAL HEAT CONDUCTION ARE MODELED USING NODE POINT ANALYSIS. TEMPERATURE MEASUREMENTS PROVIDE VERIFICATION OF THE THERMAL MODELS (5 Refs)
Descriptors: THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; ACTIVE FILTERS; BAND-PASS FILTERS; COMPUTER-AIDED ANALYSIS; THERMAL ANALYSIS
Identifiers: HYBRID MULTISTAGE ACTIVE BANDPASS FILTER/AMPLIFIER; SIGNAL AMPLIFIER; THERMAL DESIGN; TEMPERATURE DISTRIBUTION; COMPUTER AIDED THERMAL ANALYSIS; SIGNAL CONDITIONER; POWER DISSIPATING CAPABILITY; LAYOUT DESIGN GUIDELINES
02
Section Class Codes: B1270E, B2220J, B2220G, B1130B, C7410D

1051271 B77013119, C77011214
THE HYBRID INTEGRATION OF A MULTISTAGE ACTIVE BANDPASS FILTER/AMPLIFIER
COOK, K.D., JR.; KERNS, D.V., JR.; NAGLE, H.T., JR.; SLAGH, T.D.; RUWE, V.W.
DEPT. OF ELECTRICAL ENGNG., AUBURN UNIV., AUBURN, AL, USA
IEEE TRANS. PARTS, HYBRIDS AND PACKAG. (USA) VOL.PHP-12, NO.4 336-44 DEC. 1976 Coden: IEPHAA
DESCRIBES THE FABRICATION, CHARACTERIZATION, AND ANALYSIS OF A THICK-FILM HYBRID MICROCIRCUIT TO BE USED AS A SIGNAL AMPLIFIER AND CONDITIONER FOR AN INFRARED TRACKING SYSTEM. THE ENTIRE CIRCUIT IS INTEGRATED ON A 1 X 2 IN ALUMINA SUBSTRATE USING THICK-FILM RESISTORS AND CONDUCTORS. SOME CHIP RESISTORS IN CRITICAL LOCATIONS, CHIP CAPACITORS, AND MONOLITHIC OPERATIONAL-AMPLIFIER CHIPS. THE AUTHORS SHOW A BLOCK DIAGRAM OF THE ENTIRE CIRCUIT. THE TRANSFER FUNCTIONS OF EACH OF THE STAGES IS DERIVED. THE PREDICTED GAIN PEAK AND THE SHAPE OF THE MEASURED BANDPASS AGREE WELL WITH EXPERIMENTAL RESULTS. THE COMPUTER SIMULATION USING AN OP-AMP 'MACROMODEL' GIVES RESULTS VERY CLOSELY RESEMBLING THE MEASURED BANDPASS. THE DOMINANT SOURCES OF NOISE IN THE AMPLIFIER/FILTER AND LOW-NOISE DESIGN CONSIDERATIONS ARE DISCUSSED (7 Refs)
Descriptors: THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; ACTIVE FILTERS; BAND-PASS FILTERS; CIRCUIT ANALYSIS COMPUTING
Identifiers: MULTISTAGE ACTIVE BANDPASS FILTER/AMPLIFIER; FABRICATION; ANALYSIS; SIGNAL AMPLIFIER; 1 X 2 IN ALUMINA SUBSTRATE; CHIP RESISTORS; CHIP CAPACITORS; BLOCK DIAGRAM; TRANSFER FUNCTIONS; PREDICTED GAIN PEAK; MEASURED BANDPASS; EXPERIMENTAL RESULTS; COMPUTER SIMULATION; NOISE SOURCES; OPERATIONAL AMPLIFIER MACROMODEL; THICK FILM RESISTORS; CHARACTERISATION; THICK FILM CIRCUITS; SIGNAL CONDITIONER; MONOLITHIC OPERATIONAL AMPLIFIER CHIPS
02
Section Class Codes: B1270E, B2220J, B2220G, B1130B, C7410D

1049332 A77040624, B77016657
CHARACTERIZATION OF METAL-OXIDE SYSTEMS BY HIGH RESOLUTION ELECTRON SPECTROSCOPY
SCHEIBNER, E.J.; HICKLIN, W.H.
GEORGIA INST. OF TECHNOL., ATLANTA, GA, USA
US ARMY
PROCEEDINGS OF THE 30TH ANNUAL SYMPOSIUM ON FREQUENCY CONTROL 240-8 1976
2-4 JUNE 1976 ATLANTIC CITY, N.J., USA
ELECTRONIC INDUSTRIES ASSOC. WASHINGTON, D.C., USA
THE RESEARCH DESCRIBED IS DIRECTED TOWARDS A KNOWLEDGE OF THE CHEMICAL REACTIONS THAT TAKE PLACE BETWEEN A REACTIVE METAL ELECTRODE AND THE QUARTZ CRYSTAL. SYSTEMS INCLUDED IN THE DISCUSSION ARE THE METAL-OXIDE SYSTEM, AL-AL/SUB 2/0/SUB 3/, AND THE SYSTEM INVOLVING ALUMINIUM AND A GROWN SILICON DIOXIDE FILM ON SILICON. HIGH ENERGY RESOLUTION AUGER ELECTRON AND X-RAY PHOTOELECTRON SPECTRA OBTAINED USING A DOUBLE-PASS CYLINDRICAL MIRROR ANALYZER WITH RETARDING GRIDS ARE PRESENTED. THE INTENSITIES AND SHAPES OF AUGER AND PHOTOELECTRON PEAKS FOR THE METAL AND ITS OXIDE ARE EXAMINED ANALYTICALLY. CHEMICAL SHIFT INFORMATION FOR THE DIFFERENT METAL-OXIDE SYSTEMS PROVIDES A MEANS FOR THE IDENTIFICATION OF INTERMEDIATE SOLID PHASES AT METAL-OXIDE INTERFACES. POTENTIAL APPLICATIONS TO THE STUDY OF INTERFACES IN QUARTZ RESONATORS, CHARGE COUPLED DEVICES, SURFACE ACOUSTIC WAVE DEVICES AND HYBRID MICROCIRCUITS ARE MENTIONED (20 Refs)
Descriptors: CRYSTAL RESONATORS; ELECTRON SPECTROSCOPY; AUGER EFFECT; CHEMICAL SHIFT; METAL-INSULATOR BOUNDARIES; INTEGRATED CIRCUIT TESTING
Identifiers: HIGH RESOLUTION ELECTRON SPECTROSCOPY; CHEMICAL REACTIONS; REACTIVE METAL ELECTRODE; QUARTZ CRYSTAL; X-RAY PHOTOELECTRON SPECTRA; CHARGE COUPLED DEVICES; SURFACE ACOUSTIC WAVE DEVICES; HYBRID MICROCIRCUITS; METAL/OXIDE SYSTEM CHARACTERISATION; AUGER ELECTRON SPECTRA; CHEMICAL SHIFT
06
Section Class Codes: A8280P, B0590, B2860

1040082 A77039171, B77016834
A HYBRID INTEGRATED MONOLITHIC CRYSTAL FILTER
OKUNO, K.; WATANABE, T.
NIPPON ELECTRIC CO. LTD., KAWASAKI CITY, KANAGAWA, JAPAN
US ARMY
PROCEEDINGS OF THE 30TH ANNUAL SYMPOSIUM ON FREQUENCY CONTROL 109-18 1976
2-4 JUNE 1976 ATLANTIC CITY, N.J., USA
ELECTRONIC INDUSTRIES ASSOC. WASHINGTON, D.C., USA
THIS CONSISTS OF THIN FILM LUMPED ELEMENT CIRCUIT AND ENERGY TRAPPED RESONATOR IN INTEGRATED STRUCTURE ON A SUBSTRATE. A GENERAL DISCUSSION OF THE DESIGN AND FABRICATION IS PRESENTED (6 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; CRYSTAL FILTERS; INTEGRATED CIRCUIT TECHNOLOGY; THIN FILM CIRCUITS
Identifiers: HYBRID INTEGRATED MONOLITHIC CRYSTAL FILTER; THIN FILM LUMPED ELEMENT CIRCUIT; ENERGY TRAPPED RESONATOR; SUBSTRATE; DESIGN; FABRICATION
06
Section Class Codes: A4360, B1270D, B2220J, B2860

1043052 B77017047
INVESTIGATION INTO FAILURES OF AL WIRES BONDED TO AU METALLIZATION IN MICROSUBSTRATES
KOSSOWSKY, R.; ROBINSON, A.I.
WESTINGHOUSE RES. LABS., PITTSBURGH, PA. USA
IEEE
14TH ANNUAL PROCEEDINGS RELIABILITY PHYSICS 75-81 1976
20-22 APRIL 1976 LAS VEGAS, NEV., USA
IEEE NEW YORK, USA
THE MORPHOLOGY AND MICROSTRUCTURAL CHARACTERISTICS WERE INVESTIGATED BY SEM, ELECTRON PROBE AND AUGER SPECTROSCOPY. IT IS SHOWN THAT THE ULTRASONIC BONDING CREATES AN INTERACTION ZONE ABOUT 5 MUM DEEP. LOW BOND STRENGTH AND FAILURE AFTER H/SUB 2/ SOLDERING CYCLE ARE ATTRIBUTED TO IMPURITIES IN THE AU INKS. THESE IMPURITIES FORM BRITTLE INTERMETALLICS WITH AL AND BRITTLE, READILY REDUCIBLE, LOW MELTING GLASSES (16 Refs)
Descriptors: THICK FILM CIRCUITS; METALLISATION; LEAD BONDING; ULTRASONIC APPLICATIONS; BRITTLENESS; GOLD ALLOYS; ALUMINIUM ALLOYS
Identifiers: AL WIRES; AU METALLIZATION; MICROSUBSTRATES; MORPHOLOGY; MICROSTRUCTURAL CHARACTERISTICS; SEM; ELECTRON PROBE; AUGER SPECTROSCOPY; ULTRASONIC BONDING; FAILURE; H/SUB 2/ SOLDERING CYCLE; AU INKS; IMPURITIES; BRITTLE INTERMETALLICS
06
Section Class Codes: B2220J, B2550F, B7820, B0530, B2220G, B2240

1043650 B77017045
GOLD ALUMINUM INTERCONNECT STABILITY ON THIN FILM HYBRID MICROCIRCUIT SUBSTRATES
BUSHMIRE, D.W.
SANDIA LABS., ALBUQUERQUE, NM, USA
IEEE
14TH ANNUAL PROCEEDINGS RELIABILITY PHYSICS 55-62 1976
20-22 APRIL 1976 LAS VEGAS, NEV., USA
IEEE NEW YORK, USA
THE EFFECTS OF GOLD-ALUMINUM INTERMETALLIC GROWTH WERE STUDIED. THREE DIFFERENT METALLIZATION SYSTEMS WERE EVALUATED USING THREE TYPES OF BONDING WIRE. TANTALUM-NITRIDE-CHROMIUM--GOLD WAS BONDED USING 0.031 MM AL-1PERCENT SI WIRE AND 0.031 MM AL-1PERCENT MG WIRE. THESE TWO WIRE TYPES WERE ALSO BONDED TO SUBSTRATES METALLIZED WITH TANTALUM-NITRIDE TITANIUM-PALLADIUM-GOLD. ALSO, GOLD WIRE (0.025 MM) WAS BONDED TO AL METALLIZATION. THESE METALLIZATION-BOND SYSTEMS WERE EVALUATED BY SUBJECTING THE TEST SPECIMENS TO VARIOUS KNOWN TEMPERATURES AND TIME ENVIRONMENTS FOLLOWED BY LOOP PULL TESTS TO DESTRUCTION, BOND SHEAR TESTS TO DESTRUCTION, AND FOUR-POINT PROBE ELECTRICAL RESISTANCE MEASUREMENTS (20 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS; METALLISATION; GOLD ALLOYS; ALUMINIUM ALLOYS; INTEGRATED CIRCUIT TESTING
Identifiers: INTERCONNECT STABILITY; THIN FILM HYBRID MICROCIRCUIT; METALLIZATION SYSTEMS; LOOP PULL TESTS; BOND SHEAR TESTS; AU-AL INTERMETALLIC GROWTH
06
Section Class Codes: B2220J, B2220E

1043646 B77017041
THICK FILM HYBRID CIRCUITS-WHAT MUST BE DONE TO MEET THE DEMAND
WHITEHEAD, J.
NEWMARKET TRANSISTORS LTD., NEWMARKET, ENGLAND
ELECTRON. EQUIP. NEWS (GB) 4-5 FEB.-MARCH 1977 Coden: EEQNAN
DISCUSSES MANUFACTURING REQUIREMENTS FOR THE EXPECTED INCREASE IN DEMAND. THE AUTHOR CONSIDERS AUTOMATIC EQUIPMENT FOR CHIP BONDING AND WIRE BONDING AND THE SUPPLY OF ACTIVE DEVICES AND ICS IN CHIP OR SLICE FORM
Descriptors: THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; INTEGRATED CIRCUIT MANUFACTURE; MICROASSEMBLING; INTEGRATED CIRCUIT TECHNOLOGY
Identifiers: MANUFACTURING REQUIREMENTS; AUTOMATIC EQUIPMENT; CHIP BONDING; WIRE BONDING; CHIP/SLICE FORM ACTIVE DEVICES; THICK FILM CIRCUITS; CHIP/SLICE ICS; HYBRID INTEGRATED CIRCUITS; EXPECTED INCREASED DEMAND; IC MANUFACTURE
02
Section Class Codes: B2220J, B2220G, B2240, B0170E, B2550

1043641 B77017036
DESIGNING OF THIN-FILM RESISTORS AND AUTOMATIC VALUE ADJUSTMENT BY THE HELP OF A COMPUTER
HOLLENDUS, J.
FINOMMECH. AND MIKROTECH. (HUNGARY) VOL.15, NO.10 308-11 OCT. 1976 Coden: FNMKAY
VARIOUS MICRO-ENGRAVING METHODS ARE SUITED TO FORM NICR THIN-FILM RESISTORS IN INTEGRATED HYBRID CIRCUITS ON INSULATING SUBSTRATE. NUMEROUS ADVANTAGES OF ELECTRON BEAM AND LASER EQUIPMENTS ARE, HOWEVER, OFTEN COUNTERBALANCED BY HIGH INITIAL COSTS, THEREFORE THESE EQUIPMENTS ARE NOT USED WIDELY IN HUNGARY. MICRO-ENGRAVING BY ELECTRO-EROSION CAN BE WELL AUTOMATIZED BY A RELATIVELY SIMPLE DRAWING MACHINE AND A SMALL COMPUTER. THE QUALITY OF TRIMMING PERFORMED BY THIS TECHNIQUE EQUALS, IN THE CASE OF ACCOMPLISHED PRODUCTION TECHNOLOGY, THAT OF RESISTORS PRODUCED BY THE LASER TECHNIQUE (5 Refs)
Descriptors: THIN FILM RESISTORS; CIRCUIT LAYOUT CAD; HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS
Identifiers: NICR; THIN FILM RESISTORS HYBRID INTEGRATED CIRCUITS; COMPUTER AIDED DESIGN; ELECTROEROSION MICROENGRAVING METHODS; AUTOMATED TRIMMING
02
Section Class Codes: B2220E, B2120, B2220J
Language: HUNGARIAN

1043567 B77016950
THICK-FILM 3-STAGE MIC IMPATT-DIODE-AMPLIFIER ON FERRITE
GENNER, R.; RICHMOND, W.; BRADDOCK, P.W.
RSRE, GREAT MALVERN, ENGLAND
ELECTRON. LETT. (GB) VOL.13, NO.7 193-5 31 MARCH 1977 Coden: ELLEAK
A 3-STAGE HYBRID MIC GALLIUM-ARSENIDE IMPATT-DIODE AMPLIFIER IS DESCRIBED WITH AN OUTPUT OF 1.05 W AT 9.2 GHZ, A LARGE-SIGNAL GAIN OF 21 DB AND A BANDWIDTH TO -3 DB GREATER THAN 1 GHZ; THE AMPLIFIER IS STABLE AT ALL INPUT LEVELS. THE CONCEPT OF AN EFFECTIVE RADIUS, FIRST PROPOSED TO EXPLAIN THE PROPERTIES OF DISC CAPACITORS, HAS BEEN USED SUCCESSFULLY IN THE CIRCULATOR DESIGN. CLOSE ATTENTION HAS BEEN PAID TO SCREENING THE UNENCAPSULATED DIODES TO PREVENT RF RADIATION AND TO INCORPORATING RESISTIVE-LOADING CIRCUITS TO SUPPRESS SPURIOUS OUT-OF-BAND OSCILLATIONS (5 Refs)
Descriptors: IMPATT DIODES; MICROWAVE INTEGRATED CIRCUITS; MICROWAVE AMPLIFIERS; HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS
Identifiers: FERRITE; EFFECTIVE RADIUS; CIRCULATOR DESIGN; THICK FILM 3-STAGE MIC IMPATT DIODE AMPLIFIER; GAAS DIODE
02
Section Class Codes: B1350F, B2220J, B2220G, B2560H, B1220

1034038 B77013295
THE EFFECTS OF GOLD AND NICKEL PLATING THICKNESSES ON THE STRENGTH AND RELIABILITY OF THERMOCOMPRESSION-BONDED EXTERNAL LEADS
PANOUSIS, N.T.; HALL, P.M.
BELL LABS. INC., ALLENTOWN, PA, USA
IEEE TRANS. PARTS, HYBRIDS AND PACKAG. (USA) VOL.PHP-12, NO.4 282-7 DEC. 1976 Coden: IEPHAA
EXTERNAL LEADS INTENDED FOR THERMOCOMPRESSION (TC) BONDING TO AU-METALLIZED THIN-FILM CIRCUITS ARE TYPICALLY CU-BASED ALLOYS PLATED WITH AU OR A COMBINATION OF NI AND AU. THE OBJECTIVE OF THIS WORK WAS AN EVALUATION OF THE NI/AU SYSTEM TO DETERMINE THE OPTIMUM PLATING THICKNESSES FOR RELIABLE TC BONDING. ALSO INVESTIGATED WAS THE MINIMUM AU THICKNESS NECESSARY FOR TC BONDING WHEN THE NI DIFFUSION BARRIER WAS OMITTED. FOUR CRITERIA WERE EVALUATED' INITIAL BONDABILITY; BOND STRENGTH AFTER ACCELERATED AGING; SUSCEPTIBILITY TO CRACKING IN A 90 DEGREES BEND TEST; AND FATIGUE BEHAVIOR. THE TEST VEHICLE WAS A 32-LEAD DUAL-IN-LINE PACKAGE UTILIZING ALUMINA SUBSTRATES METALLIZED WITH TI/PD/AU FILMS AND CU LEAD FRAMES (CDA 102 AND 110) ELECTROPLATED WITH NI AND AU IN THE RANGES OF 0-41 MUM AND 0.4-20 MUM, RESPECTIVELY (0-1630 AND 15-780 MUIN, RESPECTIVELY) (7 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS; RELIABILITY; LEAD BONDING; ALUMINIUM
Identifiers: RELIABILITY; OPTIMUM PLATING THICKNESSES; INITIAL BONDABILITY; BOND STRENGTH; BEND TEST; THERMOCOMPRESSION BONDED EXTERNAL LEADS; AU PLATING THICKNESS; FATIGUE BEHAVIOUR; NI PLATING THICKNESS; 32 LEAD DIL PACKAGE; AU METALLISED THIN FILM CIRCUITS BONDING
02
Section Class Codes: B2240, B2220J, B0170N, B2220E

1034036 B77013293
THICK-FILM HYBRID MICROCIRCUITS
HETHERINGTON, D.R.
NEWMARKET TRANSISTORS LTD., NEWMARKET, ENGLAND
MUNDO ELECTRON. (SPAIN) NO.58 63-6 DEC. 1976 Coden: MUELCN
REVIEWS THE DESIGN AND MANUFACTURE OF THICK-FILM HYBRID MICROCIRCUITS AND APPLICATIONS IN MEDICINE, INDUSTRIAL AND CONSUMER PRODUCTS, MILITARY AND SPACE APPARATUS, MOTOR VEHICLES AND TELECOMMUNICATIONS
Descriptors: HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS; INTEGRATED CIRCUIT MANUFACTURE
Identifiers: DESIGN; MANUFACTURE; APPLICATIONS; THICK FILM CIRCUITS; HYBRID ICS
02
Section Class Codes: B2220J, B2220G
Language: SPANISH

1034035 B77013292
MANUFACTURING PROCESS FOR HYBRID MICROCIRCUITS CONTAINING (METALLISED) VIAS
NORWOOD, D.; LAUDEL, A.; BLESSNER, P.
BENDIX CORP., KANSAS CITY, MO, USA
IEEE TRANS. PARTS, HYBRIDS AND PACKAG. (USA) VOL.PHP-12, NO.4 323-35 DEC. 1976 Coden: IEPHAA
HYBRID MICROCIRCUITS DESIGNED FOR USE IN RADARS REQUIRE METALLIZED VIAS TO INTERCONNECT FRONT-SIDE TANTALUM-NITRIDE CHROMIUM-GOLD THIN-FILM NETWORKS WITH METALLIZED BACK-SIDE GROUND PLANES ON 95 X 114-MM ALUMINA SUBSTRATES. THE AUTHORS DISCUSS PROCESSES DEVELOPED FOR FABRICATING PRECISION HOLES IN ALUMINA SUBSTRATES, METALLIZING SUBSTRATES ON BOTH SIDES AND THROUGH THE VIA, AND DRY-FILM PHOTOLITHOGRAPHING 6-MUM-THICK GOLD TO LINEWIDTHS AND SPACINGS OF 127 MUM. FRONT- AND BACK-SIDE RESISTANCE MEASUREMENTS THROUGH THE VIA WERE USED TO DETERMINE THE SURFACE FINISH AND METALLIZATION THICKNESS ON THE VIA WALL. HOLE FABRICATION METHODS INVESTIGATED INCLUDED ULTRASONIC DRILLING IN ALREADY-FIRED ALUMINA AND PUNCHING OR DRILLING HOLES IN GREEN ALUMINA BEFORE THE FIRING. PHOTOLITHOGRAPHY TECHNIQUES WERE DEVELOPED WHICH PROTECT BOTH SIDES OF THE SUBSTRATE AND THE VIAS FROM ETCHANTS AND DELINEATE A THIN-FILM NETWORK CONSISTENT WITH CRITICAL HYBRID-MICROELECTRONIC-CIRCUIT (HMC) LINEWIDTH TOLERANCES FOR RF CIRCUITS (4 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS; INTEGRATED CIRCUIT TECHNOLOGY
Identifiers: 95 X 114-MM ALUMINA SUBSTRATES; FABRICATING PRECISION HOLES; ULTRASONIC DRILLING; HYBRID IC CONTAINING METALLISED VIAS; THROUGH HOLE METALLISING; RF ICS; DRY FILM PHOTOLITHOGRAPHY; MANUFACTURING PROCESS; 127 MICRON LINEWIDTHS ; METALLISED VIA RESISTANCE MEASUREMENTS; DOUBLE SIDED ALUMINA SUBSTRATES; HOLE FABRICATION METHODS; HOLE PUNCHING; FIRED ALUMINA; GREEN ALUMINA; THIN FILM CIRCUITS
02
Section Class Codes: B2220J, B2220E

1034034 B77013291
(THIN-FILM MICROSTRIP) WIGGLY PHASE SHIFTERS AND DIRECTIONAL COUPLERS FOR RADIO-FREQUENCY HYBRID-MICROCIRCUIT APPLICATIONS
TAYLOR, J.L.; PRIGEL, D.D.
BENDIX CORP., KANSAS CITY, MO, USA
IEEE TRANS. PARTS, HYBRIDS AND PACKAG. (USA) VOL.PHP-12, NO.4 317-23 DEC. 1976 Coden: IEPHAA
A PACKAGING TECHNIQUE WHICH MAKES USE OF A THIN-FILM MICROSTRIP WIGGLY (SAWTOOTH) CONDUCTOR-EDGE GEOMETRY BETWEEN ADJACENT CONDUCTORS HAS BEEN DEVELOPED FOR THE FABRICATION OF NONDISPERSIVE MICROWAVE HYBRID MICROCIRCUIT-DIRECTIONAL COUPLERS AND PHASE SHIFTERS. THE NEW TECHNIQUE PROVIDES APPROXIMATELY A 20-PERCENT SPACE SAVING AS WELL AS A SIGNIFICANT IMPROVEMENT IN CIRCUIT FABRICATION (6 Refs)
Descriptors: MICROWAVE INTEGRATED CIRCUITS; THIN FILM CIRCUITS; STRIP LINE COMPONENTS; PHASE SHIFTERS; DIRECTIONAL COUPLERS
Identifiers: ADJACENT CONDUCTORS; MICROWAVE ICS; MICROSTRIP; WIGGLY PHASE SHIFTER; WIGGLY DIRECTIONAL COUPLER; IC DIRECTIONAL COUPLERS; WIGGLY CONDUCTOR EDGE GEOMETRY; 20 PER CENT SPACE SAVING; DISPERSION REDUCTION TECHNIQUES; NONDISPERSIVE PHASE SHIFTERS; NONDISPERSIVE DIRECTIONAL COUPLERS
02
Section Class Codes: B2220J, B2220E, B1320, B1290, B1350F

1034033 B77013290
THIN-FILM MICROWAVE INTEGRATED CIRCUITS
ANAMATI, V.S.; BITLER, J.S.; PFAHNL, A.; SHIFLETT, C.C.
BELL TELEPHONE LABS. INC., NORTH ANDOVER, MA, USA
IEEE TRANS. PARTS, HYBRIDS AND PACKAG. (USA) VOL.PHP-12, NO.4 309-16 DEC. 1976 Coden: IEPHAA
DISCUSSES THE USE OF THIN-FILM TECHNOLOGY FOR THE REALIZATION OF VERY COMPLEX CIRCUITRY WITH PRECISION, RELIABILITY, AND ECONOMY. TWO NEW SUBSTRATE TYPES (FINE-GRAIN ALUMINA AND FUSED SILICA) AND LOW-LOSS CONDUCTOR SYSTEMS THAT ARE BOTH SOLDERABLE AND THERMOCOMPRESSION (TC) BONDABLE ARE INTRODUCED. FURTHER COMPLICATIONS OVERCOME INCLUDED BILEVEL PATTERNS WITH LASER-DRILLED PLATED VIA-HOLES, THE CONTROL AND MEASUREMENT OF THE ALUMINA SUBSTRATES' DIELECTRIC CONSTANT, AND THE USE OF LASER TRIMMING TO ADJUST SMALL GEOMETRIES OF TANTALUM NITRIDE (TA/SUB 2/N) TERMINATION RESISTORS. LINEWIDTH TOLERANCES OF CONDUCTORS SUCH AS +OR- 2.5 MUM ON FUSED SILICA AND +OR- 5.0 MUM ON ALUMINA ARE ROUTINELY ACHIEVED. MICROWAVE INTEGRATED CIRCUITS (AN 18-GHZ DOWNCONVERTER, A 1.7-GHZ AMPLIFIER, A FILTER, AND A DEMODULATOR) PREPARED BY THIS TECHNIQUE ARE ILLUSTRATED AND THEIR PERFORMANCES ARE DISCUSSED (12 Refs)
Descriptors: MICROWAVE INTEGRATED CIRCUITS; THIN FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; INTEGRATED CIRCUIT TECHNOLOGY; PHOTOLITHOGRAPHY
Identifiers: MICROWAVE INTEGRATED CIRCUITS; VERY COMPLEX CIRCUITRY; BILEVEL PATTERNS; LASER TRIMMING; THIN FILM TECHNOLOGY; FINE GRAIN ALUMINA SUBSTRATES; FUSED SILICA SUBSTRATES; LOW LOSS CONDUCTOR SYSTEMS; THERMOCOMPRESSION BONDABLE CONDUCTORS; SOLDERABLE CONDUCTORS; LASER DRILLED PLATED VIA HOLES
02
Section Class Codes: B2220J, B2220E, B1350F

1034032 B77013289
A TECHNOLOGY OF THIN-FILM HYBRID MICROWAVE CIRCUITS
CURRAN, J.E.; JEANES, R.V.; SEWELL, H.
TECHNOL. DEPT., MULLARD RES. LABS., REDHILL, ENGLAND
IEEE TRANS. PARTS, HYBRIDS AND PACKAG. (USA) VOL.PHP-12, NO.4 304-9 DEC. 1976 Coden: IEPHAA
DESCRIBES THE VARIOUS THIN-FILM PROCESSES THAT ARE BEING USED TO PRODUCE MICROWAVE INTEGRATED CIRCUITS, BOTH MICROSTRIP AND LUMPED ELEMENT SYSTEMS. THE TECHNOLOGIES DESCRIBED INVOLVE A COMBINATION OF VACUUM EVAPORATION OR RF SPUTTERING, PHOTOLITHOGRAPHIC, ELECTROCHEMICAL, AND MICROBONDING PROCESSES USED IN SEQUENCE TO ACHIEVE INTEGRATED RESISTOR, CAPACITOR, AND CONDUCTOR NETWORKS. STABLE THIN-FILM INTEGRATED NICKEL-CHROMIUM RESISTORS ARE ACHIEVED WITH GOOD MICROWAVE BEHAVIOR. THE USUAL CONDUCTOR AND INTERDIGITAL CAPACITOR SYSTEMS ARE GOLD WITH EITHER NICKEL-CHROMIUM OR TITANIUM UNDERLAY. THE MICROWAVE CIRCUITS ARE PRODUCED ON A VARIETY OF SUBSTRATES WHICH INCLUDE ALUMINA, FERRITE, QUARTZ, AND SAPPHIRE (4 Refs)
Descriptors: MICROWAVE INTEGRATED CIRCUITS; HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS; INTEGRATED CIRCUIT TECHNOLOGY; THIN FILM RESISTORS; THIN FILM CAPACITORS; PHOTOLITHOGRAPHY; STRIP LINES
Identifiers: MICROWAVE INTEGRATED CIRCUITS; LUMPED ELEMENT SYSTEMS; VACUUM EVAPORATION; RF SPUTTERING; MICROBONDING PROCESSES; INTERDIGITAL CAPACITOR SYSTEMS; SUBSTRATES; THIN FILM CIRCUITS; THIN FILM PROCESSES; HYBRID ICS; MICROSTRIP SYSTEMS; PHOTOLITHOGRAPHY; ELECTROCHEMICAL PROCESSES; RESISTOR CAPACITOR CONDUCTOR NETWORKS; NI-CR RESISTORS; CHARACTERISTICS
02
Section Class Codes: B2220J, B2220E, B1350F

1034031 B77013288
FAILURE MODES OF BEAM-LEAD SEMICONDUCTORS IN THIN-FILM HYBRID MICROCIRCUITS
SAFFORD, J.H.
BENDIX CORP., KANSAS CITY, MO, USA
IEEE TRANS. PARTS, HYBRIDS AND PACKAG. (USA) VOL.PHP-12, NO.4 298-304 DEC. 1976 Coden: IEPHAA
BEAM-LEAD SEMICONDUCTOR AND PASSIVE DEVICES HAVE BEEN UTILIZED IN HYBRID MICROCIRCUITS (HMC) TO PROVIDE HIGHER RELIABILITY. THIS IS DERIVED FROM THE BEAM-LEAD DEVICE'S IMPROVED BONDING INTEGRITY PLUS THE SILICON NITRIDE COATING WHICH REDUCES SENSITIVITY TO CONTAMINANTS; HOWEVER, THEIR SIZE REQUIRES SPECIAL HANDLING TECHNIQUES TO PREVENT HANDLING DAMAGE. OTHER FAILURE MODES EXIST SUCH AS CRACKED NITRIDE, PINHOLES IN THE NITRIDE, INADEQUATE PLATING, AND SMEARED METALLIZATION. AFTER TWO YEARS OF PRODUCTION USAGE TOTALING APPROXIMATELY 150000 DEVICES, THE BENDIX CORPORATION'S KANSAS CITY DIVISION HAS COMPILED SIGNIFICANT DATA ON BEAM-LEAD DEVICES INCLUDING SMALL-SIGNAL AND POWER DISCRETE SEMICONDUCTORS AND DIGITAL INTEGRATED CIRCUITS. THESE FAILURE MODES ARE CHARACTERIZED AND PRECAUTIONARY MEASURES ARE DESCRIBED TO MINIMIZE FAILURES IN HMC USAGE (12 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; BEAM-LEAD DEVICES; FAILURE ANALYSIS
Identifiers: PASSIVE DEVICES; HYBRID MICROCIRCUITS; HANDLING DAMAGE; POWER DISCRETE SEMICONDUCTORS; DIGITAL INTEGRATED CIRCUITS; FAILURE MODES; PRECAUTIONARY MEASURES; SMALL SIGNAL DISCRETE TRANSISTORS; BEAM LEAD DEVICES; THIN FILM HYBRID ICS
02
Section Class Codes: B2220J, B0170N

1034026 B77013283
AGING CHARACTERISTICS OF ALUMINUM WIRE BONDS ON THICK FILM PLATINUM-SILVER METALIZATION
KHADPE, S.
MOTOROLA INC., FT. LAUDERDALE, FL, USA
INSUL./CIRCUITS (USA) VOL.23, NO.2 23-4 FEB. 1977 Coden: ISCUBF
THICK FILM CONDUCTOR MATERIALS ARE SELECTED FOR HYBRID APPLICATIONS ON THE BASIS OF COST AND PERFORMANCE. THE RISING COST OF GOLD IN RECENT YEARS, HOWEVER, HAS LED TO THE DEVELOPMENT OF PLATINUM-SILVER FORMULATIONS WHICH SHOW GREAT PROMISE AS VIABLE LOW-COST ALTERNATIVES TO GOLD, PALLADIUM-SILVER, AND PLATINUM-GOLD CONDUCTOR MATERIALS. THIS ARTICLE DESCRIBES THE AGING CHARACTERISTICS OF ALUMINUM WIRE BONDS ON PLATINUM-SILVER METALIZATION (6 Refs)
Descriptors: LEAD BONDING; THICK FILM CIRCUITS; METALLISATION; AGEING; ALUMINIUM
Identifiers: HYBRID APPLICATIONS; COST; PERFORMANCE; AGEING CHARACTERISTICS; THICK FILM CONDUCTORS; AL WIRE BONDS; THICK FILM PT-AG METALLISATION
02
Section Class Codes: B2220G, B2240

1033890 B77013118
TANTALUM THIN-FILM RC CIRCUIT TECHNOLOGY FOR A UNIVERSAL ACTIVE FILTER
WOROBEY, W.; RUTKIEWICZ, J.
BELL LABS. INC., ALLENTOWN, PA, USA
IEEE TRANS. PARTS, HYBRIDS AND PACKAG. (USA) VOL.PHP-12, NO.4 276-82 DEC. 1976 Coden: IEPHAA
DESCRIBES THE PHYSICAL LAYOUT, PROCESS SEQUENCE, AND COMPONENT PROPERTIES OF A UNIVERSAL ACTIVE FILTER DESIGNATED THE STANDARD TANTALUM ACTIVE RESONATOR (STAR). THIS ACTIVE-FILTER BUILDING BLOCK WAS REALIZED AS A HYBRID INTEGRATED CIRCUIT (HIC). SEVERAL DIFFERENT CIRCUIT CONFIGURATIONS ARE POSSIBLE USING ONLY ONE SET OF PROCESS PHOTOMASKS AND ONE HIC. THIS CAN BE ACCOMPLISHED BY A WIDE RANGE OF PRECISE RESISTOR VALUES THROUGH THE USE OF LASER TRIMMING AND VARIOUS INTERCONNECTING SCHEMES FOR THE COMPONENTS ON THE HIC VIA THE PRINTED WIRING BOARD. THE STAR CIRCUIT IS COMPRISED OF NINE LASER-ADJUSTABLE TANTALUM, THIN-FILM RESISTORS, TWO 5100-PF TANTALUM CAPACITORS, AND ONE OPERATIONAL AMPLIFIER. THE SINGLE-SUBSTRATE RC PROCESS IS AMENABLE TO BATCH PROCESSING AND PRECISION TUNING AND CAN BE FABRICATED ON A 16-PIN DUAL-INLINE PACKAGE (15 Refs)
Descriptors: ACTIVE FILTERS; THIN FILM CAPACITORS; THIN FILM CIRCUITS; THIN FILM RESISTORS; HYBRID INTEGRATED CIRCUITS; TANTALUM; LASER BEAM APPLICATIONS
Identifiers: UNIVERSAL ACTIVE FILTER; PHYSICAL LAYOUT; PROCESS SEQUENCE; STAR; HYBRID INTEGRATED CIRCUIT; LASER TRIMMING; INTERCONNECTING SCHEMES; BATCH PROCESSING; PRECISION TUNING; STANDARD T ACTIVE RESONATOR; TA THIN FILM RC CIRCUIT TECHNOLOGY; 5100 PF TA CAPACITORS; 16 PIN DIL PACKAGE
02
Section Class Codes: B1270E, B2220E, B2220J, B2130, B4360, B2120

1033787 B77012981
DIFFERENTIAL INSTRUMENTATION AMPLIFIER
RIGBIN, J.
ANALOG DEVICES INC., NORWOOD, MA, USA
ANALOG DIALOGUE (USA) VOL.10, NO.2 9 1976 Coden: ANDIDX
THE AD522 DIFFERENTIAL INSTRUMENTATION AMPLIFIER, DESIGNED FOR APPLICATIONS REQUIRING HIGH PRECISION UNDER LESS-THAN-IDEAL OPERATING CONDITIONS, MULTIPLIES THE DIFFERENCE BETWEEN TWO INPUT VOLTAGES BY A FIXED GAIN, FROM 1 TO 1000, DETERMINED BY A SINGLE EXTERNAL RESISTANCE. BUILT ON A PRECISION THIN-FILM SUBSTRATE IN A HERMETIC DIL PACKAGE, IT COMBINES MODULE-LIKE PERFORMANCE WITH IC-LIKE SMALL SIZE, LOW COST AND PINOUT SIMILAR TO THAT OF THE MONOLITHIC AD521
Descriptors: DIFFERENTIAL AMPLIFIERS; HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS
Identifiers: DIFFERENTIAL INSTRUMENTATION AMPLIFIER; FIXED GAIN; HERMETIC DIL PACKAGE; PERFORMANCE; SIZE; COST; PINOUT; THIN FILM HYBRID IC
02
Section Class Codes: B1220, B2220J, B2220E

1010517 A77011154, B77006428
THE RHEOLOGICAL CONTROL OF PASTES TO DETERMINE THEIR SUITABILITY FOR SERIGRAPHICAL APPLICATIONS
BAUDRY, H.
ELECTRON. AND MICROELECTRON. IND. (FRANCE) NO.226 38-41 15 OCT. 1976 Coden: EMCIAS
REVIEWS AVAILABLE DATA FOR THICK FILM ICS INCLUDING PAINTS. IT IS ESSENTIAL THAT THE VISCOSITY OF A PASTE SHOULD BE SUCH AS TO ENSURE ITS CLEAR TRANSIT THROUGH A SELECTED SCREEN AND, AFTER ITS DEPOSITION ON THE SUBSTRATE, BE ABLE TO FORM A CONTINUOUS AND UNIFORM FILM. THE BASIS OF RHEOLOGY IS TO STUDY THE FLOW OR DEFORMATIONS WHICH THE PASTES, UNDER THE STRESSES TO WHICH THEY ARE SUBJECTED DURING A SERIGRAPHIC PROCESS, UNDERGO. THE SERIGRAPHIC PROCESS IS DESCRIBED AND SPECIFIC TERMS USED ARE DEFINED AND INDICATED ON A TYPICAL VISCOSITY CURVE. THE METHODS USED IN MEASURING VISCOSITY ARE DESCRIBED AND BLOCK SCHEMATIC IS SHOWN OF A COMPONENTS ASSEMBLY OF A ROTARY VISCOMETER. A SERIES OF CURVES ARE ALSO SHOWN ILLUSTRATING THE FLOW BEHAVIOUR OF A NUMBER OF SUBSTANCES UNDER SPECIFIED CONDITIONS (4 Refs)
Descriptors: THICK FILM CIRCUITS; RHEOLOGY
Identifiers: RHEOLOGICAL CONTROL; ROTARY VISCOMETER; FLOW BEHAVIOUR; THICK FILM CIRCUITS; THICK FILM PASTE CHARACTERISTICS; SCREEN PRINTING
02
Section Class Codes: A4660, B2220G
Language: FRENCH

1008506 B77007522
THICK-FILM CIRCUITS FOR SETTING THE FOCUS VOLTAGE IN COLOUR TELEVISION RECEIVERS
THIEL, E.
FUNKSCHAU (GERMANY) VOL.48, NO.24 1049-50 19 NOV. 1976 Coden: FUSHA2
USES EXAMPLES TO ILLUSTRATE THAT PRACTICALLY ALL THE REQUIREMENTS FOR REGULATING FOCUSING CAN BE MET USING THICK-FILM TECHNIQUES (BUT AS YET NO STANDARDISATION HAS TAKEN PLACE). SOME OF THE EXAMPLES DESCRIBED ARE' 8 KV FIXED RESISTORS, 2 KV TRIMMER, ROD REGULATOR, AND SI HV CASCADE BLEEDER
Descriptors: THICK FILM CIRCUITS; COLOUR TELEVISION RECEIVERS; POWER SUPPLIES TO APPARATUS
Identifiers: SETTING THE FOCUS VOLTAGE; COLOUR TELEVISION RECEIVERS; 8 KV FIXED RESISTORS; 2 KV TRIMMER; ROD REGULATOR; SI HV CASCADE BLEEDER; THICK FILM CIRCUITS
02
Section Class Codes: B6420D, B2220G, B1210
Language: GERMAN

1007785 B77006432
RELIABILITY OF THIN FILM CONDUCTORS AND AIR GAP CROSSOVERS FOR HYBRID CIRCUITS' TESTS, RESULTS AND DESIGN CRITERIA
PIACENTINI, G.F.; MINELLI, G.
TELETTRA, VIMERCATE, ITALY
MICROELECTRON. AND RELIAB. (GB) VOL.15, NO.5 451-8 1976 Coden: MCRLAS
PRESENTS THE RESULTS OF A LONG-TERM STUDY ON THE RELIABILITY OF THIN FILM CONDUCTORS AND CROSS-OVERS METALLISATION FOR HYBRID CIRCUITS. THREE FAILURE MECHANISMS ARE EXAMINED' ELECTROMIGRATION, HUMIDITY CORROSION AND MECHANICAL FATIGUE, WHICH AFFECT THE COMPLEX HYBRID CIRCUITS AS A CONSEQUENCE OF THE CURRENT LOAD, OF THE HUMIDITY AND THE ELECTRICAL LOAD AND OF THE MECHANICAL STRESSES INDUCED BY THE ENCAPSULANT. FOR THE HUMIDITY CORROSION A NEW GENERAL QUANTITATIVE FORMULATION IS PROPOSED WHICH RELATE TEMPERATURE, POLARISATION AND RH WITH MEDIAN TIME TO FAIL. THE AGREEMENT BETWEEN THE PROPOSED FORMULATION AND THE RESULTS IS VERIFIED BOTH ON UNENCAPSULATED AND ON ENCAPSULATED COMPONENTS AND GIVE AN ACTIVATION ENERGY FOR NICR-AU OR TIPDAU MATERIALS OF PHI=0.53 EV. FINALLY, SOME CAUTELATIVE DESIGN RULES ARE PROPOSED IN ORDER TO HAVE AN ACCEPTABLE RELIABILITY LEVEL FROM THE DESIGN (10 Refs)
Descriptors: THIN FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; RELIABILITY; FAILURE ANALYSIS; METALLISATION; INTEGRATED CIRCUIT TECHNOLOGY; DESIGN ENGINEERING
Identifiers: THIN FILM CONDUCTORS; AIR GAP CROSSOVERS; HYBRID CIRCUITS; DESIGN CRITERIA; RELIABILITY; FAILURE MECHANISMS; ELECTROMIGRATION; HUMIDITY CORROSION; MECHANICAL FATIGUE; ENCAPSULATED COMPONENTS; CAUTELATIVE DESIGN RULES; LONG TERM TESTS RESULTS; THIN FILM CIRCUITS; GENERALISED FAILURE TIME EQUATIONS; MEAN TIME TO FAIL; FAILURE MODES; UNENCAPSULATED COMPONENTS; NICR-AU METALLISATION SYSTEM; TIPDAU METALLISATION SYSTEM; EXPERIMENTAL RESULTS
02
Section Class Codes: B2220J, B2220E, B0170N, B0170C

1007713 B77006429
THICK-FILM CIRCUITS IN RADIOS AND TELEVISIONS
KUHATH, M.; LOOSE, H.
FUNKSCHAU (GERMANY) VOL.48, NO.24 1047-8 19 NOV. 1976 Coden: FUSHA2
BRIEFLY DESCRIBES BLAUPUNKT'S USE OF THICK-FILM CIRCUITS IN THEIR COLOUR TV RECEIVER (COLOR FM 100)-E.G. TO FORM THE RESISTOR NETWORK FOR THE ULTRASONIC REMOTE CONTROL-AND THE USE OF SUCH CIRCUITS IN CAR RADIOS (E.G. THE MAINZ CR)
Descriptors: THICK FILM CIRCUITS; RADIO RECEIVERS; TELEVISION RECEIVERS
Identifiers: BLAUPUNKT; RESISTOR NETWORK; ULTRASONIC REMOTE CONTROL; THICK FILM CIRCUITS; RADIO RECEIVERS; TV RECEIVERS
02
Section Class Codes: B2220G, B6420D

1007693 B77006330
INTEGRATED VOLTAGE DIVIDERS WITH CORRELATED RESISTOR TOPOLOGY
MARKOSYAN, E.G.; ALEKSANYAN, R.G.
RADIOTEKHNIKA, MOSKVA (USSR) VOL.31, NO.2 99-100 FEB. 1977 Coden: RATEAO
Trans of: TELECOMMUN. AND RADIO ENG. PT. 2 (USA) VOL.31, NO.2 125-6 FEB. 1977 Coden: TRERBS
FACTORS INFLUENCING THE CORRELATION COUPLINGS BETWEEN THE PARAMETERS OF INTEGRATED CIRCUIT COMPONENTS ARE DISCUSSED. ERRORS IN THE TRANSFER FACTOR OF AN INTEGRATED VOLTAGE DIVIDER ARE ANALYSED. VERSIONS REALISING PERFECT DIVIDERS ARE PRESENTED (1 Refs)
Descriptors: VOLTAGE DIVIDERS; THIN FILM CIRCUITS
Identifiers: CORRELATED RESISTOR TOPOLOGY; CORRELATION COUPLINGS; INTEGRATED CIRCUIT COMPONENTS; TRANSFER FACTOR; INTEGRATED VOLTAGE DIVIDER
02
Section Class Codes: B1290, B2220E

1000708 B77004605
THIN-FILM VIDEO SCANNER AND DRIVER CIRCUIT FOR SOLID-STATE FLAT PANEL DISPLAYS
GREENEICH, E.W.
WESTINGHOUSE RES. LABS., PITTSBURGH, PA, USA
SOC. INFORMATION DISPLAY, IEEE
1976 BIENNIAL DISPLAY CONFERENCE 16-19 1976
12-14 OCT. 1976 NEW YORK, USA
IEEE NEW YORK, USA
A THIN-FILM SCANNER CIRCUIT WHICH GREATLY REDUCES THE NUMBER OF EXTERNAL LEAD CONNECTIONS TO A LARGE AREA FLAT PANEL DISPLAY, WHILE AT THE SAME TIME PROVIDING BOTH THE SCANNING (ADDRESSING) FUNCTION AND THE VIDEO DRIVER FUNCTION, HAS BEEN SUCCESSFULLY FABRICATED. THE CIRCUIT, WHICH CAN HANDLE BOTH TV (ANALOGUE) AND ALPHA-NUMERIC (DIGITAL) TYPE VIDEO, ALSO PERFORMS LINE STORAGE SO THAT THE INCOMING SERIAL VIDEO CAN BE PRESENTED TO THE DISPLAY PANEL IN LINE-AT-A-TIME FASHION (3 Refs)
Descriptors: DISPLAY DEVICES; THIN FILM CIRCUITS
Identifiers: LARGE AREA FLAT PANEL DISPLAY; VIDEO DRIVER FUNCTION; LINE STORAGE; ADDRESSING FUNCTION; THIN FILM SCANNER CIRCUIT
06
Section Class Codes: B7260, B2220E

999833 B77003305
MICROWAVE INTEGRATED CIRCUIT TECHNIQUES
OXLEY, T.H.
CENTRAL RES. LAB., GEC LTD., WEMBLEY, ENGLAND
GEC J. SCI. AND TECHNOL. (GB) VOL.43, NO.1 21-31 1976
Coden: GJSTA6
DESCRIBES THE RANGE OF TECHNOLOGIES AND DETAILS THE PREFERRED DESIGN APPROACH UTILIZING THIN-FILM/OPEN-MICROSTRIP-/HYBRID TECHNIQUES. CONSIDERS MIC FACILITY WITH REGARD TO THE NEEDS OF ADVANCED RADAR AND TELECOMMUNICATION SYSTEMS (13 Refs)
Descriptors: MICROWAVE INTEGRATED CIRCUITS; INTEGRATED CIRCUIT TECHNOLOGY; STRIP LINES; THIN FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; RADAR EQUIPMENT; TELECOMMUNICATION EQUIPMENT
Identifiers: ADVANCED RADAR; TELECOMMUNICATION; MICROWAVE INTEGRATED CIRCUIT TECHNOLOGY; THIN FILM CIRCUITS; OPEN MICROSTRIP; HYBRID INTEGRATED CIRCUIT
02
Section Class Codes: B2220J, B2220E, B6320

999831 B77003303
THE COUPLING OF SEMICONDUCTOR ELEMENTS TO SUBSTRATES IN HYBRID THICK-FILM MICROCIRCUITS
CHRODAK, P.; FORTUNA, E.
ELEKTRONIKA (POLAND) VOL.17, NO.7-8 265-9 1976
Coden: EKNTBZ
DISCUSSES THE BONDING OF SEMICONDUCTOR ELEMENTS TO THE CONDUCTING PATHS IN THICK-FILM HYBRID MICROCIRCUITS. LOW-ENERGY METHODS ARE ADOPTED USING LOCAL JUNCTION HEATING AND GLUEING (6 Refs)
Descriptors: INTEGRATED CIRCUIT TECHNOLOGY; HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS
Identifiers: LOCAL JUNCTION HEATING; GLUEING; HYBRID THICK FILM INTEGRATED CIRCUITS; SEMICONDUCTOR DEVICE BONDING
02
Section Class Codes: B2220J, B2220G, B2240
Language: POLISH

999830 B77003301
PRECISION LASER TRIMMING OF THICK FILM CIRCUITS IN LARGE-SCALE QUANTITY PRODUCTION
ROSEN, H.G.
SIEMENS AG, MUNICH, GERMANY
WAIDELICH, W.;
SBN 0 902852 56 6
LASER 75 OPTO-ELECTRONICS CONFERENCE PROCEEDINGS 103-4 1976
24-27 JUNE 1975 MUNICH, GERMANY
IPC SCI. AND TECHNOL. PRESS GUILDFORD, SURREY, ENGLAND
TRIMMING OF THICK-FILM CIRCUITS WITH LASERS HAS PROVED TO BE ONE OF THE BEST METHODS IN PRESENT-DAY MASS PRODUCTION. TRIMMINGS WITH A LASER BEAM IS A THERMAL PROCEDURE. OWING TO THE GLASS STRUCTURE OF THE RESISTOR MATERIAL ON THE ONE HAND, AND THE HIGH-ENERGY DENSITY OF THE LASER PULSES ON THE OTHER HAND, THERE IS A TENDENCY FOR CRACKS TO DEVELOP AT THE WALLS OF THE CUTS AS A RESULT OF THE THERMAL SHOCK. THESE CRACKS ARE THE MAIN CAUSE OF SUBSEQUENT RESISTANCE DRIFT. WITH SUITABLY SELECTED LASER PARAMETERS THE RESISTANCE DRIFT CAN BE KEPT BELOW 0.3PERCENT . THICK-FILM RESISTORS WITH TOLERANCES OF +OR- 1PERCENT CAN BE REALIZED IN MASS PRODUCTION WITH GOOD YIELDS
Descriptors: THICK FILM CIRCUITS; INTEGRATED CIRCUIT MANUFACTURE; LASER BEAM MACHINING
Identifiers: THICK FILM CIRCUITS; MASS PRODUCTION; GLASS STRUCTURE; CRACKS; THERMAL SHOCK; RESISTANCE DRIFT; PRECISION LASER TRIMMING; TOLERANCE; HIGH ENERGY LASER PULSE
06
Section Class Codes: B2220G, B4360

999829 B77003300
TRENDS IN THICK FILM MATERIALS
MONES, A.H.; ROSENBERG, R.M.
ELECTRONIC MATERIALS DIV., E.I. DU PONT DE NEMOURS AND CO. INC., WILMINGTON, DE, USA
SOLID STATE TECHNOL. (USA) VOL.19, NO.10 47-9 OCT. 1976 Coden: SSTEAP
THE OUTSTANDING DEVELOPMENTS ARE REVIEWED SINCE THE 1950'S AND CURRENT TRENDS (1975) ARE PROJECTED. A TABLE WHICH SHOWS THE CHANGES IN PHYSICAL PROPERTIES AND PERFORMANCE CHARACTERISTICS THROUGH THREE TIME PERIODS IS GIVEN
Descriptors: THICK FILM CIRCUITS; INTEGRATED CIRCUIT TECHNOLOGY; REVIEWS
Identifiers: THICK FILM MATERIALS; TRENDS; PHYSICAL PROPERTIES; CHARACTERISTICS; DEVELOPMENT SINCE 1950'S; REVIEWS
02
Section Class Codes: B2220G

999828 B77003298
SYNTHESIS AND THIN FILM IMPLEMENTATION OF DISTRIBUTED RC ACTIVE FILTERS
RENZ, H.W.
INST. FUR NETZWERK- UND SYSTEMTHEORIE, UNIV. STUTTGART, STUTTGART, GERMANY
IEEE
PROCEEDINGS OF THE 1976 IEEE INTERNATIONAL SYMPOSIUM ON CIRCUITS AND SYSTEMS 224-7 1976
27-29 APRIL 1976 MUNICH, GERMANY
IEEE NEW YORK, USA
ELEMENTARY TRANSFER FUNCTIONS RATIONAL IN Z*E/SUP SQROOTPT/, WITH LOW PASS, HIGH PASS, AND BAND PASS CHARACTERISTICS ARE ESTABLISHED AND REALIZED BY NEW TUNABLE DISTRIBUTED RC CIRCUITS. THE CIRCUITS CONSIST OF 2 OR 3 UNIFORM RC LINES AND ONE OPERATIONAL AMPLIFIER, AND THEIR POLE-Q SENSITIVITY CAN BE MADE SMALLER THAN FOR COMPARABLE LUMPED CIRCUITS. A CASCADE SYNTHESIS PROCEDURE IS DEVELOPED WHERE THE RC PRODUCTS OF THE RC-LINES MAY BE COMMENSURATE. FINALLY A TUNED EXPERIMENTAL THIN FILM FILTER WITH 6TH ORDER CHEBYSHEV CHARACTERISTICS IS DESCRIBED (9 Refs)
Descriptors: THIN FILM CIRCUITS; DISTRIBUTED PARAMETER NETWORKS; ACTIVE FILTERS; TRANSFER FUNCTIONS
Identifiers: TRANSFER FUNCTIONS; LOW PASS; HIGH PASS; BAND PASS; TUNABLE; DISTRIBUTED; RC CIRCUITS; RC LINES; OPERATIONAL AMPLIFIER; SENSITIVITY; CASCADE SYNTHESIS; THIN FILM FILTER; CHEBYSHEV CHARACTERISTICS; RC ACTIVE CIRCUITS
06
Section Class Codes: B2220E, B1150F, B1270E

999827 B77003297
BIAS-HUMIDITY PERFORMANCE OF ENCAPSULATED AND UNENCAPSULATED TI-PD-AU THIN-FILM CONDUCTORS IN AN ENVIRONMENTAL CONTAMINATED WITH CL/SUB 2/
SHAR, N.L.
BELL LABS., ALLENTOWN, PA, USA
IEEE TRANS. PARTS, HYBRIDS AND PACKAG. (USA) VOL.PHP-12, NO.1 176-81 SEPT. 1976 Coden: IEPHAA
26TH ELECTRONIC COMPONENTS CONFERENCE 26-28 APRIL 1976 SAN FRANCISCO, CALIF., USA
BOTH ENCAPSULATED AND UNENCAPSULATED TI-PD-AU THIN-FILM CONDUCTORS ON AL/SUB 2/O/SUB 3/ SUBSTRATES WERE BIASED IN AN 85 DEGREESC 80PERCENT RH ENVIRONMENT CONTAMINATED WITH CL/SUB 2/. THE ENCAPSULANT WAS AN RTV SILICONE RUBBER. DURING EXPOSURE TO THE CORROSIVE ENVIRONMENT, LEAKAGE CURRENTS BETWEEN ADJACENT CONDUCTORS WERE PERIODICALLY MEASURED AND RECORDED. LEAKAGE CURRENTS FOR THE UNENCAPSULATED SPECIMENS INCREASED WITH TIME, AND MANY WERE SHORTED APPROXIMATELY 400 H. THERE WERE NO INCREASES IN LEAKAGE CURRENTS FOR THE SILICONE RUBBER ENCAPSULATED CONDUCTORS. AT THE END OF THE TEST, SELECTED SPECIMENS WERE EXAMINED USING A LIGHT MICROSCOPE AND AN SEM WITH X-RAY CAPABILITY. NO METAL MIGRATION WAS OBSERVED ON THE ENCAPSULATED SAMPLES. THE UNENCAPSULATED CONDUCTORS SHOWED DENDRITIC GROWTH BETWEEN THE ELECTRODES. IT IS CONCLUDED THAT THE RTV SILICONE ENCAPSULANT EFFECTIVELY PREVENTS HIGH LEAKAGE CURRENTS AND SUBSEQUENT METAL MIGRATION ON BIASED TI-PD-AU CONDUCTOR SPECIMENS EXPOSED TO A MOIST CL/SUB 2/ ENVIRONMENT (12 Refs)
Descriptors: THIN FILM CIRCUITS; ENCAPSULATION; RELIABILITY
Identifiers: ENVIRONMENTAL CONTAMINATED WITH CL/SUB 2/; AL/SUB 2/O/SUB 3/ SUBSTRATES; LEAKAGE CURRENTS BETWEEN ADJACENT CONDUCTORS; METAL MIGRATION; DENDRITIC GROWTH; BIAS HUMIDITY PERFORMANCE; TI-PD-AU THIN FILM CONDUCTORS; 80PERCENT RELATIVE HUMIDITY ENVIRONMENT; RTV SILICON RUBBER ENCAPSULANT; ENCAPSULATED THIN FILM CONDUCTORS; UNENCAPSULATED THIN FILM CONDUCTORS; EXPERIMENTAL RESULTS
06
Section Class Codes: B2220E, B0170J, B0170N

999823 B77003293
MANUFACTURE OF MICROCIRCUITS IN A SMALL INDUSTRALISED COUNTRY
LUTSCH, A.G.K.
ELECTRICAL ENGNG. DEPT., RAND AFRIKAANS UNIV., JOHANNESBURG, S.AFRICA
TRANS. S. AFR. INST. ELECTR. ENG. (S. AFRICA) VOL.67, NO.9 258-73 SEPT. 1976 Coden: TSAEA9
REVIEWS THE RESEARCH ACTIVITIES IN THE FIELD OF MICROCIRCUITS AT THE CSIR AND VARIOUS SOUTH AFRICAN UNIVERSITIES. IT INDENTIFIES THE AIM OF A MANUFACTURING FACILITY FOR A SMALL INDUSTRIALISED COUNTRY AND DISCUSSES WHAT HAS, WILL AND SHOULD BE DONE TO IMPLEMENT THE DESIGN AND MANUFACTURE OF MICROCIRCUITS IN SOUTH AFRICA
Descriptors: INTEGRATED CIRCUIT MANUFACTURE; THIN FILM CIRCUITS; THICK FILM CIRCUITS; MONOLITHIC INTEGRATED CIRCUITS
Identifiers: MANUFACTURING FACILITY; DESIGN; THIN FILM IC; THICK FILM IC; MONOLITHIC TECHNOLOGY; MOS; MASK MAKING PROCESS; ENCAPSULATION
02
Section Class Codes: B2220C, B2570

999557 B77002897
REALIZATION OF TRANSFER FUNCTIONS USING A SPECIAL DISTRIBUTED RC NETWORK STRUCTURE
GRUNDNER, H.R.
LEHRSTUHL FUR NETZWERKTHEORIE UND SCHALTUNGSTECHNIK, TECH. UNIV. MUNCHEN, MUNCHEN, GERMANY
IEEE
PROCEEDINGS OF THE 1976 IEEE INTERNATIONAL SYMPOSIUM ON CIRCUITS AND SYSTEMS 232-5 1976
27-29 APRIL 1976 MUNICH, GERMANY
IEEE NEW YORK, USA
A NEW SYNTHESIS PROCEDURE IS DEVELOPED FOR DISTRIBUTED RC REALIZATION OF TRANSFER FUNCTIONS WRITTEN IN THE TRANSFORMED FREQUENCY VARIABLE S+TANH SQRDOTTAUP. THESE PRESCRIBED TRANSFER FUNCTIONS MAY BE OF ARBITRARY DEGREE AND CAN BE REALIZED WITHIN A CONSTANT MULTIPLIER. BY MEANS OF RECURSIVE ALGORITHMS ESSENTIAL CIRCUIT PARAMETERS ARE DETERMINED. THE SYNTHESIS LEADS TO CIRCUITS CONSISTING OF A CASCADE OF BASIC STRUCTURES, QUITE SUITABLE FOR REALIZATION IN THIN FILM TECHNOLOGY. A SPECIAL MATHEMATICAL REPRESENTATION OF THE BASIC STRUCTURE IS A FUNDAMENTAL APPROACH FOR DEVELOPING THE OUTLINED PROCEDURE (6 Refs)
Descriptors: TRANSFER FUNCTIONS; DISTRIBUTED PARAMETER NETWORKS; ACTIVE FILTERS; THIN FILM CIRCUITS
Identifiers: SYNTHESIS PROCEDURE; DISTRIBUTED RC REALIZATION ; TRANSFER FUNCTIONS; TRANSFORMED FREQUENCY VARIABLE; RECURSIVE ALGORITHMS; THIN FILM TECHNOLOGY; CASCADE STRUCTURES
06
Section Class Codes: B1150F, B1270E, B2220E

996366 B77000497, C77002197
A DIGITAL PROGRAM TO CONTROL DRAWING MACHINES IN PREPARING MASTER PATTERNS FOR THICK-FILM INTEGRATED CIRCUITS
RIPKA, G.; ALBRECHT, M.
BME ELEKTRONIKAI TECHNOL. TANSZEK, BUDAPEST, HUNGARY
FINOMMECH. AND MIKROTECH. (HUNGARY) VOL.15, NO.7 193-8 JULY 1976 Coden: FMMKAY
A PROGRAM FOR TPA-COMPUTER IS DESCRIBED, FACILITATING MASTER PATTERNS OF THICK-FILM INTEGRATED CIRCUITS TO BE MADE BY MACHINE. ON THE BASIS OF THE DESIGNED TOPOLOGY THE DRAFTER COMPLETES A DATA FORM. WITH THE PREPARED DATA TAPE THE INTERPRETATIVE PROGRAM PREPARES A DOCUMENTATION LIST CONTAINING ALSO THE TECHNOLOGICAL PARAMETERS, AS WELL AS PUNCHED TAPES CONTROLLING THE DIGITAL DRAWING MACHINE. THE PROGRAM CONTAINS ALSO THE CALIBRATING ALGORITHM FOR THE RESISTANCES WITHIN THE THICK-FILM INTEGRATED CIRCUIT (1 Refs)
Descriptors: CIRCUIT LAYOUT CAD; THICK FILM CIRCUITS; COMPUTERISED INSTRUMENTATION; DIGITAL CONTROL
Identifiers: DIGITAL PROGRAM TO CONTROL DRAWING MACHINES; PREPARING MASTER PATTERNS; INTERPRETATIVE PROGRAM; DIGITAL DRAWING MACHINE; THICK FILM CIRCUITS; CALIBRATING PROGRAM FOR RESISTANCE
02
Section Class Codes: B2220G, C7410D, C3350Z
Language: HUNGARIAN

992063 B77001557
SYNCHRONISATION CIRCUIT AND A SWEEP GENERATOR IN MICROCIRCUIT CONFIGURATION FOR SMALL OSCILLOSCOPES
BODNAR, Z.M.; VINYAR, V.D.; GIZHA, I.M.; KURYLYAK, YA.S.; POLUSMINA, S.G.; YAREMENKO, V.I.
POLUPROVODN. TEKH. AND MIKROELEKTRON. (USSR) NO.24 59-66 1976 Coden: PTMUAC
EXAMINES THE DESIGN OF A SYNCHRONISATION CIRCUIT AND A SWEEP GENERATOR, EMPLOYING HYBRID THICK-FILM MICROCIRCUITS, IN A SMALL-SIZE OSCILLOSCOPE WITH A BANDWIDTH OF 10 MHZ. FACTORS ASSOCIATED WITH THE REALISATION OF THE SAW-TOOTH VOLTAGE GENERATOR, USING AN FET FEEDBACK LOOP IN MICROCIRCUIT FORM ARE DISCUSSED. THE ELECTRICAL CIRCUITS, THE CONSTRUCTION AND THE TECHNOLOGY OF MANUFACTURE OF THE MICROCIRCUITS ARE DESCRIBED (15 Refs)
Descriptors: CATHODE-RAY OSCILLOSCOPES; THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; TIME BASES
Identifiers: SMALL OSCILLOSCOPES; SYNCHRONISATION CIRCUIT; SWEEP GENERATOR; BANDWIDTH OF 10 MHZ; CONSTRUCTION; TECHNOLOGY OF MANUFACTURE; THICK FILM HYBRID ICS; TIME BASES; FET FEEDBACK LOOP; CIRCUIT DIAGRAMS
02
Section Class Codes: B7250G, B1230G, B2220J, B2220G
Language: RUSSIAN

991793 B77001197
A WIDEBAND SWITCHING NETWORK WITH INTEGRATED SEMICONDUCTOR CROSSPOINTS
KLIEM, H.
FORSCHUNGSINST. ULM, AEG-TELEFUNKEN, ULM, GERMANY
NACHRICHTENTECH. Z. (NTZ) (GERMANY) VOL.29, NO.10 756-61 OCT. 1976 Coden: NAZEAA
FOR SWITCHING OF ANALOGUE WIDEBAND SIGNALS SWITCHING NETWORKS WITH LARGE BANDWIDTH AND HIGH CROSSTALK ATTENUATION ARE NEEDED. HITHERTO WIDEBAND SWITCHING NETWORKS WERE REALIZED ALMOST ENTIRELY FROM ELECTROMECHANICAL CROSSPOINTS. THIS REPORT DESCRIBES THE CONSTRUCTION AND THE PROPERTIES OF A WIDEBAND SWITCHING NETWORK, WHICH CONSISTS OF SEMICONDUCTOR CROSSPOINTS REALIZED IN THICKFILM TECHNOLOGY AND WHICH WAS TESTED IN A SMALL EXPERIMENTAL PICTUREPHONE SYSTEM. BY COMPARING THE PROPERTIES OF THE NETWORK WITH THE CCIR-RECOMMENDATIONS FOR THE TELEVISION HYPOTHETICAL REFERENCE CIRCUIT IT IS SHOWN THAT THE WIDEBAND SWITCHING NETWORK IS SUITABLE FOR USE IN SMALL PICTUREPHONE SYSTEMS (6 Refs)
Descriptors: THICK FILM CIRCUITS; ELECTRONIC SWITCHING SYSTEMS; SWITCHING NETWORKS
Identifiers: WIDEBAND SWITCHING NETWORK; INTEGRATED SEMICONDUCTOR CROSSPOINTS; LARGE BANDWIDTH; HIGH CROSSTALK ATTENUATION; EXPERIMENTAL PICTUREPHONE SYSTEM; TELEVISION HYPOTHETICAL REFERENCE CIRCUIT
02
Section Class Codes: B6230B, B1290, B2220G

991288 B77000508
TECHNOLOGICAL ASPECTS OF MANUFACTURE OF HYBRID INTEGRATED CIRCUITS AT MICROWAVES
VOLKOVA, I.A.; GRISHCHUK, S.A.; DMITRENKO, E.I.; SENISHIN, YA.M.
POLUPROVODN. TEKH. AND MIKROELEKTRON. (USSR) NO.24 67-71 1976 Coden: PTMUAC
GENERAL TECHNICAL REQUIREMENTS FOR MICROWAVE HYBRID INTEGRATED CIRCUIT (IC) COMPONENTS ARE ESTABLISHED. THE EXISTING METHODS OF OBTAINING THE REQUIRED CONFIGURATIONS OF THE HYBRID IC COMPONENTS ARE ANALYSED. THE OPTIMUM TECHNOLOGICAL PROCESSES FOR THE MANUFACTURE OF THESE COMPONENTS ARE DESCRIBED, INVOLVING DRILLING OF SUBSTRATES, VACUUM DEPOSITION OF NICR-CU FILM ONTO THE WORKING AND SCREENED SURFACES, FOLLOWED BY PHOTOLITHOGRAPHIC OPERATIONS, CHEMICAL ETCHING AND ELECTROLYTIC DEPOSITION OF METAL ONTO CONDUCTORS (6 Refs)
Descriptors: MICROWAVE INTEGRATED CIRCUITS; HYBRID INTEGRATED CIRCUITS; VACUUM DEPOSITION; THIN FILM CIRCUITS; INTEGRATED CIRCUIT TECHNOLOGY; PHOTOLITHOGRAPHY; NICKEL COMPOUNDS
Identifiers: ASPECTS OF MANUFACTURE; MICROWAVE HYBRID INTEGRATED CIRCUIT; TECHNOLOGICAL PROCESSES; DRILLING OF SUBSTRATES; VACUUM DEPOSITION OF NICR-CU FILM; PHOTOLITHOGRAPHIC OPERATIONS; CHEMICAL ETCHING; ELECTROLYTIC DEPOSITION
02
Section Class Codes: B2220J, B1350, B0520F, B2220E
Language: RUSSIAN

991284 B77000504
DEVELOPMENT AND APPLICATIONS OF THIN FILM TANTALUM HYBRID CIRCUITS
KRUGER, G.
FUNKSCHAU (GERMANY) VOL.48, NO.20 853-6 24 SEPT. 1976 Coden: FUSHA2
REQUIREMENTS FOR INTEGRATED CIRCUITS FOR SHORT PRODUCTION RUNS ARE STATED. THE TANTALUM LAYERS ARE PRODUCED ON 75 MM*75 MM SUBSTRATES BY CATHODIC SPLUTTERING. RESISTOR PATTERNS ARE PRODUCED BY ETCHING, AND A MINIATURE FORM OF REFLOW SOLDERING IS EMPLOYED. THE SUBSTRATE CONSISTS OF GLASS AND PHOTO-MASKING AND SCREEN PRINTING ARE EMPLOYED. THE SHEET RESISTIVITY OF THE TANTALUM LAYERS (TANTALUM OXY-NITRIDE) IS STATED TO BE 50 TO 70 OHMS, TRACK WIDTHS ARE DOWN TO 50 MICRONS AND LENGTH-WIDTH RATIOS OF 1000 ARE STATED TO BE POSSIBLE, GIVING RESISTANCE RANGES FROM 100 OHMS TO 100 KILOHMS, WITH ABSOLUTE RESISTANCE ERRORS OF 10 PER CENT AND RATIO ERRORS OF 1 PER CENT. PRODUCTION PROCESSES FOR PASSIVE TANTALUM NETWORKS ARE DESCRIBED. TANTALUM HYBRID CIRCUITS FOR A PORTABLE TRANSCEIVER IN THE RANGE 80 TO 450 MHZ ARE DESCRIBED. INDUSTRIAL AND MARINE APPLICATIONS OF TANTALUM HYBRID CIRCUITS ARE MENTIONED, AND COST CONSIDERATIONS ARE ADVANCED (10 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS
Identifiers: CATHODIC SPLUTTERING; MINIATURE FORM OF REFLOW SOLDERING; PHOTO-MASKING; SCREEN PRINTING; PORTABLE TRANSCEIVER; 80 TO 450 MHZ; COST CONSIDERATIONS; THIN FILM TA HYBRID ICS; SHORT PRODUCTION RUNS; GLASS SUBSTRATES; PRODUCTION PROCESSES; 50 TO 70 OHM SHEET RESISTIVITY; 50 MICRON TRACK WIDTH; 100 OHM TO 100 KOHM RESISTANCE RANGE; PASSIVE TA NETWORKS
02
Section Class Codes: B2220J, B2220E
Language: GERMAN

991282 B77000502
THIN FILM HYBRIDS' A BRIEF LOOK AT THE POOR MAN'S LSI
CARPANINI, E.
ELECTRON (GB) NO.103 58, 60 7 OCT. 1976 Coden: ELTNCL
MENTIONS THE MAIN REASONS FOR THE USE OF THIN-FILM HYBRID ICS AND THEIR SPECIAL CHARACTERISTICS, INCLUDING SUITABILITY FOR MICROWAVE ICS. THE PERFORMANCE CAPABILITY OF LASER TRIMMED NICKEL-CHROME THIN-FILM RESISTORS IS GIVEN. THE ADVANTAGES AND DISADVANTAGES OF THIN-FILM HYBRID, THICK-FILM HYBRID, AND MONOLITHIC IC ARE COMPARED
Descriptors: THIN FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; THIN FILM RESISTORS
Identifiers: CHARACTERISTICS; THIN FILM HYBRID ICS; THIN FILM RESISTORS PERFORMANCE
02
Section Class Codes: B2220J, B2220E, B2120

991281 B77000501
INTEGRATED THIN AND THICK FILM CIRCUITS
FRIEDEL, W.; POTTHARST, J.
STANDARD ELEKTRIK LORENZ AG, STUTTGART, GERMANY
NTG-FACHBER. (GERMANY) VOL.54 85-96 1975 Coden: NTGFDK
TECHNOLOGIEN FUR DIE NACHRICHTENTECHNIK. (COMMUNICATION ENGINEERING TECHNOLOGY) 1975 GERMANY
A BRIEF SURVEY OF THE PRESENT STATE OF THE ART OF THIN AND THICK FILM MODULE TECHNIQUES AND HYBRID ASSEMBLIES IS PRESENTED, WITH 14 ILLUSTRATIONS. MATERIALS FOR SUBSTRATES AND DEPOSITS, MANUFACTURING TECHNOLOGIES (PHOTOCHEMICAL, VACUUM SPUTTERING), TYPICAL PHYSICAL AND ELECTRICAL PARAMETERS, TOLERANCES, STABILITY AND RELIABILITY ARE DISCUSSED, FOLLOWED BY NOTES ON APPLICATIONS (7 Refs)
Descriptors: THIN FILM CIRCUITS; THICK FILM CIRCUITS; INTEGRATED CIRCUITS; HYBRID INTEGRATED CIRCUITS; CIRCUIT RELIABILITY
Identifiers: THICK FILM CIRCUITS; THICK FILM MODULE TECHNIQUES; HYBRID ASSEMBLIES; SUBSTRATES; DEPOSITS; MANUFACTURING TECHNOLOGIES; TOLERANCES; STABILITY; RELIABILITY; THIN FILM CIRCUITS
06
Section Class Codes: B2220G, B2220E, B2220J
Language: GERMAN

991280 B77000500
GLASS-PASSIVATED THICK-FILM CAPACITORS FOR RC CIRCUITS
BRATSCHUN, W.R.
ZENITH RADIO CORP., ELK GROVE VILLAGE, IL, USA
IEEE TRANS. PARTS, HYBRIDS AND PACKAG. (USA) VOL.PHP-12, NO.13 194-201 SEPT. 1976 Coden: IEPHAA
26TH ELECTRONIC COMPONENTS CONFERENCE 26-28 APRIL 1976 SAN FRANCISCO, CALIF., USA
THE ADVANTAGES, DISADVANTAGES, AND THE REASONS FOR THE LIMITED USAGE OF THICK-FILM CAPACITORS ARE DISCUSSED. THE ELECTRICAL AND ENVIRONMENTAL PROPERTIES OF A GLASS-PASSIVATED HIGH DIELECTRIC CONSTANT (HIK) (*1000) CAPACITOR WHICH DOES NOT REQUIRE HERMETIC PACKAGING ARE DESCRIBED. DESIGN CRITERIA FOR ACHIEVING A LOW-COST THICK-FILM CAPACITOR-RESISTOR-CONDUCTOR NETWORK ARE PRESENTED. THESE INCLUDE' SATISFYING MULTIPLE CIRCUIT REQUIREMENTS; USING MANY CAPACITORS, RESISTORS, AND CONDUCTORS PER CIRCUIT OR PER PROCESSING OPERATION; USING LOW-COST MATERIALS, SEALING TECHNIQUES, AND PROCESSES; AND ACHIEVING HIGH YIELDS. AN EXAMPLE IS CITED OF A TELEVISION VARACTOR TUNER CIRCUIT ON A 2•3•0.040-IN SUBSTRATE UTILIZING 47 RESISTORS, 30 CAPACITORS, EIGHT CROSSOVERS, AND ONE GROUND PLANE IN WHICH THE SUBSTRATE ALSO SERVES AS A PRINTED CIRCUIT BOARD FOR MOUNTED DISCRETE COMPONENTS (22 Refs)
Descriptors: THICK FILM DEVICES; CAPACITORS; THICK FILM CIRCUITS; PASSIVATION
Identifiers: RC CIRCUITS; TELEVISION VARACTOR TUNER CIRCUIT; GLASS PASSIVATED THICK FILM CAPACITORS; HIGH DIELECTRIC CONSTANT CAPACITORS; DESIGN CRITERIA FOR RC NETWORK
06
Section Class Codes: B2220G, B2130

991278 B77000498
THICK FILM RESISTOR SERIES FEATURES LOW CONTACT NOISE, HIGH VOLTAGE STABILITY, AND LOW PROCESS SENSITIVITY
CARCIA, P.F.; ROSENBERG, R.M.
ELECTRONIC MATERIALS DIV., E.I. DU PONT DE NEMOURS AND CO. INC., NIAGARA FALLS, NY, USA
INSUL./CIRCUITS (USA) VOL.22, NO.10 25-7 SEPT. 1976 Coden: ISCUBF
SOURCES OF PROCESS SENSITIVITY, HIGH VOLTAGE STABILITY, AND LOW CONTACT NOISE IN HIGH RESISTIVITY THICK FILM RESISTORS ARE CONSIDERED. DESIGN CRITERIA ARE SUGGESTED FOR OPTIMIZATION OF THESE PROPERTIES. ON THE BASIS OF THESE CRITERIA, THE HIGH RESISTIVITY, HIGH VOLTAGE RESISTOR SERIES IS DEVELOPED WITH CHARACTERISTICS SUITABLE FOR TELEVISION FOCUS CONTROL CIRCUITRY (6 Refs)
Descriptors: THICK FILM RESISTORS; THICK FILM CIRCUITS
Identifiers: LOW CONTACT NOISE; HIGH VOLTAGE STABILITY; LOW PROCESS SENSITIVITY; HIGH RESISTIVITY THICK FILM RESISTORS; HIGH VOLTAGE RESISTOR SERIES; SUITABLE FOR TELEVISION FOCUS CONTROL CIRCUITRY; SOURCES OF PROCESS SENSITIVITY; DESIGN CRITERIA
02
Section Class Codes: B2220G, B2120

991277 B77000495
AN INEXPENSIVE THICK FILM FURNACE
BEGAKIS, N.
SCHOOL OF ELECTRONIC ENGNG., SOUTH AUSTRALIAN INST. OF TECHNOL., AUSTRALIA
ELECTROCOMPON. SCI. AND TECHNOL. (GB) VOL.3, NO.2 113-15 SEPT. 1976 Coden: ECSTC5
THE CENTRE OF ANY THICK FILM TEACHING OR RESEARCH ESTABLISHMENT IS THE FURNACE FOR FIRING THE THICK FILM PASTES. THESE ARE USUALLY LARGE AND EXPENSIVE BELT FURNACES. THIS ARTICLE DISCUSSES THE DESIGN AND MANUFACTURE OF AN INEXPENSIVE THREE ZONE BELT FURNACE OF MODERATE SIZE, WHICH ANY REASONABLY WELL EQUIPPED COLLEGE, UNIVERSITY OR SMALL MANUFACTURER COULD ASSEMBLE
Descriptors: INTEGRATED CIRCUIT TECHNOLOGY; THICK FILM CIRCUITS
Identifiers: THICK FILM FURNACE; FIRING; THICK FILM PASTES; THREE ZONE BELT FURNACE
02
Section Class Codes: B2220G

991275 B77000494
EXTENDING THE USE OF THICK FILM
BARNWELL, P.G.
ELECTRON (GB) NO.103 56, 58 7 OCT. 1976 Coden: ELTNCL
DISCUSSES RESISTOR NETWORKS WITH LOW TEMPERATURE COEFFICIENT, HIGH VALUE/HIGH VOLTAGE RESISTORS, MICROWAVE CIRCUITS, AND THICK FILM TRANSDUCERS (4 Refs)
Descriptors: THICK FILM CIRCUITS; THICK FILM RESISTORS; REVIEWS
Identifiers: RESISTOR NETWORKS; LOW TEMPERATURE COEFFICIENT; HIGH VALUE/HIGH VOLTAGE RESISTORS; MICROWAVE CIRCUITS; TRANSDUCERS; REVIEWS; THICK FILM RESISTORS
02
Section Class Codes: B2220G, B2120

991272 B77000491
FEASIBILITY OF PRODUCING THIN-FILM INDUCTIVE COILS AT MICROWAVES
GRISHCHUK, S.A.; DMITRIENKO, E.I.; NEDOSTUP, N.A.; FABRIKANT, B.A.
POLUPROVODN. TEKH. AND MIKROELEKTRON. (USSR) NO.24 71-9 1976 Coden: PTMUAC
FORMULAE AND NOMOGRAMS ARE DERIVED FOR THE DESIGN OF THIN-FILM INDUCTIVE COILS. THE RELATIONSHIP BETWEEN THE GEOMETRY AND THE ELECTRICAL PARAMETERS OF THIN-FILM INDUCTIVE COILS IS ESTABLISHED, AND THE RESULTS OF THE ANALYSIS ARE USED TO ARRIVE AT THE OPTIMUM CONFIGURATION OF THE COILS. THIN-FILM COILS WITH INDUCTANCES BETWEEN 0.1 AND 10 MUH, AND Q-VALUES FROM 50 TO 200 IN THE RANGE 20-250 MHZ, ARE OBTAINED BY VACUUM DEPOSITION OF NICR-CU ONTO SUBSTRATES, USING PHOTORESIST MASKS DURING THE GROWTH OF SILVER AND PHOTOLITHOGRAPHIC TECHNIQUES (12 Refs)
Descriptors: MICROWAVE INTEGRATED CIRCUITS; THIN FILM DEVICES; THIN FILM CIRCUITS; INDUCTORS; VACUUM DEPOSITION
Identifiers: NOMOGRAMS; GEOMETRY; ELECTRICAL PARAMETERS; OPTIMUM CONFIGURATION; VACUUM DEPOSITION OF NICR-CU; PHOTORESIST MASKS; PHOTOLITHOGRAPHIC TECHNIQUES; THIN FILM INDUCTIVE COILS; FORMULAE; MICROWAVE INDUCTIVE COILS; 0.1 TO 10 MICROH INDUCTANCES; Q-FACTOR 50 TO 200; FREQUENCY 20 TO 250 MHZ
02
Section Class Codes: B2220E, B0520F
Language: RUSSIAN

991270 B77000489
AN INSTRUMENT FOR TESTING PARAMETER DEVIATIONS OF MICROELECTRONIC DEVICES
KAN, A.G.; NIKITIN, A.G.
POLUPROVODN. TEKH. AND MIKROELEKTRON. (USSR) NO.24 96-8 1976 Coden: PTMUAC
DESCRIBES CIRCUIT DETAILS AND THE OPERATION OF A TESTER, FOR USE IN INVESTIGATIONS OF FAILURES OF MICROELECTRONIC DEVICES, AND MEASUREMENT OF DEVIATIONS OF PARAMETERS, SUCH AS RESISTANCE, CAPACITANCE AND BIAS CURRENT OF CAPACITORS, AS WELL AS CONDUCTANCE OF SWITCHING ROUTES AND JUNCTIONS, AS A FUNCTION OF TEMPERATURE, PRESSURE AND HUMIDITY, AND OTHER FACTORS. THE INPUT SIGNAL RANGE OF THE TESTER IS -5 V TO +5 V, INPUT SENSITIVITY #5 MV, MAXIMUM OPERATING FREQUENCY OF THE COMPARATORS 20 MHZ, INPUT FREQUENCY RANGE 0 TO 10 MHZ AND CURRENT CONSUMPTION OF 150 MA. IN CONJUNCTION WITH ELECTRONIC COUNTERS, THIS INSTRUMENT CAN ALSO BE USED FOR INVESTIGATIONS OF MICRO-BREAKDOWNS OF THIN-FILM CAPACITORS (4 Refs)
Descriptors: INTEGRATED CIRCUIT TESTING; TEST EQUIPMENT; THIN FILM CIRCUITS; THIN FILM CAPACITORS
Identifiers: INSTRUMENT; TESTING PARAMETER DEVIATIONS; OPERATION; MEASUREMENT OF DEVIATIONS OF PARAMETERS; RESISTANCE ; CAPACITANCE; BIAS CURRENT OF CAPACITORS; CONDUCTANCE OF SWITCHING ROUTES; FUNCTION OF TEMPERATURE; COMPARATORS; INPUT FREQUENCY RANGE 0 TO 10 MHZ; CURRENT CONSUMPTION OF 150 MA; IC TESTER; + OR -5 V INPUT SIGNAL RANGE; FAILURE ANALYSIS; 20 MHZ MAXIMUM FREQUENCY; FUNCTION OF PRESSURE; FUNCTION OF HUMIDITY; CIRCUIT DIAGRAM; MICROBREAKDOWNS OF THIN FILM CAPACITORS; 5 MV INPUT SENSITIVITY; THIN FILM CAPACITORS TESTING
02
Section Class Codes: B2220, B2570, B0170E, B7210X
Language: RUSSIAN

991204 B77000417
ELECTROLESS PLATING-ITS APPLICATIONS IN RESISTOR TECHNOLOGY
DEARDEN, J.
WELWYN ELECTRIC LTD., BEDLINGTON, ENGLAND
ELECTROCOMPON. SCI. AND TECHNOL. (GB) VOL.3, NO.2 103-11 SEPT. 1976 Coden: ECSTC5
THE APPLICATIONS OF ELECTROLESS NICKEL AS A READILY SOLDERABLE, COMPLETELY OHMIC CONTACT FOR TIN OXIDE RESISTORS IS DESCRIBED. COPPER OXIDE LAYERS PRODUCED FROM OXIDISED ELECTROLESS COPPER ARE SHOWN TO IMPROVE THE THERMAL STABILITY OF TIN OXIDE RESISTORS. A RANGE OF ELECTROLESS HIGH PRECISION METAL FILM RESISTORS FROM A FRACTION OF AN OHM TO 100 KOHM PER SQUARE AND FROM A FEW MILLIMETRES IN LENGTH TO OVER 1 METRE IS SHOWN TO BE FEASIBLE. THIS TECHNOLOGY HAS BEEN APPLIED TO THE MANUFACTURE OF THIN FILM CIRCUITS. THE OUTSTANDING THERMAL STABILITY OF THE ELECTROLESS NICKEL-BORON FILMS AND THEIR TEMPERATURE COEFFICIENT OF RESISTANCE INDICATES A POTENTIAL APPLICATION IN THE FIELD OF TEMPERATURE SENSORS. THE ABILITY TO PRODUCE 'WEIGHTLESS' FILMS ON MYLAR SHEET AT 10 GOHM PER SQUARE IS CONSIDERED TO BE A SOLUTION TO THE CHARGE DISTRIBUTION REQUIREMENT FOR ELECTROSTATIC LOUDSPEAKERS (14 Refs)
Descriptors: THIN FILM RESISTORS; INTEGRATED CIRCUIT TECHNOLOGY
Identifiers: RESISTOR TECHNOLOGY; ELECTROLESS HIGH PRECISION METAL FILM RESISTORS; THIN FILM CIRCUITS; THERMAL STABILITY; TEMPERATURE COEFFICIENT OF RESISTANCE; TEMPERATURE SENSORS; ELECTROSTATIC LOUDSPEAKERS; ELECTROLESS PLATING; SNO/SUB 2/ RESISTORS; NI-B FILM
02
Section Class Codes: B2120, B2220E

991193 B77000406
A STRIPLINE INPUT STAGE FOR AN S-BAND RECEIVER
GHOZ', N.M.; IRLIN, A.V.; KEMPA, YA.M.
POLUPROVODN. TEKH. AND MIKROELEKTRON. (USSR) NO.24 25-7 1976 Coden: PTMUAC
AN ACCOUNT IS GIVEN OF THE DESIGN AND EVALUATION OF THE INPUT STAGE OF AN S-BAND RECEIVER, COMPRISING AN INPUT CIRCUIT, A MIXER, A PREAMPLIFIER AND A SECOND MIXER. THE INPUT STAGE WAS MANUFACTURED BY METHODS OF HYBRID THIN-FILM TECHNOLOGY. THE CHARACTERISTICS OF THIS STAGE ARE AS FOLLOWS' GAIN 28 DB, BANDWIDTH 10 MHZ, MINIMUM SENSITIVITY 10/SUP -12/ W, NOISE FIGURE 13.5 DB AND THE OPERATING TEMPERATURE RANGE -50 TO +50 DEGREESC (3 Refs)
Descriptors: MICROWAVE INTEGRATED CIRCUITS; SOLID-STATE MICROWAVE CIRCUITS; RADIO RECEIVERS; HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS
Identifiers: STRIPLINE INPUT STAGE; S-BAND RECEIVER; DESIGN; EVALUATION; CHARACTERISTICS; GAIN 28 DB; BANDWIDTH 10 MHZ; MINIMUM SENSITIVITY 10/SUP -12/ W; NOISE FIGURE 13.5 DB; -50 TO +50 DEGREES C OPERATION; MIC; HYBRID THIN FILM TECHNOLOGY; TWO MIXER STAGES
02
Section Class Codes: B1350F, B2220J, B6420D, B2220E, B6250
Language: RUSSIAN

991178 B77000390
MILLIMETER-WAVE THIN-FILM DOWNCONVERTER
SNELL, W.W., JR.; SCHNEIDER, M.V.
BELL LABS., HOLMDEL, NJ, USA
IEEE TRANS. MICROWAVE THEORY AND TECH. (USA) VOL.MTT-24, NO.11 804-6 NOV. 1976 Coden: IETMAB
A 60-GHZ HYBRID INTEGRATED DOWNCONVERTER INTENDED FOR USE IN A MILLIMETER-WAVE RADIO RELAY EXPERIMENT HAS BEEN DESIGNED AND TESTED. THE CONVERTER CONSISTS OF A STRIP TRANSMISSION LINE CIRCUIT AND TWO BEAM-LEADED SCHOTTKY-BARRIER DIODES WHICH ARE PUMPED AT A SUBHARMONIC OF THE CONVENTIONAL LOCAL OSCILLATOR FREQUENCY. THE CONVERSION LOSS OF THE CIRCUIT IS 6.3 DB AND THE TOTAL SINGLE-SIDEBAND NOISE FIGURE, INCLUDING THE NOISE CONTRIBUTION FROM THE IF AMPLIFIER, IS 9.1 DB. THE CIRCUIT LOOKS ATTRACTIVE FOR MILLIMETER-WAVE COMMUNICATION SYSTEMS APPLICATION UP TO 100 GHZ (6 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; MICROWAVE INTEGRATED CIRCUITS; THIN FILM CIRCUITS; SOLID-STATE MICROWAVE CIRCUITS; BEAM-LEAD DEVICES; SCHOTTKY-BARRIER DIODES; PARAMETRIC DEVICES
Identifiers: STRIP TRANSMISSION LINE CIRCUIT; MILLIMETRE WAVE THIN FILM DOWNCONVERTOR; HYBRID INTEGRATED CIRCUITS; BEAM LEADED SCHOTTKY BARRIER DIODES; 60 GHZ
02
Section Class Codes: B1350D, B1350F, B2220J, B2560H, B2220E

991174 B77000386
A DISTRIBUTED-STRUCTURE THIN-FILM MICROWAVE ATTENUATOR
POLUSHINA, S.G.; MIKHAILOVA, G.F.
POLUPROVODN. TEKH. AND MIKROELEKTRON. (USSR) NO.24 36-40 1976 Coden: PTMUAC
THE EXISTING METHODS OF PRACTICAL DESIGN OF POWER DIVIDERS, WITH THE AID OF DISTRIBUTED STRUCTURES, ARE EXAMINED AND REFINED FOR THE CASE OF MICROWAVE THIN-FILM ATTENUATORS. THE APPLICATION OF THE DERIVED EXPRESSIONS, AND OF A GRAPH SHOWING THE DIVISION FACTOR VERSUS SIZE OF THE ATTENUATOR, ARE ILLUSTRATED BY AN EXAMPLE (6 Refs)
Descriptors: THIN FILM CIRCUITS; ATTENUATORS; MICROWAVE INTEGRATED CIRCUITS
Identifiers: POWER DIVIDERS; DISTRIBUTED STRUCTURES; DERIVED EXPRESSIONS; DIVISION FACTOR; THIN FILM MICROWAVE ATTENUATORS; THIN FILM CIRCUITS
02
Section Class Codes: B1350, B2220E, B1270, B2220J
Language: RUSSIAN

991132 B77000342
A FREQUENCY MULTIPLIER IN MICROCIRCUIT CONFIGURATION
BEN'KO, S.I.; VINYAR, V.D.; YAREMENKO, V.I.
POLUPROVODN. TEKH. AND MIKROELEKTRON. (USSR) NO.24 29-30 1976 Coden: PTMUAC
RESULTS ARE REPORTED OF THE DESIGN AND EVALUATION OF A SMALL-SIZE FREQUENCY MULTIPLIER, THE PASSIVE PARTS OF WHICH ARE MANUFACTURED BY METHODS OF THIN-FILM TECHNOLOGY, WITH INDUCTANCES AND CAPACITANCES MOUNTED ON THE SUBSTRATE. THE MULTIPLICATION FACTOR IS 15 TIMES, AND THE OUTPUT SIGNAL IS 20 MV, IN CONDITIONS WHEN THE INPUT SIGNAL VARIES BETWEEN 600 AND 1200 MV. THE SPURIOUS HARMONICS ARE SUPPRESSED BY #40 DB
Descriptors: FREQUENCY MULTIPLIERS; THIN FILM CIRCUITS
Identifiers: DESIGN; EVALUATION; FREQUENCY MULTIPLIER; THIN FILM CIRCUIT; SPURIOUS HARMONICS SUPPRESSION; MULTIPLICATION FACTOR OF 15; 20 MV OUTPUT SIGNAL; + OR -50 DEGREE C OPERATION ; THIN FILM CAPACITORS; THIN FILM INDUCTORS
02
Section Class Codes: B1290B, B2220E
Language: RUSSIAN

991128 B77000332
TECHNOLOGY OF MANUFACTURE OF THIN-FILM VOLTAGE DIVIDERS
VLASOVA, V.V.; GRISHCHUK, S.A.; SENISHIN, YA.M.; FABRIKANT, B.A.
POLUPROVODN. TEKH. AND MIKROELEKTRON. (USSR) NO.24 83-5 1976 Coden: PTMUAC
METHODS OF MANUFACTURE OF HIGH-STABILITY PRECISION VOLTAGE DIVIDERS ARE DESCRIBED. SEVERAL POSSIBLE PROCEDURES FOR PROPPING SUCH COMPONENTS ARE EXAMINED, AND THE MOST SUITABLE VARIANT IS RECOMMENDED. NICHROME WAS USED AS THE RESISTANCE MATERIAL FOR THE DIVIDERS. THE TRIMMING OF THE DIVIDERS WAS ACCOMPLISHED BY ANODIC ETCHING, WHICH ENABLED THE INPUT AND OUTPUT RESISTANCES OF THE DIVIDERS TO BE ADJUSTED WITH AN ACCURACY OF +OR- 1PERCENT , AND THE DIVISION FACTOR WITH AN ACCURACY OF +OR- 0.5PERCENT (7 Refs)
Descriptors: THIN FILM CIRCUITS; THIN FILM RESISTORS; VOLTAGE DIVIDERS
Identifiers: THIN FILM VOLTAGE DIVIDERS; METHODS OF MANUFACTURE; NI-CR THIN FILM; TRIMMING BY ANODIC ETCHING; HIGH STABILITY PRECISION; ACCURACY OF + OR -1PERCENT
02
Section Class Codes: B1290, B2220E, B2120
Language: RUSSIAN

991118 B77000308
A SWITCHABLE ACTIVE FILTER HYBRID
PROBSTEIN, M.
MICROELECTRONICS DEPT., MOTOROLA INC., FORT LAUDERDALE, FL, USA
IEEE TRANS. PARTS, HYBRIDS AND PACKAG. (USA) VOL.PHP-12, NO.13 201-6 SEPT. 1976 Coden: IEPHAA
26TH ELECTRONIC COMPONENTS CONFERENCE 26-28 APRIL 1976 SAN FRANCISCO, CALIF., USA
A UNIQUE ACTIVE BANDPASS FILTER IS DESCRIBED, WHICH IS CAPABLE OF SELECTING ANY OF 12 DIFFERENT FREQUENCIES AS DEFINED BY A DIGITAL INPUT. THIS DEVICE UTILIZES BOTH THICK- AND THIN-FILM TECHNOLOGIES TO THEIR BEST ADVANTAGES. FILTERING IS PERFORMED BY A STATE VARIABLE ACTIVE FILTER CIRCUIT DESIGNED AROUND A CUSTOM LINEAR INTEGRATED CIRCUIT (IC) AND PRECISELY MATCHED COMPONENTS. FREQUENCY SELECTION IS ACCOMPLISHED BY A CUSTOM MOS DEVICE. FUNCTIONAL LASER TRIMMING OF BOTH THIN- AND THICK-FILM RESISTORS IS EMPLOYED TO ADJUST CIRCUIT CHARACTERISTICS TO EXTREMELY TIGHT TOLERANCES. THE FINISHED DEVICE MUST BE PACKAGED TO MAINTAIN A HIGH LEVEL OF FREQUENCY STABILITY OVER A WIDE RANGE OF ENVIRONMENTS. TWO DIFFERENT PACKAGING TECHNIQUES ARE PRESENTLY BEING SUCCESSFULLY EMPLOYED. THE FIRST IS A STANDARD CHIP AND WIRE TECHNIQUE AND THE SECOND RELIES ON DEVICES WHICH ARE PREPACKAGED IN SMALL CERAMIC CARRIERS. THIS CIRCUIT IS BEING PRODUCED IN PRODUCTION VOLUMES (8 Refs)
Descriptors: ACTIVE FILTERS; BAND-PASS FILTERS; THIN FILM CIRCUITS; THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS
Identifiers: SWITCHABLE ACTIVE ,FILTER HYBRID; ACTIVE BANDPASS FILTER; SELECTING ANY OF 12 DIFFERENT FREQUENCIES; STATE VARIABLE ACTIVE FILTER CIRCUIT; CUSTOM LINEAR INTEGRATED CIRCUIT; PRECISELY MATCHED COMPONENTS; LASER TRIMMING; PACKAGING TECHNIQUES; THICK FILM TECHNOLOGY; THIN FILM TECHNOLOGY; FREQUENCY SELECTION BY CUSTOM MOS DEVICE
06
Section Class Codes: B1270E, B2220E, B2220G, B2220J

991076 B77000239
A FREQUENCY SYNTHESIZER USING THIN-FILM COMPONENTS
VINYAR, V.D.; KEMPA, YA.M.; KOTLYAROV, A.V.
POLUPROVODN. TEKH. AND MIKROELEKTRON. (USSR) NO.24 31-3 1976 Coden: PTMUAC
DESCRIBES A HIGH-FREQUENCY SYNTHESIZER, DESIGNED BY METHODS OF THIN-FILM TECHNOLOGY; IN PARTICULAR, THE PASSIVE PARTS OF THE REGENERATIVE AMPLIFIER, THE MULTIPLIER AND THE MIXER ARE MANUFACTURED ON SEPARATE DEVITRIFIED-GLASS SUBSTRATES, USING CR-CU-NI THIN-FILM, FOLLOWED BY PHOTOLITHOGRAPHIC PROCESSES. THE SYNTHESIZER PERFORMS 7/3 TIMES FREQUENCY CONVERSION, PRODUCING AN OUTPUT OF 0.3 V INTO A 50 OHM LOAD, FOR AN INPUT SIGNAL OF 0.2 V. THE LEVEL OF SPURIOUS SIGNALS IN THE SPECTRUM IS #30 DB. CIRCUIT AND CONSTRUCTIONAL DETAILS OF THE SYNTHESIZER ARE PRESENTED (6 Refs)
Descriptors: FREQUENCY SYNTHESIZERS; THIN FILM CIRCUITS
Identifiers: FREQUENCY SYNTHESIZER; 7/3 TIMES FREQUENCY CONVERSION; CONSTRUCTIONAL DETAILS; THIN FILM CIRCUITS; CHARACTERISTICS; HF SYNTHESIZER; CIRCUIT DIAGRAM
02
Section Class Codes: B1230, B2220E
Language: RUSSIAN

987607 B7646571, C7631008
COMPUTER DESIGNED MULTILAYER HYBRID SUBSTRATE USING THICK FILM TECHNOLOGY
WALDVOGEL, CH.W.
WESTING DEFENSE AND ELECTRONIC SYSTEMS CENTER, BALTIMORE, MD, USA
ELECTRONIC INDUSTRIES ASSOC. FRANCE, ET AL.
INTERNATIONAL CONFERENCE ON MANUFACTURING AND PACKAGING TECHNIQUES FOR HYBRID CIRCUITS 203-8 1976
7-8 APRIL 1976 PARIS, FRANCE
ELECTRONIC INDUSTRIES ASSOC. FRANCE PARIS, FRANCE
STATE OF THE ART SYSTEM DESIGNS REQUIRE LARGER, MORE DENSELY POPULATED, THERMALLY STABLE, MULTILAYER HYBRID SUBSTRATES. INCREASED LOGIC DENSITIES DICTATE THE NEED FOR NARROWER CONDUCTOR LINE WIDTHS AND BETTER SCREENING TECHNIQUES. INCREASING MATERIAL AND LABOR COSTS, AS WELL AS COMPONENT SHORTAGES, ARE ALSO MAJOR CONSIDERATIONS IN THE EFFICIENT DESIGN OF COMPLEX SUBSTRATES. PRESENTED HEREIN ARE THE MATERIALS, SCREENING TECHNIQUES, AND PROCESS STEPS REQUIRED TO FABRICATE A DENSELY POPULATED HYBRID USING COMPUTER GENERATED NETWORK. THE SUBSTRATE DISCUSSED IN THIS PAPER IS PRODUCED FOR THE NAVAL AIR DEVELOPMENT CENTER; THE PROTOTYPE UNITS HAVE BEEN COMPLETED AND A PRODUCTION LOT IS BEING FABRICATED. THE HYBRID CONSISTS OF ONE 32 SCREENED LAYER BERYLLIUM SUBSTRATE HOUSED IN 2.86SECONDS *2.55SECONDS *.165SECONDS METAL PACKAGE. THE SUBSTRATE UTILIZES 13% (54 H SERIES) TTL CHIPS, OPERATES AT A FREQUENCY OF 10 MEGAHERTZ, AND DISSIPATES 10 WATTS
Descriptors: HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; COMPUTER-AIDED CIRCUIT DESIGN; ELECTRONICS APPLICATIONS OF COMPUTERS
Identifiers: MULTILAYER HYBRID SUBSTRATE; THICK FILM TECHNOLOGY; MATERIALS; SCREENING; DENSELY POPULATED HYBRID; COMPUTER GENERATED NETWORK; PROTOTYPE UNITS; PRODUCTION; COMPUTERISED DESIGN
06
Section Class Codes: B2540, B2522, B1269, C0842
Unified Class Codes: SMEAAB, SMCCAX, ADGMAE, WMEEAQ

986484 B7646561, C7629863
HYBRID CIRCUIT MANUFACTURING MECHANIZATION IN R.T.C
JOURDAIN, P.; PETIT, R.
RTC, LA RADIOTECHNIQUE-COMPELEC, EVREUX, FRANCE
ELECTRONIC INDUSTRIES ASSOC. FRANCE, ET AL.
INTERNATIONAL CONFERENCE ON MANUFACTURING AND PACKAGING TECHNIQUES FOR HYBRID CIRCUITS 99-106 1976
7-8 APRIL 1976 PARIS, FRANCE
ELECTRONIC INDUSTRIES ASSOC. FRANCE PARIS, FRANCE
RTC LA RADIOTECHNIQUE COMPELEC IS WELL KNOWN IN THE HYBRID INTEGRATED CIRCUIT DOMAIN AND MAINLY FOR ITS THIN FILM PRODUCTS. THE USE OF CRYSTALS WITH SOLDER BUMPS OFFERS THE POSSIBILITY TO PRESENT PRODUCTS OF HIGH LEVEL QUALITY ON THE NICR FILMS, AND WITH COMPETITIVE PRICES IN REGARD TO OTHER THIN FILM TECHNOLOGIES OFFERED ON THE MARKET. IN FACT, THE USE OF CRYSTALS WITH SOLDER BUMPS AVOID THE WIRE BONDING WHICH IS OFTEN THE CAUSE OF DEFECTS IN SEMICONDUCTORS. THIS TECHNOLOGY AFFORDS ADVANTAGES IN THE REALIZATION OF THE HYBRID INTEGRATED CIRCUIT AUTOMATIC ASSEMBLY. IN THIS WAY, TWO MAIN CHOICES HAVE BEEN DEVELOPED BY RTC' (1) THE REALIZATION OF SOLDER BUMPS ON THE WAFER IS MADE IN THE HYBRID PRODUCTION LINE ACCORDING TO A PROCESS WHICH HAS SHOWN EVIDENCE OF ITS QUALITY WITHIN THE GROUP; (2) AN AUTOMATIC COMPONENTS ASSEMBLY LINE, ON THE SUBSTRATE HAS BEEN DEVELOPED TAKING ADVANTAGE OF THE FACT THAT THE CRYSTAL WITH SOLDER BUMP CAN BE TREATED IN THE SAME WAY AS THE COMPONENTS USED IN HYBRID TECHNOLOGY. ALL THE ASSEMBLING POSTS ARE CONTROLLED BY A COMPUTER. THE REPORT ON THE RESULTS OBTAINED SHOWS THE NUMEROUS APPLICATIONS OFFERED BY THIS SOLUTION
Descriptors: HYBRID INTEGRATED CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; THIN FILM CIRCUITS; PRODUCTION CONTROL; CONTROL ENGINEERING APPLICATIONS OF COMPUTERS; ELECTRONICS APPLICATIONS OF COMPUTERS
Identifiers: MANUFACTURING MECHANIZATION; HYBRID INTEGRATED CIRCUIT; THIN FILM PRODUCTS; SEMICONDUCTORS; AUTOMATIC ASSEMBLY; PRODUCTION LINE; QUALITY; ASSEMBLING; COMPUTER
06
Section Class Codes: B2540, B2524, B1269, C7862, C0842, C0846
Unified Class Codes: SMEAAB, SMCEAH, ADGMAE, VMMEAE, WMEEAQ, WMEKAS
Language: FRENCH

983032 B7649522
THE MICROCIRCUIT PACEMAKER SPACE AGE SPIN-OFF TO ACHIEVE RELIABILITY AND LONG LIFE
ADAMS, T.P.; FASANO, M.D., JR.
IEEE
PROCEEDINGS OF THE 1975 ANNUAL RELIABILITY AND MAINTAINABILITY SYMPOSIUM 360-5 1975
28-30 JAN. 1975 WASHINGTON, D.C., USA
IEEE NEW YORK, USA
THE PAPER SPECIFICALLY ADDRESSES THE IMPORTANCE OF MINIATURIZATION AND HIGH RELIABILITY TO THE SUCCESS OF PACEMAKER OPERATION, THE GENERAL THEORY OF OPERATION, COMPARISONS OF DISCRETE DEVICES AND HYBRID MICROCIRCUITS, DESIGN CONCEPTS, DESCRIPTION OF CONFIGURATIONS AND CIRCUITRY, PROCUREMENT POLICIES AND PRINCIPLES, PROCESSES UTILIZED, ASSEMBLY AND INSPECTION PROCEDURES AND TESTING PHILOSOPHIES
Descriptors: PACEMAKERS; HYBRID INTEGRATED CIRCUITS; CIRCUIT RELIABILITY
Identifiers: MINIATURIZATION; RELIABILITY; PACEMAKER; DISCRETE DEVICES; HYBRID MICROCIRCUITS; DESIGN CONCEPTS; PROCUREMENT POLICIES; ASSEMBLY; INSPECTION PROCEDURES; TESTING PHILOSOPHIES; MICROCIRCUIT
06
Section Class Codes: B4660, B1263, B2540
Unified Class Codes: ZRWCAJ, ADGDAL, SMEAAB

981573 B7646577
PACKAGES AND FILM RESISTORS FOR HYBRID MICROCIRCUITS
LANE, C.H.
ROME AIR DEV. CENTER, GRIFFISS AFB, NY, USA
IEEE
13TH ANNUAL PROCEEDINGS OF RELIABILITY PHYSICS SYMPOSIUM 230-41 1975
1-3 APRIL 1976 LAS VEGAS, NEV., USA
IEEE NEW YORK, USA
A REVIEW OF RESISTOR SYSTEMS, AND THE PROCESSES USED TO DEPOSIT AND DELINEATE THEM, IS GIVEN. EFFECTS OF MECHANICAL, THERMAL, CHEMICAL AND ELECTRICAL STRESSES ARE DISCUSSED AS THEY RELATE TO ACCURACY AND STABILITY. FAILURE MECHANISMS ARE REVIEWED. TRIMMING TECHNIQUES ARE EXPLORED AND DESIGN LIMITS FOR THE VARIOUS SYSTEMS DISCUSSED. PARAMETERS OF INTEREST SUCH AS FREQUENCY RESPONSE, TEMPERATURE COEFFICIENT, VOLTAGE COEFFICIENT AND NOISE ARE COMPARED FOR THE VARIOUS SYSTEMS. FINALLY, QUALITY CONTROL AND SCREENING TECHNIQUES ARE DISCUSSED AS THEY RELATE FAILURE MECHANISMS AND PACKAGE QUALITY AND RELIABILITY CONTROL (8 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; THIN FILM RESISTORS; THICK FILM RESISTORS; PACKAGING; QUALITY CONTROL; RELIABILITY
Identifiers: FILM RESISTORS; HYBRID MICROCIRCUITS; DESIGN LIMITS; FREQUENCY RESPONSE; TEMPERATURE COEFFICIENT; VOLTAGE COEFFICIENT; NOISE; QUALITY CONTROL; SCREENING TECHNIQUES; FAILURE MECHANISMS; PACKAGE QUALITY; RELIABILITY; TRIMMING TECHNIQUES; PACKAGES
06
Section Class Codes: B2540, B1266, B1263
Unified Class Codes: SMEAAB, ADGHAH, ADGDAL

981571 B7646575
SUSCEPTIBILITY OF MICROWELDS IN HYBRID MICROCIRCUITS TO CORROSION DEGRADATION
JELLISON, J.L.
SANDIA LABS., ALBUQUERQUE, NM, USA
IEEE
13TH ANNUAL PROCEEDINGS OF RELIABILITY PHYSICS SYMPOSIUM 70-9 1975
1-3 APRIL 1976 LAS VEGAS, NEV., USA
IEEE NEW YORK, USA
ANALYSIS OF BROKEN ULTRASONIC AL-AG BONDS INVOLVING SEM ELECTRON MICROPROBE, ION MICROPROBE, AND AUGER ELECTRON SPECTROSCOPY INDICATED THAT FAILURE WAS DUE TO CORROSION. SUBSEQUENT ENVIRONMENTAL TESTS DEMONSTRATED THAT AL-AG BONDS ARE HIGHLY SUSCEPTIBLE TO CORROSION, BUT AL-AU AND AU-AL BONDS ARE LESS SO. NO EVIDENCE OF CORROSION OF AU-AG BONDS WAS FOUND (5 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; WELDING; ULTRASONIC APPLICATIONS; CORROSION; ENVIRONMENTAL TESTING; INTEGRATED CIRCUIT TESTING
Identifiers: MICROWELDS; HYBRID MICROCIRCUITS; CORROSION DEGRADATION; ULTRASONIC AL-AG BONDS; SEM ELECTRON MICROPROBE; ION MICROPROBE; AUGER ELECTRON SPECTROSCOPY; ENVIRONMENTAL TESTS; AU-AG BONDS
06
Section Class Codes: B2540
Unified Class Codes: SMEAAB

981569 B7646572
A THICK FILM HYBRID POCKET MULTIMETER
KOCSIS, A.
UNIV. DES SCI. APPLIQUEES, UNIV. DE SHERBROOKE, SHERBROOKE, QUEBEC, CANADA
ELECTRONIC INDUSTRIES ASSOC. FRANCE, ET AL.
INTERNATIONAL CONFERENCE ON MANUFACTURING AND PACKAGING TECHNIQUES FOR HYBRID CIRCUITS 209-17 1976
7-8 APRIL 1976 PARIS, FRANCE
ELECTRONIC INDUSTRIES ASSOC. FRANCE PARIS, FRANCE
THE DESIGN AND REALIZATION OF A POCKET MULTIMETER BY UNDERGRADUATE STUDENTS IS DESCRIBED. THE FABRICATION TECHNIQUE IS DESCRIBED WITH SUFFICIENT LENGTH. THE AUTHOR UNDERLINES THE KIND OF CHALLENGE UNIVERSITIES ARE UP TO WITH REGARD TO MICROELECTRONICS
Descriptors: THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; MEASUREMENT SYSTEMS
Identifiers: DESIGN; REALIZATION; POCKET MULTIMETER; UNDERGRADUATE STUDENTS; FABRICATION TECHNIQUE; MICROELECTRONICS; THICK FILM HYBRID CIRCUIT
06
Section Class Codes: B2540, B2522, B4270, B1269
Unified Class Codes: SMEAAB, SMCCAX, BECRAX, ADGMAE

981568 B7646570
HYBRID THICK FILM CIRCUIT TECHNOLOGY USE FOR AIRBORNE EQUIPMENT
SANGOUARD, P.; MINAULT, M.
EMD, SAINT-CLOUD, FRANCE
ELECTRONIC INDUSTRIES ASSOC. FRANCE, ET AL.
INTERNATIONAL CONFERENCE ON MANUFACTURING AND PACKAGING TECHNIQUES FOR HYBRID CIRCUITS 191-201 1976
7-8 APRIL 1976 PARIS, FRANCE
ELECTRONIC INDUSTRIES ASSOC. FRANCE PARIS, FRANCE
PROCESSES AND MATERIALS WHICH ARE USED' SUBSTRATES, CONDUCTIVE AND RESISTIVE LAYERS, MULTILAYERS PROCESS, ETC. ARE BRIEFLY DESCRIBED. EXAMPLES OF DESIGNS IN THE FIELD OF LOGIC CIRCUIT MODULES USING MULTILAYERS PROCESS ARE SHOWN. THE ADVANTAGES AND LIMITS OF THE THICK FILM TECHNOLOGY TOWARDS VOLUME, RELIABILITY AND COST CRITERIA ARE ANALYSED
Descriptors: HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS ; LOGIC CIRCUITS; CIRCUIT RELIABILITY; INTEGRATED CIRCUIT PRODUCTION
Identifiers: AIRBORNE EQUIPMENT; SUBSTRATES; RESISTIVE LAYERS; MULTILAYERS PROCESS; DESIGNS; LOGIC CIRCUIT MODULES; ADVANTAGES; LIMITS; THICK FILM TECHNOLOGY; RELIABILITY; COST; HYBRID THICK FILM CIRCUITS; CONDUCTIVE LAYERS
06
Section Class Codes: B2540, B2522, B1263, B1269
Unified Class Codes: SMEAAB, SMCCAX, ADGDAL, ADGMAE
Language: FRENCH

981566 B7646568
HYBRID CIRCUIT OVERTAKING FEATURES
BESAMAT, M.
DEPT. D.C.H. THOMSON, C.S.F., ORSAY, FRANCE
ELECTRONIC INDUSTRIES ASSOC. FRANCE, ET AL.
INTERNATIONAL CONFERENCE ON MANUFACTURING AND PACKAGING TECHNIQUES FOR HYBRID CIRCUITS 173-80 1976
7-8 APRIL 1976 PARIS, FRANCE
ELECTRONIC INDUSTRIES ASSOC. FRANCE PARIS, FRANCE
THE TWO INTERESTING HYBRID CIRCUIT FEATURES ARE REDUCTION OF SIZES AND TECHNICAL ADVANTAGES. THEY ARE ILLUSTRATED BY THREE EXAMPLES: MICROPROCESSOR, HIGH-FREQUENCY OSCILLATOR, ACTIVE FILTERS. THE THICK FILM MULTILAYERS TECHNOLOGIES AND STANDARD MONOLITHIC CHIPS ALLOW THE REALIZATION OF CUSTOM DESIGN COMPLEX MICROPROCESSORS, MADE FROM HIGHLY MINIATURIZED THIN FILM CIRCUITS. THE OSCILLATORS HAVE STABLE CHARACTERISTICS AT HIGH FREQUENCY AND GOOD REPRODUCIBILITY. THE HYBRID CIRCUITS TECHNOLOGY BRINGS REALLY NEW SOLUTIONS FOR ACTIVE FILTERS MANUFACTURING
Descriptors: HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS ; MICROCOMPUTERS; OSCILLATORS; ACTIVE FILTERS
Identifiers: HYBRID CIRCUIT; THICK FILM; MICROPROCESSORS; ACTIVE FILTERS; MANUFACTURING; HIGH FREQUENCY OSCILLATORS
06
Section Class Codes: B2540, B2522, B1269
Unified Class Codes: SMEAAB, SMCCAX, ADGMAE
Language: FRENCH

981565 B7646567
ORGANIZATION OF HYBRID THICK FILM MANUFACTURING FOR DIVERSIFIED MARKET
DELL'ACQUA, R.; FORLANI, F.
DIV. ELETTRONICA FIVRE, MAGNETI MARELLI, PAVIA, ITALY
ELECTRONIC INDUSTRIES ASSOC. FRANCE, ET AL.
INTERNATIONAL CONFERENCE ON MANUFACTURING AND PACKAGING TECHNIQUES FOR HYBRID CIRCUITS 163-72 1976
7-8 APRIL 1976 PARIS, FRANCE
ELECTRONIC INDUSTRIES ASSOC. FRANCE PARIS, FRANCE
A BRIEF DESCRIPTION OF THE STRUCTURE OF THE HYBRID CIRCUIT MARKET IS GIVEN AND AN ATTEMPT IS MADE TO GIVE A MATHEMATICAL OUTLINE CORRELATING THIS MARKET STRUCTURE AND HYBRID CIRCUIT PRODUCTION IN ORDER TO OPTIMIZE IT. A VERY FLEXIBLE ORGANIZATION BASED ON THE ACTUAL STRUCTURE OF THE MARKET IS THEN DESCRIBED. SUCH A FLEXIBILITY IS ACHIEVED, AMONG OTHER THINGS, BY KEEPING THE PRODUCTION RESPONSIBILITY OF SMALL SERIES UNDER THE DESIGN AND DEVELOPMENT GROUP AND BY TRANSFERRING UNDER PRODUCTION RESPONSIBILITY MEDIUM-LARGE VOLUME PRODUCTS ONLY
Descriptors: HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS ; INTEGRATED CIRCUIT PRODUCTION
Identifiers: THICK FILM; MANUFACTURING; DIVERSIFIED MARKET; HYBRID CIRCUIT PRODUCTION; ORGANISATION
06
Section Class Codes: B2540, B2522, B1269
Unified Class Codes: SMEAAB, SMCCAX, ADGMAE
Language: FRENCH

981564 B7646566
THE APPLICATION OF IMPROVED THICK FILM TECHNIQUES AND MATERIALS IN THE PRODUCTION OF COMPLEX HYBRID MODULES
KIRBY, P.L.
WELWYN ELECTRIC LTD., BEDLINGTON, ENGLAND
ELECTRONIC INDUSTRIES ASSOC. FRANCE, ET AL.
INTERNATIONAL CONFERENCE ON MANUFACTURING AND PACKAGING TECHNIQUES FOR HYBRID CIRCUITS 155-62 1976
7-8 APRIL 1976 PARIS, FRANCE
ELECTRONIC INDUSTRIES ASSOC. FRANCE PARIS, FRANCE
THE SUPERFICIAL SIMILARITY BETWEEN TODAY'S THICK FILM HYBRID CIRCUIT AND SOME OF THE EARLIEST PRODUCTS OF THICK FILM TECHNOLOGY IN THE EARLY 1960'S IS MISLEADING. THERE HAS BEEN SIGNIFICANT PROGRESS IN EVERY ASPECT OF THE SUBJECT AND THIS PAPER SHOWS HOW MANY OF THESE IMPROVEMENTS CAN BE BROUGHT TOGETHER TO PRODUCE A NEW RANGE OF ADVANCED HYBRID MODULES WHICH ARE INCAPABLE OF REALISATION BY ANY OTHER AVAILABLE TECHNIQUE. THE IMPROVED STABILITY OF THICK FILM RESISTORS; THEIR GREATLY REDUCED T.C.R.; THEIR LOW NOISE AND BETTER NON-LINEARITY; THEIR IMPROVED COMPATIBILITY WITH THICK FILM CONDUCTORS WHICH THEMSELVES SHOW IMPROVED BONDING PROPERTIES; THE AVAILABILITY OF SEMICONDUCTOR CHIPS FOR DIRECT ATTACHMENT TO THICK FILM CONDUCTORS AND THE RELIABILITY WHICH CAN NOW BE ACHIEVED IN FINE WIRE BONDING CAN ALL BE INTEGRATED WITH HIGH ACCURACY FUNCTIONAL RESISTOR ADJUSTMENT AND ENCAPSULATION IN A FULLY HERMETIC PACKAGE. THESE ACHIEVEMENTS ARE ILLUSTRATED BY REFERENCE TO COMPLEX HIGH DENSITY MODULES WHICH HAVE BEEN PRODUCED FOR A VARIETY OF HIGH RELIABILITY APPLICATIONS
Descriptors: HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS ; INTEGRATED CIRCUIT PRODUCTION
Identifiers: THICK FILM; PRODUCTION; HYBRID MODULES
06
Section Class Codes: B2540, B2522, B1269
Unified Class Codes: SMEAAB, SMCCAX, ADGMAE

981562 B7646564
THE SELECTION OF CONDUCTOR MATERIALS FOR THICK FILM HYBRID CIRCUITS
PANTANELLI, G.P.; SEDORA, E.J.
BELL TELEPHONE LAB. INC., ALLENTOWN, PA, USA
ELECTRONIC INDUSTRIES ASSOC. FRANCE, ET AL.
INTERNATIONAL CONFERENCE ON MANUFACTURING AND PACKAGING TECHNIQUES FOR HYBRID CIRCUITS 133-40 1976
7-8 APRIL 1976 PARIS, FRANCE
ELECTRONIC INDUSTRIES ASSOC. FRANCE PARIS, FRANCE
THIS PAPER DISCUSSES THE SELECTION OF THICK FILM CONDUCTOR MATERIALS. THE SPECIFIC SELECTION CRITERIA CONSIDERED ARE BASED ON THE SOLDERABILITY OF THE CONDUCTOR, THE ADHESION OF THE CONDUCTOR TO A 96PERCENT ALUMINA SUBSTRATE AND THE ELECTRICAL ISOLATION BETWEEN CLOSELY SPACED CONDUCTORS UNDER VOLTAGE BIAS IN HIGH HUMIDITY. IN ADDITION THE ELECTRICAL ISOLATION BETWEEN CLOSELY SPACED CONDUCTORS UNDER BIAS WAS STUDIED IN A SPECIAL ENVIRONMENTAL CHAMBER THAT EXPOSED THE SAMPLES TO HIGH TEMPERATURE, HIGH HUMIDITY AND A DYNAMIC GAS ATMOSPHERE THAT CONTAINED A 0.3 PPM SO/SUB 2/ ADDITION (4 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; THICK FILM CIRCUITS
Identifiers: CONDUCTOR MATERIALS; THICK FILM; HYBRID CIRCUITS; SELECTION CRITERIA; SOLDERABILITY; ADHESION; ALUMINA SUBSTRATE; ELECTRICAL ISOLATION BETWEEN CLOSELY SPACED CONDUCTORS
06
Section Class Codes: B2540, B2522, B1269
Unified Class Codes: SMEAAB, SMCCAX, ADGMAE

981558 B7646558
COMPARISON BETWEEN THICK AND THIN FILMS TECHNOLOGIES
JOLLY, J.
DEPT. CIRCUITS INTEGRES HYBRIDES, LTT, CONFLANS-STE-HONORIN-E, FRANCE
ELECTRONIC INDUSTRIES ASSOC. FRANCE, ET AL.
INTERNATIONAL CONFERENCE ON MANUFACTURING AND PACKAGING TECHNIQUES FOR HYBRID CIRCUITS 25-33 1976
7-8 APRIL 1976 PARIS, FRANCE
ELECTRONIC INDUSTRIES ASSOC. FRANCE PARIS, FRANCE
TWO TECHNOLOGIES HAVE BEEN USED FOR TEN YEARS TO MANUFACTURE HYBRID INTEGRATED CIRCUITS. PASSIVE SUBSTRATES MADE OF PHOTO-ETCHED THIN FILMS CAN BE REPLACED BY PASSIVE SCREENED THICK FILM SUBSTRATES. HIGH RELIABILITY MICROELECTRONICS MOSTLY USING THIN FILMS TECHNIQUES ARE NOW SWITCHING TO THICK FILM FOR SOME APPLICATIONS. BOTH TECHNOLOGIES HAVE BEEN USED FOR THE DESIGN OF THE SAME MILITARY COMMUNICATION CIRCUIT. THIS STUDY SPONSORED BY THE FRENCH SECTION D'ETUDES ET FABRICATIONS DES TELECOMMUNICATIONS WAS DIRECTED TO THE MANUFACTURE OF HYBRID INTEGRATED CIRCUITS FOR RITA SYSTEM REPEATER GENERATOR. THE PURPOSE WAS TO INTEGRATE THE FOLLOWING CIRCUITS' CLOCK AMPLIFIER, EQUALIZER, LEVEL DETECTOR, CLOCK FREQUENCY REGENERATOR AND TO COMPARE FROM A TECHNICAL AND ECONOMICAL POINT OF VIEW THE USE OF THIN AND THICK FILM TECHNOLOGIES (1 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; THICK FILM CIRCUITS; THIN FILM CIRCUITS; REPEATERS ; MILITARY SYSTEMS; MILITARY EQUIPMENT
Identifiers: MANUFACTURE; THIN FILMS; MICROELECTRONICS; MILITARY COMMUNICATION CIRCUIT; HYBRID INTEGRATED CIRCUITS; REPEATER; THICK FILM
06
Section Class Codes: B2540, B2522, B2524, B1269, B3560
Unified Class Codes: SMEAAB, SMCCAX, SMCEAH, ADGMAE, FEKAAA
Language: FRENCH

981557 B7646557
THIN FILM HYBRID MICROCIRCUITS ON POLYMER SUBSTRATES
HICKS, R.E.; ZIMMERMAN, D.D.
APPL. PHYS. LAB., JOHNS HOPKINS UNIV., LAUREL, MD, USA
ELECTRONIC INDUSTRIES ASSOC. FRANCE, ET AL.
INTERNATIONAL CONFERENCE ON MANUFACTURING AND PACKAGING TECHNIQUES FOR HYBRID CIRCUITS 19-23 1976
7-8 APRIL 1976 PARIS, FRANCE
ELECTRONIC INDUSTRIES ASSOC. FRANCE PARIS, FRANCE
POLYIMIDE FILMS HAVE A UNIQUE COMBINATION OF PROPERTIES MAKING THEM IDEALLY SUITED FOR HYBRID MICROCIRCUIT SUBSTRATES AND ASSEMBLY INTERCONNECTION TECHNIQUES. THEY MAINTAIN DESIRABLE CHEMICAL, ELECTRICAL, AND PHYSICAL PROPERTIES OVER A WIDE TEMPERATURE RANGE. RESULTS OF STUDIES OF THESE PROPERTIES ARE PRESENTED IN EXAMPLES OF DEVELOPMENTAL PROTOTYPE HYBRID DESIGNS AND SYSTEM PACKAGING SCHEMES USING THIN FILM TECHNIQUES (2 Refs)
Descriptors: THIN FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; PACKAGING
Identifiers: POLYMER SUBSTRATES; HYBRID MICROCIRCUIT; PACKAGING; THIN FILM
06
Section Class Codes: B2540, B2524, B1266, B1269
Unified Class Codes: SMEAAB, SMCEAH, ADGHAH, ADGMAE

981550 B7646550
THE USE OF NICR-NI-AUPD AND CRNIAL-NI-AUPD THIN FILM STRUCTURES IN MODULAR CIRCUITS
SZMOLNIK, J.
THIN SOLID FILMS (SWITZERLAND) VOL.36, NO.2 375-8 2 AUG. 1976 Coden: THSFAP
3RD INTERNATIONAL CONFERENCE ON THIN FILMS 25-29 AUG. 1975 BUDAPEST, HUNGARY
A HYBRID THIN FILM TECHNOLOGY HAS BEEN DEVELOPED TO DESIGN AND PRODUCE (1) A DECODING RESISTOR NETWORK, (2) AN INTERNAL OR EXTERNAL REFERENCE CIRCUIT AND (3) AN ANALOGUE VOLTAGE SWITCHING CIRCUIT FOR A D/A CONVERTOR (3 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; THIN FILM CIRCUITS; MODULES; THIN FILM RESISTORS; DECODING; SWITCHING CIRCUITS; DIGITAL-ANALOGUE CONVERSION
Identifiers: NICR-NI-AUPD; CRNIAL-NI-AUPD; THIN FILM STRUCTURES; MODULAR CIRCUITS; HYBRID THIN FILM TECHNOLOGY; DECODING RESISTOR NETWORK; REFERENCE CIRCUIT; ANALOGUE VOLTAGE SWITCHING CIRCUIT; D/A CONVERTOR
06
Section Class Codes: B2540, B2524
Unified Class Codes: SMEAAB, SMCEAH

981549 B7646549
THICK FILM HYBRID MICROCIRCUITS-GENERAL APPLICATIONS (REASONS TO USE THEM)
WHITELAW, D.
BECKMAN INSTRUMENTS LTD., GLENROTHES, SCOTLAND
MICROELECTRON. AND RELIAB. (GB) VOL.15, NO.4 335-8 1976 Coden: MCRLAS
ANNUAL SEMINEX TECHNICAL SEMINAR 22-26 MARCH 1976 LONDON, ENGLAND
DISCUSSES THE THREE MAIN REASONS TO BUY HYBRID ICS' TECHNOLOGICAL CONSIDERATIONS, PROVEN OFF THE SHELF DESIGNS AND ECONOMICS. SPECIFICATION REQUIREMENTS ARE DISCUSSED
Descriptors: THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS
Identifiers: TECHNOLOGICAL CONSIDERATIONS; ECONOMICS; THICK FILM ICS; PROVEN DESIGNS ADVANTAGE; SPECIFICATION REQUIREMENTS
06
Section Class Codes: B2540, B2522
Unified Class Codes: SMEAAB, SMCCAX

981547 B7646547
RIBBON WIRE VERSUS ROUND WIRE RELIABILITY FOR HYBRID MICROCIRCUITS
GUIDICI, D.C.
FAIRCHILD SEMICONDUCTOR, MOUNTAIN VIEW, CA, USA
ELECTRON. INF. AND PLANN. (INDIA) VOL.3, NO.8 664-8 MAY 1976 Coden: ELIPB5
IN AN EFFORT TO CREATE A MORE RELIABLE BOND INTERFACE IN HYBRID MICROCIRCUITS A STUDY WAS LAUNCHED TO EVALUATE THE RELATIVE BOND STRENGTHS OF ROUND WIRE AND RIBBON WIRE OF COMPARABLE CROSS SECTION, AND TO DETERMINE WHICH IS INHERENTLY MORE RELIABLE AFTER THERMAL DEGRADATION. THIS PAPER PRESENTS A COMPARATIVE BONDING RELIABILITY STUDY OF ALUMINIUM RIBBON WIRE VERSUS ROUND WIRE, AND GOLD RIBBON WIRE VERSUS ROUND WIRE IN HYBRID MICROCIRCUITS
Descriptors: HYBRID INTEGRATED CIRCUITS; CIRCUIT RELIABILITY; WIRING
Identifiers: RELIABLE BOND INTERFACE; HYBRID MICROCIRCUITS; ROUND WIRE; RIBBON WIRE; THERMAL DEGRADATION; BONDING RELIABILITY; ALUMINIUM RIBBON; GOLD RIBBON; ULTRASONIC BONDING; BOND DEGRADATION; MICROCRACKS
02
Section Class Codes: B2540, B1263, B2240
Unified Class Codes: SMEAAB, ADGDAL, SENAAD

981546 B7646546
SIMPLE TECHNIQUES OF HYBRID FAILURE ANALYSIS AND STEREO RADIOGRAPHY OF COMPLEX MICROCIRCUITS
GUIDICI, D.C.
FAIRCHILD SEMICONDUCTOR, MOUNTAIN VIEW, CA, USA
ELECTRON. INF. AND PLANN. (INDIA) VOL.3, NO.8 658-64
MAY 1976 Coden: ELIPB5
PRESENTS EXAMPLES OF FOUR TYPES OF HYBRID MICROCIRCUITS, EACH FABRICATED WITH VARIOUS MATERIALS. THEN DEMONSTRATES THE VARIOUS METHODS USED FOR MECHANICAL FAILURE ANALYSIS. SOME OF THE SIMPLEST TECHNIQUES USED FOR OPENING PACKAGES AND REMOVING COMPONENTS ARE SHOWN. ALSO, THE VALUE OF RADIOGRAPHY TO LOOK BEFORE OPENING, AND THE USE OF STEREO RADIOGRAPHY AS APPLIED TO MULTILAYERED PACKAGES ARE DISCUSSED
Descriptors: HYBRID INTEGRATED CIRCUITS; ELECTRICAL FAULTS; FAILURE ANALYSIS; RADIOGRAPHY
Identifiers: HYBRID MICROCIRCUITS; MECHANICAL FAILURE ANALYSIS; RADIOGRAPHY; STEREO RADIOGRAPHY; MULTILAYERED PACKAGES; HYBRID FAILURE ANALYSIS; COMPLEX MICROCIRCUITS; PACKAGE OPENING
02
Section Class Codes: B2540, B1263, B1268
Unified Class Codes: SMEAAB, ADGDAL, ZGTAAA

981435 B7646404
'A NEW FABRICATION APPROACH TO ADVANCED ELECTRONICS'
FROMEK, D.K.
DEPT. OF ELECTRICAL ENGNG., UNIV. OF ALABAMA, HUNTSVILLE, AL, USA
IEEE
PROCEEDINGS OF 1975 IEEE SOUTHEASTCON REGION 3 CONFERENCE ON ELECTRICITY AND EXPANDING TECHNOLOGY 5D-3/1-3 1975
II 6-9 APRIL 1975 CHARLOTTE, N.C., USA
IEEE NEW YORK, USA
THE MICAPLY LAMINATE IS AN ECONOMIC THIN-FILM SUBSTRATE THAT CAN REDUCE PROTOTYPE COSTS OF SMALL PRODUCTION FACILITIES, AND THE UNIVERSITY LABORATORY ENVIRONMENT. ORIGINAL DESIGN, CREATIVITY, AND STUDENT ENTHUSIASM ARE KEY FACTORS IN THESE UP-TO-DATE LABORATORY EXPERIMENTS. THE PROCESSING IS SIMPLE AND MAY BE EASILY EMPLOYED IN CONVENTIONAL PRINTED CIRCUIT FACILITIES
Descriptors: THIN FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION
Identifiers: NEW FABRICATION APPROACH; ADVANCED ELECTRONICS; MICAPLY LAMINATE; SMALL PRODUCTION FACILITIES; UNIVERSITY LABORATORY ENVIRONMENT; PRINTED CIRCUIT; THIN FILM SUBSTRATE; ECONOMICS
06
Section Class Codes: B2524, B1267
Unified Class Codes: SMCEAH, ADGKAT

981432 B7646400
MORE ABOUT THE MICROSTRUCTURE OF THICK FILM MATERIALS
SCHNEIDER, B.; ZLOOF, H.; VINIKMAN, V.; SAMUEL, A.
ELTA-ELECTRONICS INDUSTRIES LTD., ASHDOD, ISRAEL
IEEE
9TH CONVENTION OF ELECTRICAL AND ELECTRONIC ENGINEERS IN ISRAEL C2-2/1-13 1975
23-24 APRIL 1975 TEL AVIV, ISRAEL
IEEE NEW YORK, USA
DETERMINATION OF MICROSTRUCTURE WAS PERFORMED USING A SCANNING ELECTRON MICROSCOPE. THE VARIOUS MATERIALS BULK AND INTERFACIAL STRUCTURE WERE STUDIED. CORRELATIONS BETWEEN THE EFFECTS OF PROCESSING CONDITIONS ON ELECTRICAL PARAMETERS, SHEET RESISTANCE AND THERMAL COEFFICIENT OF RESISTANCE WERE PERFORMED WITH RESPECT TO MICROSTRUCTURE. THIS WORK SERVES TO OPTIMIZE PROCESSING CONDITIONS FOR IMPROVING QUALITY AND INCREASING RELIABILITY OF THICK FILM MULTILAYER MICROCIRCUITS (17 Refs)
Descriptors: THICK FILMS; THICK FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; ELECTRON MICROSCOPE EXAMINATION OF MATERIALS; RELIABILITY
Identifiers: MICROSTRUCTURE; THICK FILM MATERIALS; SCANNING ELECTRON MICROSCOPE; INTERFACIAL STRUCTURE; EFFECTS OF PROCESSING CONDITIONS; ELECTRICAL PARAMETERS; SHEET RESISTANCE ; THERMAL COEFFICIENT OF RESISTANCE; QUALITY; RELIABILITY; THICK FILM MULTILAYER MICROCIRCUITS
06
Section Class Codes: B2522
Unified Class Codes: SMCCAX
Language: ENGLISH

981431 B7646399
LASER FUNCTIONAL TRIMMING TECHNIQUES FOR CONSUMER THICK FILM CIRCUITS
BRUGMAN, J.M.
PHILIPS LABORATOIRE VIDEO SK3, EINDHOVEN, NETHERLANDS
ELECTRONIC INDUSTRIES ASSOC. FRANCE, ET AL.
INTERNATIONAL CONFERENCE ON MANUFACTURING AND PACKAGING TECHNIQUES FOR HYBRID CIRCUITS 87-97 1976
7-8 APRIL 1976 PARIS, FRANCE
ELECTRONIC INDUSTRIES ASSOC. FRANCE PARIS, FRANCE
IN MANUFACTURING THICK FILM CIRCUITS, ACCEPTED FABRICATION STEPS INCLUDE THE LASER ADJUSTMENT OF CIRCUIT ELEMENTS TO PREDETERMINED VALUES AND TOLERANCES. IN MANY CASES IT IS DESIRABLE TO TRIM THE RESISTOR OR CAPACITOR TO AN UNKNOWN RESISTANCE OR CAPACITANCE VALUE, USING A CIRCUIT PARAMETER TO CHECK CONTINUOUSLY THE CIRCUIT RESPONSE AND TO CONTROL THE LASER BEAM. THIS PROCEDURE IS KNOWN AS FUNCTIONAL TRIMMING. IN THE CONSUMER ELECTRONICS AREA THIS PROCEDURE IS A PREFERRED ONE, WHILE IT OFTEN ELIMINATES STATIC TRIMMING OF THICK FILM COMPONENTS AND/OR THE NEED FOR DISCRETE COMPONENT SELECTION (8 Refs)
Descriptors: THICK FILM CIRCUITS; LASER BEAM APPLICATIONS; INTEGRATED CIRCUIT PRODUCTION
Identifiers: THICK FILM CIRCUITS; MANUFACTURING; LASER BEAM; CONSUMER ELECTRONICS AREA; TRIMMING
06
Section Class Codes: B2522, B1269, B2980
Unified Class Codes: SMCCAX, ADGMAE, EGMAAA

981428 B7646396
THICK FILM HYBRIDS IN NEW ZEALAND
DE KOCK, D.L.
PHYS. AND ENGNG. LAB., DEPT. OF SCI. AND INDUSTRIAL RES., WELLINGTON, NEW ZEALAND
N.Z. ENG. (NEW ZEALAND) VOL.31, NO.6 162-4 15 JUNE 1976 Coden: NZENA5
THE RELATIVELY LOW SETTING-UP COST OF A THICK FILM PLANT MAKES IT A TECHNOLOGY ATTRACTION TO NEW ZEALAND AND GIVES A FLEXIBILITY THAT SHOULD BE USEFUL IN LOCAL INDUSTRY WHERE SMALL PRODUCTION RUNS OF A VARIETY OF CIRCUITS ARE MORE COMMON THAN VERY LARGE RUNS OF A SINGLE CIRCUIT (2 Refs)
Descriptors: THICK FILM CIRCUITS
Identifiers: THICK FILM PLANT; THICK FILM HYBRIDS
02
Section Class Codes: B2522
Unified Class Codes: SMCCAX

980931 B7645823
THIN FILM MINIATURE POTENTIOMETERS
TAVZES, R.; KANSKY, E.
IEVT, LJUBLJANA, YUGOSLAVIA
THIN SOLID FILMS (SWITZERLAND) VOL.36, NO.2 370 2 AUG. 1976 Coden: THSFAP
3RD INTERNATIONAL CONFERENCE ON THIN,FILMS 25-29 AUG. 1975 BUDAPEST, HUNGARY
ABSTRACT ONLY GIVEN, SUBSTANTIALLY AS FOLLOWS' TRENDS IN THE DEVELOPMENT OF THIN FILM POTENTIOMETERS ARE DISCUSSED. A PRIME ADVANTAGE IS IN THE MULTILAYER STRUCTURE OF THE RESISTIVE FILM WHICH GIVES EXCELLENT ELECTRICAL CHARACTERISTICS ESPECIALLY WITH REGARD TO THE SLIDING CONTACT RESISTANCE. A SPECIFIC DESIGN OF A MINIATURE TRIMMING POTENTIOMETER FOR PROFESSIONAL USE IS DESCRIBED
Descriptors: THIN FILM CIRCUITS; THIN FILM RESISTORS; POTENTIOMETERS; INTEGRATED CIRCUIT PRODUCTION
Identifiers: THIN FILM POTENTIOMETERS; MULTILAYER STRUCTURE; RESISTIVE FILM; ELECTRICAL CHARACTERISTICS; SLIDING CONTACT RESISTANCE; DESIGN; MINIATURE TRIMMING POTENTIOMETER
06
Section Class Codes: B2210, B2524
Unified Class Codes: SEEAAS, SMCEAH

980785 B7645635
AN INTEGRATED ALL-THIN-FILM DIGITAL TIMER
CRESSWELL, M.W.; SIENKIEWICZ, L.J.; BOGEL, G.F.; YU, K.K.; CSAKVARY, T.; ROGERS, W.L.
WESTINGHOUSE RES. LABS., PITTSBURGH, PA, USA
WINNER, L.;
IEEE
1976 IEEE INTERNATIONAL SOLID-STATE CIRCUITS CONFERENCE. (DIGEST OF TECHNICAL PAPERS) 44-5, 229 1976
18-20 FEB. 1976 PHILADELPHIA, PA., USA
IEEE NEW YORK, USA
A RANDOM LOGIC LSI DIGITAL TIMER CIRCUIT WITH OVER 550 TRANSISTORS DEPOSITED ON A GLASS SUBSTRATE IS DESCRIBED. THE CIRCUIT WAS SELECTED PRIMARILY AS A VEHICLE TO ESTABLISH THE VIABILITY OF THIN-FILM TECHNOLOGY IN THIS FIELD (1 Refs)
Descriptors: DIGITAL INTEGRATED CIRCUITS; LARGE SCALE INTEGRATION; TIMING CIRCUITS; THIN FILM CIRCUITS
Identifiers: RANDOM LOGIC; DIGITAL TIMER CIRCUIT; GLASS SUBSTRATE; LSI; THIN FILM TECHNOLOGY
06
Section Class Codes: B1870, B4444, B2524
Unified Class Codes: ETNAAP, BKEGAY, SMCEAH

980334 B7644821
STATEMENT AND PROSPECTS FOR HYBRID CIRCUIT USE IN THE FRENCH POST OFFICE
DELIGNE; HENO; MENORET; MOURET
CNET, LANNION, FRANCE
ELECTRONIC INDUSTRIES ASSOC. FRANCE, ET AL.
INTERNATIONAL CONFERENCE ON MANUFACTURING AND PACKAGING TECHNIQUES FOR HYBRID CIRCUITS 259 1976
7-8 APRIL 1976 PARIS, FRANCE
ELECTRONIC INDUSTRIES ASSOC. FRANCE PARIS, FRANCE
THICK AND THIN FILM HYBRID MICROCIRCUITS ARE USED FOR OVER FIVE YEARS IN EQUIPMENT MADE FOR THE FRENCH POST OFFICE (MAINLY MULTIPLEXES FOR ANALOG TRANSMISSION). OPERATIONAL RELIABILITY RESULTS ARE GIVEN AND COMPARED WITH COMPUTATIONS BASED ON DATA FOR SYSTEMS USING DISCRETE COMPONENTS. AFTER SOME INSIGHT INTO THE ECONOMICS OF THESE TECHNOLOGIES THEIR FUTURE USE, SPECIALLY IN THE TELECOMMUNICATION AREA IS REVIEWED. DISTINCTION IS MADE BETWEEN APPLICATIONS WHERE THE HYBRID TECHNOLOGY IS OF INTRINSIC VALUE AND THE OTHER ONES WHERE THE TECHNICAL EVOLUTION WILL ALLOW SIGNIFICANT COST REDUCTION IN THE FUTURE WHEN COMPARED WITH MORE CONVENTIONAL TECHNOLOGIES
Descriptors: HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS; THIN FILM CIRCUITS; CIRCUIT RELIABILITY
Identifiers: HYBRID CIRCUIT; FRENCH POST OFFICE; THIN FILM; RELIABILITY; ECONOMICS; THICK FILM
06
Section Class Codes: B1263, B2522, B2524, B2540, B3500
Unified Class Codes: ADGDAL, SMCCAX, SMCEAH, SMEAAB, FEAAAG
Language: FRENCH

980151 B7644606
HYBRID THICK FILM TECHNOLOGY TEACHING IN LILLE I.U.T
LEROY, Y.; DESCAMPS, M.; VERNET, M.
DEPT. GENIE ELECTRIQUE, UNIV. DES SCI. ET TECH. DE LILLE, VILLENEUVE D'ASCQ, FRANCE
ELECTRONIC INDUSTRIES ASSOC. FRANCE, ET AL.
INTERNATIONAL CONFERENCE ON MANUFACTURING AND PACKAGING TECHNIQUES FOR HYBRID CIRCUITS 219-27 1976
7-8 APRIL 1976 PARIS, FRANCE
ELECTRONIC INDUSTRIES ASSOC. FRANCE PARIS, FRANCE
PRINCIPLES AND FABRICATION OF HYBRID CIRCUITS (THICK FILM) HAVE BEEN TAUGHT IN THE DEPARTMENT GENIE ELECTRIQUE (I.U.T. LILLE) SINCE 1973. THE PURPOSE OF THIS PAPER IS TO REPORT THE AUTHORS' EXPERIENCE AND TO GIVE A FEW DETAILS ABOUT THE DEVICES WHICH WERE STUDIED AND ACHIEVED BY THE STUDENTS
Descriptors: HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS; TEACHING; INTEGRATED CIRCUIT PRODUCTION
Identifiers: THICK FILM TECHNOLOGY; TEACHING; FABRICATION; HYBRID CIRCUITS; STUDENTS; PRINCIPLES
06
Section Class Codes: B1220, B2540, B2522
Unified Class Codes: ADCAAP, SMEAAB, SMCCAX
Language: FRENCH

970619 B7643475
THICK FILM HYBRID TECHNIQUES OFFER NEW HOPE FOR THE BLIND
HETHERINGTON, D.
ELECTRON. ENGINEERING (GB) VOL.48, NO.582 27-9 AUG. 1976 Coden: ELCEA9
DESCRIBES THESE DEVELOPMENTS FOR IMPLANTABLE ELECTRONICS AND SOME ASSOCIATED WORK THAT IS LIKELY TO BENEFIT AN EVEN WIDER AUDIENCE (2 Refs)
Descriptors: SENSORY AIDS; PROSTHETICS; THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS
Identifiers: IMPLANTABLE ELECTRONICS; BIOMEDICAL ELECTRONICS; THICK FILM HYBRID IC TECHNIQUES; BLIND AIDS; SENSORY AIDS; ARTIFICIAL VISION; ENCAPSULATION; VISUAL PROSTHETICS
02
Section Class Codes: B4680, B2540, B2522
Unified Class Codes: ZRWEAV, SMEAAB, SMCCAX

969106 B7641606
THE ROLE OF THIN FILM HYBRID MICROCIRCUITS IN ELECTRONICS
LAW, J.T.
FERRANTI LTD., EDINBURGH, SCOTLAND
THIN SOLID FILMS (SWITZERLAND) VOL.36, NO.2 323-9 2 AUG. 1976 Coden: THSFAP
3RD INTERNATIONAL CONFERENCE ON THIN,FILMS 25-29 AUG. 1975 BUDAPEST, HUNGARY
THE AUTHOR EXAMINES THE ROLE OF THIN FILM RESISTORS IN HYBRID ICS WITH PARTICULAR REFERENCE TO APPLICATIONS IN A/D AND D/A CONVERTORS, ELECTRONIC SCOTT-T CONVERTORS (SYNCHRO OUTPUT SIGNAL ENCODERS) AND THE NONLINEAR FUNCTION GENERATOR, THE MONOTONICALLY DECREASING DERIVATIVE FUNCTION GENERATOR (THE MDD FUNCTION GENERATOR). SOME GENERAL COMMENTS ON TRIMMING, ESPECIALLY FUNCTIONAL TRIMMING AND ENCAPSULATION ARE INCLUDED
Descriptors: THIN FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; THIN FILM RESISTORS; ANALOGUE-DIGITAL CONVERSION; DIGITAL-ANALOGUE CONVERSION; ENCODING; FUNCTION GENERATORS; INTEGRATED CIRCUIT PRODUCTION; ENCAPSULATION
Identifiers: THIN FILM HYBRID MICROCIRCUITS; THIN FILM RESISTORS; HYBRID ICS; D/A CONVERTORS; ELECTRONIC SCOTT-T CONVERTORS; SYNCHRO OUTPUT SIGNAL ENCODERS; NONLINEAR FUNCTION GENERATOR; MONOTONICALLY DECREASING DERIVATIVE FUNCTION GENERATOR; MDD FUNCTION GENERATOR; TRIMMING; FUNCTIONAL TRIMMING; ENCAPSULATION; A/D CONVERTORS
06
Section Class Codes: B2540, B2524, B1890
Unified Class Codes: SMEAAB, SMCEAH, ETTAAC

DIALOG File13: INSPEC-ELEC & COMPUT 69-77/ISS17 (COPR. I.E.E.) (Item 99 of 388) User 674 28oct77

969105 B7641605
THE RELATIVE MERITS OF THIN FILM AND THICK FILM TECHNOLOGY IN MICROELECTRONICS
FORLANI, F.
MAGNETI MARELLI, DIV. ELECTRONICA FIVRE, PAVIA, ITALY
THIN SOLID FILMS (SWITZERLAND) VOL.36, NO.2 313-22 2 AUG. 1976 Coden: THSFAP
3RD INTERNATIONAL CONFERENCE ON THIN FILMS 25-29 AUG. 1975 BUDAPEST, HUNGARY
THE AUTHOR FIRST REVIEWS THE HISTORY OF THIN AND THICK FILMS USED IN HYBRID IC MANUFACTURE AND SOME CHARACTERISTICS AND APPLICATIONS OF THE TWO TECHNOLOGIES ARE EXAMINED. THE MECHANISMS OF ELECTRONIC CONDUCTION AND NOISE IN THICK FILMS ARE DISCUSSED. THE FUTURE FOR THICK FILM TECHNOLOGY IS APPRAISED (28 Refs)
Descriptors: THICK FILM CIRCUITS; THIN FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; HYBRID INTEGRATED CIRCUITS
Identifiers: THICK FILM TECHNOLOGY; MICROELECTRONICS; HISTORY; HYBRID IC MANUFACTURE; MECHANISMS; ELECTRONIC CONDUCTION; NOISE; FUTURE; THIN FILM TECHNOLOGY
06
Section Class Codes: B2540, B2522, B2524
Unified Class Codes: SMEAAB, SMCCAX, SMCEAH

969094 B7641583
THE MANUFACTURE OF DISTRIBUTED RC CIRCUITS BY HAFNIUM TECHNOLOGY
LEPPAVUORI, S.; SUNI, I.; STUBB, T.
DEPT. OF ELECTRICAL ENGNG., UNIV. OF OULU, OULU, FINLAND
THIN SOLID FILMS (SWITZERLAND) VOL.36, NO.2 365-9 2 AUG. 1976 Coden: THSFAP
3RD INTERNATIONAL CONFERENCE ON THIN FILMS 25-29 AUG. 1975 BUDAPEST, HUNGARY
IN PURSUING THEIR GOAL OF PRODUCING HF SPUTTERED RESISTORS AND CAPACITORS OF DISTRIBUTED CIRCUITS IN THE SAME VACUUM, DIFFICULTIES ACROSS IN THE PRODUCTION OF THE CAPACITORS. THIS REPORT DESCRIBES THE MANUFACTURE OF THE CAPACITORS, THE STRUCTURE AND CHARACTERISTICS (LOSS COEFFICIENT, CAPACITANCE REAL PART OF DIELECTRIC CONSTANT, LEAKAGE CURRENT)
Descriptors: THIN FILM CAPACITORS; THIN FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; DISTRIBUTED PARAMETER NETWORKS
Identifiers: MANUFACTURE; DISTRIBUTED RC CIRCUITS; CAPACITORS; STRUCTURE; CHARACTERISTICS; LOSS COEFFICIENT; CAPACITANCE; REAL PART OF DIELECTRIC CONSTANT; LEAKAGE CURRENT; HF THIN FILM TECHNOLOGY; THIN FILM CAPACITORS
06
Section Class Codes: B2524, B2670
Unified Class Codes: SMCEAH, SNMAAR

969093 B7641582
DESIGN AND CHARACTERISTICS OF THIN FILM INTEGRATED CIRCUITS
DANKOVIC, G.DJ.; KOVACEVIC, N.S.
INST. FOR CHEM., TECHNOL. AND METALL., BELGRADE, YUGOSLAVIA
THIN SOLID FILMS (SWITZERLAND) VOL.36, NO.2 348 2 AUG. 1976 Coden: THSFAP
3RD INTERNATIONAL CONFERENCE ON THIN,FILMS 25-29 AUG. 1975 BUDAPEST, HUNGARY
SUMMARY ONLY GIVEN, SUBSTANTIALLY AS,FOLLOWS' THE RESULTS OF THE DESIGN AND DEVELOPMENT OF A HIGHLY STABLE THIN FILM NICR ATTENUATOR CIRCUIT ARE DESCRIBED. THE ELECTRICAL PARAMETERS OF THE CIRCUIT ARE' (I) IN THE ATTENUATION RANGE 0.1-3.8 NP, Z/SUB C/=6000MEGA; (II) IN THE ATTENUATION RANGE 0.4-2.2 NP, Z/SUB C/=150 OMEGA; (III) POWER DISSIPATION 125 MW; (IV) RESISTOR TOLERANCE +OR- 2PERCENT . THE ELECTROPHYSICAL PROPERTIES OF A THIN NICR (80'20) FILM, DEPOSITED BY VACUUM EVAPORATION, ARE EXAMINED FOR USE AS A PRIMARY RESISTOR MATERIAL. THE CONDUCTING FILMS ARE PREPARED BY EVAPORATION OF NI IN THE SAME VACUUM CYCLE. RESISTOR LOAD LIFE DRIFT (1000 H AT 70 DEGREESC, P/SUB D/=125 MW) IS LESS THAN 0.1PERCENT . THE TCR (-40 DEGREESC TO +100 DEGREESC) IS LESS THAN +OR- 50 PPM DEGREESC/SUP -1/ AND THE TEMPERATURE CYCLING RESISTANCE DRIFTS IS LESS THAN 0.1PERCENT
Descriptors: THIN FILM CIRCUITS; ATTENUATORS; THIN FILM RESISTORS
Identifiers: CHARACTERISTICS; THIN FILM INTEGRATED CIRCUITS; DESIGN; DEVELOPMENT; THIN FILM NICR ATTENUATOR CIRCUIT; ELECTRICAL PARAMETERS; ATTENUATION; POWER DISSIPATION; RESISTOR TOLERANCE; ELECTROPHYSICAL PROPERTIES; THIN NICR; PRIMARY RESISTOR MATERIAL; CONDUCTING,FILMS; LOAD LIFE DRIFT; TEMPERATURE CYCLING RESISTANCE DRIFTS; STABILITY; PRECISION; Z/SUB C/; VACUUM EVAPORATION; SUBSTRATE SIZE; SUBSTRATE SHAPE; SUBSTRATE MATERIAL; TERMINATION LOCATION; PACKAGING TECHNIQUE; STABILITY; PRECISION
06
Section Class Codes: B2524, B1880
Unified Class Codes: SMCEAH, ETRAAM

961794 B7637709, C7625513
DATA ACQUISITION IN A DIP SHRINKS SYSTEMS
CALKINS, R.; BERG, A., JR.
MICRO NETWORKS CORP., WORCESTER, MA, USA
ELECTRONICS (USA) VOL.49, NO.14 77-83 8 JULY 1976
Coden: ELECAD
DISCUSSES THE APPLICATION OF THIN-FILM HYBRID TECHNOLOGY MAKING POSSIBLE A COMPLETE EIGHT-CHANNEL 8-BIT SYSTEM IN A SINGLE 32-PIN DUAL-IN-LINE PACKAGE. ASIDE FROM THE OBVIOUS SPACE SAVINGS, SUCH A HYBRID GREATLY SIMPLIFIES THE DESIGN OF DATA-PROCESSING SYSTEMS AND OFTEN CAN RESULT IN CONSIDERABLE COST REDUCTION. IT EFFECTIVELY BRINGS A SYSTEMS FUNCTION DOWN TO THE COMPONENT LEVEL
Descriptors: DATA ACQUISITION; HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS; PACKAGING; ANALOGUE-DIGITAL CONVERSION
Identifiers: DATA ACQUISITION DIL PACKAGE; THIN FILM HYBRID ICS; 8 CHANNEL 8 BIT SYSTEM; 32 PIN DIL PACKAGE
02
Section Class Codes: C9960, B2540, B2524, B1266
Unified Class Codes: XTKAAS, SMEAAB, SMCEAH, ADGHAH

957029 B7637739
TECHNOLOGICAL REQUIREMENTS FOR PORTABLE THICK FILM HYBRID DEVICES
KOSIS, A.; LEROUX, A.; RICHARD, S.; AUBE, G.; AUCOUTURIER, J.L.
UNIV. DE SHERBROOKE, QUEBEC, CANADA
IEEE, NAT. ELECTRICAL MANUFACTURERS ASSOC., INST. PRINTED CIRCUITS
12TH ELECTRICAL/ELECTRONICS INSULATION CONFERENCE 36-9 1975
11-14 NOV. 1975 BOSTON, MASS., USA
IEEE NEW YORK, USA
THIS PAPER PRIMARILY COMPRISES EXCERPTS OF THE WORK DONE UNDER A REGULAR UNDERGRADUATE TEACHING PROGRAM. THE MATERIAL IS ORGANIZED INTO SUBJECT GROUPINGS WITH THE INTENTION OF PRESENTING IN CONVENIENT FORM SUFFICIENT INFORMATION FOR MAKING HIGH QUALITY THICK FILM PORTABLE DEVICES. THE WORK EMPHASIZES PROBLEMS AND METHODS OF SOLVING THE CONSTRUCTION OF A THICK FILM DIGITAL WRIST-WATCH PROTOTYPE, USING A NEW PTAG INK AND A NOVEL PROCEDURE TO FABRICATE THICK FILM MULTILAYER STRUCTURES WITH UNUSUALLY HIGH LINE DENSITIES ASSOCIATED WITH INCREASED YIELD AS COMPARED WITH PREVIOUSLY KNOWN METHODS
Descriptors: THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; CLOCKS
Identifiers: PORTABLE THICK FILM HYBRID DEVICES; PTAG INK; THICK FILM MULTILAYER STRUCTURES; HIGH LINE DENSITIES; TECHNOLOGICAL REQUIREMENTS; DIGITAL WRIST WATCH
06
Section Class Codes: B2540, B2522
Unified Class Codes: SMEAAB, SMCCAX

957026 B7637736
THIN FILM HYBRID MICROCIRCUITS ON POLYMER SUBSTRATES
HICKS, R.E.; ZIMMERMAN, D.D.
APPL. PHYS. LAB., LAUREL, MD, USA
IEEE
PROCEEDINGS OF THE 1976 IEEE SOUTHEASTCON REGION 3 CONFERENCE ON ENGINEERING IN A CHANGING ECONOMY 217-18 1976
5-7 APRIL 1976 CLEMSON, S.C., USA
IEEE NEW YORK, USA
EXISTING LABORATORY EQUIPMENT AND PROCESSES WERE USED TO INVESTIGATE THE SUBSTITUTION OF POLYIMIDE FILM MATERIALS FOR ALUMINA SUBSTRATES USING THIN FILM, ELECTROLESS PLATING AND ELECTROPLATING TECHNIQUES. THIS STUDY INCLUDES TECHNIQUES FOR LAMINATING MULTILAYER POLYIMIDE BOARDS WITH A UNIQUE PLATED THROUGH HOLE. COMMERCIALLY AVAILABLE PRE-CLAD, METAL, LAMINATED POLYIMIDE MATERIALS ARE COMBINED WITH THESE HYBRID CIRCUIT TECHNIQUES TO PRODUCE AN ENTIRE SYSTEM. HERMETICALLY SEALED HYBRID PACKAGES ARE ESSENTIALLY ELIMINATED WITHOUT SACRIFICING THE ABILITY TO INTEGRATE THEM INTO THE ASSEMBLY IF REQUIRED (2 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; SUBSTRATES; POLYMERS; PACKAGING; INTEGRATED CIRCUIT PRODUCTION; THIN FILM CIRCUITS
Identifiers: HYBRID MICROCIRCUITS; POLYIMIDE FILM; SUBSTRATES; THIN FILM; ELECTROLESS PLATING; ELECTROPLATING; PLATED THROUGH HOLE; HYBRID PACKAGES
06
Section Class Codes: B2540, B2524, B1266
Unified Class Codes: SMEAAB, SMCEAH, ADGHAH

957020 B7637730
TESTS FOR ELECTRICALLY ACTIVE SURFACE CONTAMINANTS FROM HYBRID MICROCIRCUIT ADHESIVES
SZEDON, J.R.
RES. LAB., WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA, USA
IEEE, ELECTRONIC INDUSTRIES ASSOC.
26TH ELECTRONIC COMPONENTS CONFERENCE 368-72 1976
26-28 APRIL 1976 SAN FRANCISCO, CALIF., USA
IEEE NEW YORK, USA
TESTS ARE DESCRIBED OF THE EFFECTS OF OUTGASSING FROM TWO EPOXIES ON THE ELECTRICAL BEHAVIOUR OF SPECIAL MOS-TYPE TEST VEHICLES AND OF SURFACE SENSITIVE BIPOLAR TRANSISTORS. A STRONG CORRELATION IS SHOWN BETWEEN SURFACE POTENTIAL CHANGES WITH TIME IN THE TEST VEHICLES AND CHANGES IN THE SURFACE COMPONENT OF TRANSISTOR BASE CURRENT WHICH AFFECT COLLECTOR-BASE CURRENT GAIN. SUGGESTIONS FOR SCREENING ADHESIVE MATERIALS FOR CHIP ATTACHMENT APPLICATIONS ARE GIVEN (6 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; ASSEMBLING; INTEGRATED CIRCUIT PRODUCTION
Identifiers: ELECTRICALLY ACTIVE SURFACE CONTAMINANTS; HYBRID MICROCIRCUIT ADHESIVES; OUTGASSING; EPOXIES; SURFACE SENSITIVE BIPOLAR TRANSISTORS; MOS DEVICES
06
Section Class Codes: B2540, B2560
Unified Class Codes: SMEAAB, SMGAAR

957019 B7637729
THIN FILM RESISTOR NETWORKS IN HYBRIDS
GROTH, L.
HELIPOT DIV. BECKMAN INSTRUMENTS INC., FULLERTON, CA, USA
IEEE, ELECTRONIC INDUSTRIES ASSOC.
26TH ELECTRONIC COMPONENTS CONFERENCE 317-21 1976
26-28 APRIL 1976 SAN FRANCISCO, CALIF., USA
IEEE NEW YORK, USA
THE USE OF THIN FILM PRECISION RESISTOR NETWORKS IN CHIP FORM IS INCREASING IN HYBRID CIRCUITS, PARTICULARLY IN DIGITAL-TO-ANALOG CONVERTERS, WHERE THEIR SUPERIOR TOLERANCES, TEMPCO TRACKING AND SMALL SIZE MAKE POSSIBLE BETTER PERFORMANCE AT HIGHER PACKAGING DENSITIES. THE PERFORMANCE OF PRECISION THICK FILM CERMET RESISTORS AND NETWORKS AS USED IN THE CONVERTER IS COMPARED WITH THIN FILM AND IT IS SHOWN THAT FOR BETTER THAN 10 BIT LINEARITY OVER THE -55 DEGREESC TO 125 DEGREESC TEMPERATURE SPAN, THIN FILM PERFORMANCE IS NECESSARY. ASPECTS OF HYBRID DESIGN WITH CHIP NETWORKS AND CHIP DESIGN ARE OUTLINED. SEVERAL HYBRID CONVERTERS ARE DISCUSSED TO ILLUSTRATE THE CHIP NETWORK ADVANTAGES (5 Refs)
Descriptors: THIN FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; DIGITAL-ANALOGUE CONVERSION
Identifiers: THIN FILM PRECISION RESISTOR NETWORKS; CHIP FORM; HYBRID CIRCUITS; DIGITAL ANALOGUE CONVERTORS
06
Section Class Codes: B2540, B2524
Unified Class Codes: SMEAAB, SMCEAH

957017 B7637727
LARGE AREA HYBRID-AN ADVANCED MICROELECTRONIC PACKAGING CONCEPT
KEISTER, F.Z.; HIMMEL, R.P.; SCAPPLE, R.Y.
HUGHES AIRCRAFT CO., CULVER CITY, CA, USA
IEEE, ELECTRONIC INDUSTRIES ASSOC.
26TH ELECTRONIC COMPONENTS CONFERENCE 292-9 1976
26-28 APRIL 1976 SAN FRANCISCO, CALIF., USA
IEEE NEW YORK, USA
THE LARGE AREA HYBRID (LAH) IS A FULLY PROVEN MICROELECTRONIC PACKAGING CONCEPT WHICH EXTENDS CONVENTIONAL HYBRID TECHNOLOGY TO THE NEXT LEVEL OF ASSEMBLY-THE MODULE LEVEL. IT COMBINES THE DESIGN AND PACKAGING ADVANTAGES OF HYBRID MICROCIRCUITS AND PRINTED WIRING BOARDS. FEATURES OF LAH INCLUDE A LARGE CERAMIC SUBSTRATE (4SECONDS *4SECONDS TYPICAL) UPON WHICH RESISTORS AND MULTILAYER THICK FILM CONDUCTORS ARE DEPOSITED. DISCRETE PACKAGED COMPONENTS MAY BE ATTACHED AND INTERCONNECTED TO THIS CIRCUITRY. IN ADDITION, SELECTIVE AREAS OF THE SUBSTRATE MAY BE HERMETICALLY SEALED (BY A REPAIRABLE PROCESS) TO PROVIDE PROTECTION FOR SENSITIVE DEVICES AND WIRE BOND INTERCONNECTS. FINALLY, THE SUBSTRATE IS BONDED TO AN APPROPRIATE STRUCTURAL MEMBER AND INTERCONNECTED TO OUTSIDE CIRCUITRY BY MEANS OF A CONNECTOR, OR BY HARD WIRING. THIS PAPER DESCRIBES ADVANTAGES AND DISADVANTAGES OF LAH AS WELL AS SOME OF THE PROBLEM AREAS EXPERIENCED AND PROCESS/DESIGN DEVELOPMENTS ACHIEVED. ENVIRONMENTAL TEST RESULTS ARE PRESENTED FOR DEVELOPMENTAL ENGINEERING MODELS
Descriptors: HYBRID INTEGRATED CIRCUITS; PACKAGING; MODULES; THICK FILM CIRCUITS
Identifiers: LARGE AREA HYBRID; MICROELECTRONIC PACKAGING CONCEPT; LARGE CERAMIC SUBSTRATE; DISCRETE PACKAGED COMPONENTS ; THICK FILM RESISTORS; THICK FILM CONDUCTORS
06
Section Class Codes: B2540, B2522, B1266
Unified Class Codes: SMEAAB, SMCCAX, ADGHAH

957016 B7637726
SCREENING PROCEDURE FOR ADHESION DEGRADATION DUE TO SOLDER LEACHING IN THICK-FILM HYBRID MICROCIRCUITS
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26TH ELECTRONIC COMPONENTS CONFERENCE 285-91 1976
26-28 APRIL 1976 SAN FRANCISCO, CALIF., USA
IEEE NEW YORK, USA
DESCRIBES THE RESULTS OF AN EXPERIMENT TO DETERMINE PRACTICAL SCREENING AND QUALITY ASSURANCE PROCEDURES. FOUR ENVIRONMENTAL STRESSES WERE COMPARED TO DETERMINE WHICH ONE TO USE AS A QUALITY ASSURANCE TEST FOR ADHESION DECAY. THE TEST METHOD CONSISTED OF SOLDERING COPPER PINS TO CONDUCTOR PADS ON THE SUBSTRATE, AND THEN PULL-TESTING THE PINS TO THE DESTRUCTION OF THE CONDUCTOR/SUBSTRATE BONDS, BOTH BEFORE AND AFTER ENVIRONMENTAL STRESSES. THIS METHOD PROVIDES A MEASUREMENT OF BOTH TENSILE ADHESION BETWEEN THE SOLDERED CONDUCTOR AND THE SUBSTRATE, AND ADHESION DEGRADATION PROMOTED BY THE ENVIRONMENTAL STRESS. SEVEN THICK-FILM CONDUCTOR MATERIALS AND THREE SOLDER COMPOSITIONS WERE USED, MAKING A TOTAL OF 21 CONDUCTOR/SOLDER SYSTEMS TESTED. ADHESION MEASUREMENTS WERE MADE IMMEDIATELY, AGAIN AFTER A MINIMUM THREE-DAY SHELF LIFE, AND ALSO AFTER EACH ENVIRONMENTAL STRESS. THE MEDIAN FORCE-PER-UNIT AREA VALUES FOR EACH CONDUCTOR/SOLDER/ENVIRONMENTAL STRESS COMBINATION WERE TABULATED AND PLOTTED. THE TEMPERATURE CYCLING STRESS APPEARS TO BE THE MOST PRACTICAL STRESS TO USE AS A SCREENING PROCEDURE FOR SOLDER LEACHING. GUIDELINES ARE PRESENTED FOR PERFORMING THE SCREENING TEST AND DETERMINING A RATING FOR ANY MATERIAL COMBINATION (7 Refs)
Descriptors: THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; INTEGRATED CIRCUIT TESTING; SOLDERING; QUALITY CONTROL; ADHESION; ENVIRONMENTAL TESTING
Identifiers: ADHESION DEGRADATION; SOLDER LEACHING; QUALITY ASSURANCE; ENVIRONMENTAL STRESSES; TENSILE ADHESION; TEMPERATURE CYCLING STRESS; SCREENING PROCEDURE
06
Section Class Codes: B2540, B2522, B1263
Unified Class Codes: SMEAAB, SMCCAX, ADGDAL

957013 B7637723
PERFORMANCE CHARACTERISTICS OF PLATINUM-SILVER CONDUCTOR MATERIALS IN HYBRID MICROCIRCUITS
SUPPELSA, A.; KHADPE, S.
COMMUNICATIONS DIV., MOTOROLA INC., FORT LAUDERDALE, FL, USA
IEEE, ELECTRONIC INDUSTRIES ASSOC.
26TH ELECTRONIC COMPONENTS CONFERENCE 150-5 1976
26-28 APRIL 1976 SAN FRANCISCO, CALIF., USA
IEEE NEW YORK, USA
THE RELATIVE PERFORMANCE CHARACTERISTICS OF THICK FILM PLATINUM-SILVER CONDUCTOR MATERIALS FOR HYBRID MICROELECTRONIC APPLICATIONS ARE DESCRIBED. THE PERFORMANCE OF PLATINUM-SILVER IS COMPARED TO THAT OF PALLADIUM-SILVER IN THE AREAS OF SOLDER PEEL STRENGTH, SOLDER LEACH RESISTANCE, SCREEN PRINTING CHARACTERISTICS, FILM RESISTIVITY, ALUMINIUM ULTRASONIC WIRE BONDABILITY AND TEMPERATURE AGED PEEL STRENGTH. THE CHANGES IN METAL PERFORMANCE CHARACTERISTICS DUE TO THE INTERACTION WITH MULTILAYER DIELECTRICS ARE ALSO DISCUSSED. CAPACITORS MADE WITH VARIOUS METAL DIELECTRIC COMBINATIONS ARE DESCRIBED, AND THEIR QUALITY FACTORS COMPARED AT 1 MHZ AND 200 MHZ. THE DATA PRESENTED SHOW THAT NO SINGLE PLATINUM-SILVER IS SUPERIOR IN ALL AREAS TESTED; HOWEVER, SOME METAL-GLASS COMBINATIONS HAVE BETTER ELECTRICAL PROPERTIES THAN OTHERS (7 Refs)
Descriptors: THICK FILMS; HYBRID INTEGRATED CIRCUITS; CAPACITORS; THICK FILM DEVICES
Identifiers: HYBRID MICROCIRCUITS; SOLDER PEEL STRENGTH; SOLDER LEACH RESISTANCE; SCREEN PRINTING CHARACTERISTICS; FILM RESISTIVITY; ALUMINIUM ULTRASONIC WIRE BONDABILITY; TEMPERATURE AGED PEEL STRENGTH; MULTILAYER DIELECTRICS; METAL DIELECTRIC COMBINATIONS; PT-AG CONDUCTOR MATERIALS; THICK FILM CONDUCTORS
06
Section Class Codes: B2540, B2522, B2670
Unified Class Codes: SMEAAB, SMCCAX, SNMAAR

957012 B7637722
ULTRASONIC BONDABILITY OF PLATINUM-SILVER CONDUCTORS IN HYBRID MICROCIRCUITS
KHADPE, S.; BULL, D.N.
COMMUNICATIONS DIV., MOTOROLA INC., FORT LAUDERDALE, FL, USA
IEEE, ELECTRONIC INDUSTRIES ASSOC.
26TH ELECTRONIC COMPONENTS CONFERENCE 86-91 1976
26-28 APRIL 1976 SAN FRANCISCO, CALIF., USA
IEEE NEW YORK, USA
THE ULTRASONIC BONDING CHARACTERISTICS OF PLATINUM-SILVER CONDUCTOR MATERIALS ARE DESCRIBED. ONE MIL AL (1PERCENT SI) WIRE WAS ULTRASONICALLY BONDED TO FIVE DIFFERENT PT-AG CONDUCTOR MATERIALS PRINTED AND GOLD CONDUCTOR MATERIALS WERE ALSO USED AS TEST VEHICLES FOR COMPARISON PURPOSES. BOND PULL STRENGTH DATA ARE PRESENTED FOR EACH MATERIAL AT 0, 168, 500, AND 1000 HOURS OF AGING AT 150 DEGREESC. THE DEGRADATION IN BOND STRENGTH DUE TO AGING AT 150 DEGREESC IS CALCULATED FOR EACH MATERIAL FOR 168, 500, AND 1000 HOURS. THE DATA SHOW THAT PT-AG HAS EXCELLENT BONDING CHARACTERISTICS AND IS SUPERIOR TO BOTH PD-AG AND AU IN BOND STRENGTH RETENTION AFTER 1000 HOURS OF AGING AT 150 DEGREESC (9 Refs)
Descriptors: INTEGRATED CIRCUIT PRODUCTION; METALLISATION; HYBRID INTEGRATED CIRCUITS; HYBRID INTEGRATED CIRCUITS; ULTRASONIC APPLICATIONS
Identifiers: HYBRID MICROCIRCUITS; ULTRASONIC BONDING CHARACTERISTICS; PT/AG CONDUCTORS
06
Section Class Codes: B2540, B2560
Unified Class Codes: SMEAAB, SMGAAR

957011 B7637720
PHYSICAL DEFECTS IN THICK-FILM HYBRID SUBSTRATES
FRITZ, L.L.
WESTERN DIV., GTE-SYLVANIA INC., MOUNTAIN VIEW, CA, USA
IEEE, ELECTRONIC INDUSTRIES ASSOC.
26TH ELECTRONIC COMPONENTS CONFERENCE 32-54 1976
26-28 APRIL 1976 SAN FRANCISCO, CALIF., USA
IEEE NEW YORK, USA
DESCRIBES INSPECTION CRITERIA FOR MANUFACTURING THICK-FILM SUBSTRATES TO HIGH-RELIABILITY STANDARDS AND PHOTOGRAPHICALLY ILLUSTRATES DEFECTS THAT WERE ENCOUNTERED. PROGRAM STARTUP INCLUDED MOVING INTO A NEW CLEAN ROOM FACILITY, TRAINING OF OPERATORS, SPECIFICATION GENERATION AND DOCUMENTATION PROCEDURES. A MONITORED-LINE CONCEPT WAS USED WITH RELIABILITY AND QUALITY ASSURANCE PERSONNEL PERFORMING THE MONITORING FUNCTION (7 Refs)
Descriptors: THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; INSPECTION; QUALITY CONTROL
Identifiers: INSPECTION CRITERIA; RELIABILITY; QUALITY ASSURANCE; MONITORING; THICK FILM HYBRID INTEGRATED CIRCUITS
06
Section Class Codes: B2540, B2522, B1263
Unified Class Codes: SMEAAB, SMCCAX, ADGDAL

957010 B7637719
MANUFACTURING PROCESSES FOR HYBRID MICROCIRCUITS CONTAINING VIAS
NORWOOD, D.; LAUDEL, A.; BLESSNER, P.
BENDIX CORP., KANSAS CITY, MO, USA
IEEE, ELECTRONIC INDUSTRIES ASSOC.
26TH ELECTRONIC COMPONENTS CONFERENCE 18-31 1976
26-28 APRIL 1976 SAN FRANCISCO, CALIF., USA
IEEE NEW YORK, USA
HYBRID MICROCIRCUITS DESIGNED FOR ERDA BY SANDIA LABORATORIES REQUIRE METALLIZED VIAS TO INTERCONNECT FRONTSIDE TANTALUM-NITRIDE, CHROMIUM-GOLD THIN-FILM NETWORKS WITH METALLIZED BACKSIDE GROUND PLANES ON 3.75 INCH (95.2 MM) BY 4.5 INCH (114 MM) ALUMINA SUBSTRATES. MANUFACTURING PROCESSES WERE DEVELOPED FOR MAKING HOLES IN ALUMINA SUBSTRATES, METALLIZING SUBSTRATES ON BOTH SIDES AND THROUGH VIAS, DRY FILM PHOTOLITHOGRAPHING 6 MUM THICK GOLD TO 5 MIL (127 MUM) LINE WIDTHS AND SPACING, AND DETERMINING VIA QUALITY AND ACCEPTANCE (4 Refs)
Descriptors: INTEGRATED CIRCUIT PRODUCTION; HYBRID INTEGRATED CIRCUITS; METALLISATION; SUBSTRATES
Identifiers: HYBRID MICROCIRCUITS; METALLIZED BACKSIDE GROUND PLANES; ALUMINA SUBSTRATES; DRY FILM PHOTOLITHOGRAPHING; AU/CR THIN FILM NETWORK; METALLISED VIAS
06
Section Class Codes: B2540
Unified Class Codes: SMEAAB

957008 B7637717
PRODUCTION COATING OF VIAS IN ALUMINA SUBSTRATES WITH VACUUM EVAPORATED CHROMIUM AND GOLD
LOSURE, J.A.
BENDIX CORP., KANSAS CITY, MO, USA
IEEE, ELECTRONIC INDUSTRIES ASSOC.
26TH ELECTRONIC COMPONENTS CONFERENCE 1-8 1976
26-28 APRIL 1976 SAN FRANCISCO, CALIF., USA
IEEE NEW YORK, USA
DESIGN OF A PRODUCTION VACUUM DEPOSITION FIXTURE FOR COATING 3.75 INCH BY 4.50 INCH (95 BY 114 MM) ALUMINA SUBSTRATES WITH 50 NM OF CHROMIUM AND 6 MUM OF GOLD PRESENTED CHALLENGES IN MEETING GEOMETRY, MECHANICAL, AND COST CONSTRAINTS. THE COATED SUBSTRATES HAD TO MEET UNIQUE REQUIREMENTS FOR VIA RESISTANCE, THICKNESS UNIFORMITY, AND BACKSIDE METALLIZATION ON HYBRID MICROCIRCUITS. A STUDY OF FIXTURE GEOMETRY VERSUS THE REQUIRED FILM CHARACTERISTICS RESULTED IN THE DESIGN OF A FIXTURE WHICH ROTATES THE SUBSTRATES 360 DEGREES ABOUT THEIR LONG AXIS WHILE SIMULTANEOUSLY ROTATING THEM ABOUT THE DEPOSITION SOURCE IN A PROLATE CYCLOID MOTION
Descriptors: INTEGRATED CIRCUIT PRODUCTION; VAPOUR DEPOSITION; HYBRID INTEGRATED CIRCUITS; SUBSTRATES; METALLISATION
Identifiers: ALUMINA SUBSTRATES; PRODUCTION VACUUM DEPOSITION FIXTURE; RESISTANCE; THICKNESS UNIFORMITY; HYBRID MICROCIRCUITS; FILM CHARACTERISTICS; PROLATE CYCLOID MOTION; PRODUCTION COATING; AU COATING; CR COATING; BACKSIDE METALLISATION
06
Section Class Codes: B2540
Unified Class Codes: SMEAAB

957005 B7637714
SCREEN PATTERN GENERATION BY LASERS
SUGIYAMA, H.; MUTO, H.; KOUNO, E.; TAMURA, T.
J. JAP. SOC. PRECIS. ENG. (JAPAN) VOL.42, NO.6 478-84 JUNE 1976 Coden: JJPEAD

THIS PAPER DESCRIBES SCREEN PATTERN GENERATION BY ND'YAG AND AR LASERS. THE SCREEN IS USED IN FABRICATION OF THICK FILM HYBRID INTEGRATED CIRCUITS AND CONSISTS OF A STAINLESS STEEL WIRE MESH COATED WITH FILLER MATERIAL. A FOCUSED LASER BEAM REMOVES THE FILLER MATERIAL WITHOUT THERMALLY DAMAGING THE STAINLESS STEEL MESH. EPOXY RESIN, POLYVINYLYDENE CHLORIDE, POLYVINYLYDENE FLUORIDE, POLYVINYL ALCOHOL AND POLYVINYL ACETATE WERE SELECTED AS THE FILLER MATERIALS. THEY WERE EXPERIMENTED WITH AND THE RESULTS WERE OBSERVED. FURTHER EXPERIMENTS WERE CONDUCTED FOR POLYVINYL ALCOHOL FILLERS WHICH SHOWED GOOD LASER MACHINABILITY. IN ORDER TO INVESTIGATE THE RELATION BETWEEN LASER POWER AND PATTERN WIDTH, THE SCREEN PATTERNS WERE GENERATED ON A MINI-COMPUTER CONTROLLED XY TABLE. PRINTED CONDUCTOR PATTERNS HAD GOOD SPECIFICATIONS, AND RESULTS SHOWED POSSIBILITIES FOR PRACTICAL APPLICATIONS. CONNECTING THIS SYSTEM TO CAD (COMPUTER AIDED DESIGN) WILL FURTHER ENHANCE ITS EFFECTIVENESS (1 Refs)

Descriptors: INTEGRATED CIRCUIT PRODUCTION; LASER BEAM APPLICATIONS; HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS
Identifiers: LASERS; THICK FILM HYBRID INTEGRATED CIRCUITS; STAINLESS STEEL WIRE MESH; LASER BEAM; POLYVINYLYDENE CHLORIDE; POLYVINYLYDENE FLUORIDE; POLYVINYL ALCOHOL; POLYVINYL ACETATE; LASER POWER; PATTERN WIDTH; EPOXY RESIN; SCREEN PATTERN GENERATION
02
Section Class Codes: B2540, B2522, B2980
Unified Class Codes: SMEAAB, SMCCAX, EGMAAA
Language: JAPANESE

957003 B7637712
CONSTRUCTION AND APPLICATION OF THICK-FILM HYBRID CIRCUITS
HETHERINGTON, D.R.
NEWMARKET TRANSISTORS LTD., NEWMARKET, ENGLAND
ELEKTRON. IND. (GERMANY) VOL.7, NO.5 104-6 MAY 1976 Coden: EKIDAT

GIVES A BRIEF INTRODUCTION AND STATE-OF-THE-ART SURVEY. THE MAIN ATTRACTION IS THE WIDE RESISTOR RANGE (1 TO 10/SUP 9/ OHM) OF HIGH PRECISION (0.5PERCENT). MATERIALS FOR THESE RESISTORS AND FOR CONDUCTORS AND SUITABLE METHODS FOR MOUNTING DISCRETE PASSIVE COMPONENTS (E.G. TANTALUM CAPACITORS) AND ACTIVE ELEMENTS (TRANSISTORS) ARE DESCRIBED. TYPICAL APPLICATIONS IN COMMUNICATIONS, BIOMEDICINE AND ENTERTAINMENT ELECTRONICS ARE BRIEFLY TREATED AND ILLUSTRATED. A COMPREHENSIVE TABLE, QUOTING VARIOUS ENCAPSULATION TECHNIQUES (LOW-MELTING GLASS, PHENOLIC AND EPOXY RESINS, INJECTION MOULDINGS, HERMETIC SEALS IN METAL- AND CERAMIC CANS) AND THE APPROPRIATE SIZES, RELATIVE COSTS, TEMPERATURE RANGES AND TYPICAL CYCLE-APPROVAL TESTS IS GIVEN

Descriptors: HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS; THICK FILM RESISTORS; ENCAPSULATION
Identifiers: WIDE RESISTOR RANGE; MOUNTING DISCRETE PASSIVE COMPONENTS; ENCAPSULATION TECHNIQUES; RELATIVE COSTS; TEMPERATURE RANGES; TEMPERATURE CYCLING APPROVAL TESTS; THICK FILM HYBRID ICS; PRECISION RESISTORS; MATERIALS; THICK FILM RESISTORS
02
Section Class Codes: B2540, B2522, B2210, B1266
Unified Class Codes: SMEAAB, SMCCAX, SEEAAS, ADGHAH
Language: GERMAN

957001 B7637710
ADVANCES IN MATERIALS, COMPONENTS, PROCESSES, ENSURE HYBRID PROSPERITY IN THE LSI AGE
LYMAN, J.
ELECTRONICS (USA) VOL.49, NO.15 92-104 22 JULY 1976 Coden: ELECAD

DISCUSSES ADVANCES WHICH ACCOMMODATE LSI ICS INCLUDING LARGE MULTILAYER HYBRIDS AND ALSO DISCUSSES THE REDUCTION OF COSTS. BOTH THICK AND THIN-FILM TECHNOLOGY ARE DISCUSSED, AND THEIR EXPANSION FROM MILITARY/AEROSPACE FIELDS INTO MORE LUCRATIVE HIGH-VOLUME AREAS. THE BASIC ADVANTAGES OF HYBRID TECHNOLOGY ARE LISTED

Descriptors: HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS; THIN FILM CIRCUITS
Identifiers: MATERIALS; COMPONENTS; PROCESSES; MULTILAYER HYBRIDS; HYBRID TECHNOLOGY; HYBRID ICS; LSI CHIPS; THICK FILM TECHNOLOGY; THIN FILM TECHNOLOGY
02
Section Class Codes: B2540, B2522, B2524
Unified Class Codes: SMEAAB, SMCCAX, SMCEAH

956970 B7637659
LOW-COST PRECISION RESISTOR NETWORKS
COLLINS, F.M.
DEPT. OF SPECIAL COMPONENTS, AIRCO ELECTRONICS, NIAGARA FALLS, NY, USA
IEEE, ELECTRONIC INDUSTRIES ASSOC.
26TH ELECTRONIC COMPONENTS CONFERENCE 313-16 1976
26-28 APRIL 1976 SAN FRANCISCO, CALIF., USA
IEEE NEW YORK, USA
DESCRIBES THE PRODUCTION OF THIN FILM RESISTOR NETWORKS USING TANTALUM BASED FILMS ON FINE GRAINED CERAMIC SUBSTRATES. CIRCUIT PATTERNS ARE GENERATED BY SUBTRACTIVE ETCHING AND ARE LASER TRIMMED. EXTERNAL LEADS ARE PROVIDED BY THERMOCOMPRESSSION BONDING OF RIBBON LEADS. PACKAGING IS COMPLETED WITH A TOP CERAMIC COVER
Descriptors: THIN FILM CIRCUITS; PACKAGING; INTEGRATED CIRCUIT PRODUCTION
Identifiers: PRECISION RESISTOR NETWORKS; THIN FILM RESISTOR NETWORKS; TANTALUM BASED FILMS; FINE GRAINED CERAMIC SUBSTRATES; SUBTRACTIVE ETCHING; THERMOCOMPRESSSION BONDING; RIBBON LEADS; TOP CERAMIC COVER; PACKAGING; EXTERNAL LEADS; LASER TRIMMING
06
Section Class Codes: B2524, B1260
Unified Class Codes: SMCEAH, ADGHAH

956969 B7637658
THE EFFECTS OF GOLD AND NICKEL PLATING THICKNESSES ON THE STRENGTH AND RELIABILITY OF THERMOCOMPRESSION BONDED EXTERNAL LEADS
PANOUSIS, N.T.; HALL, P.M.
BELL TELEPHONE LABS. INC., ALLENTOWN, PA, USA
IEEE, ELECTRONIC INDUSTRIES ASSOC.
26TH ELECTRONIC COMPONENTS CONFERENCE 74-9 1976
26-28 APRIL 1976 SAN FRANCISCO, CALIF., USA
IEEE NEW YORK, USA
EXTERNAL LEADS INTENDED FOR THERMOCOMPRESSION (TC) BONDING TO AU-METALLIZED THIN FILM CIRCUITS ARE TYPICALLY CU-BASED ALLOYS PLATED WITH AU OR A COMBINATION OF NI AND AU. THE OBJECTIVE OF THIS WORK WAS AN EVALUATION OF THE NI/AU SYSTEM TO DETERMINE THE OPTIMUM PLATING THICKNESSES FOR RELIABLE TC BONDING. ALSO INVESTIGATED WAS THE MINIMUM AU THICKNESSES NECESSARY FOR TC BONDING WHEN THE NI DIFFUSION BARRIER WAS OMITTED. FOUR CRITERIA WERE EVALUATED: INITIAL BONDABILITY; BOND STRENGTH AFTER ACCELERATED AGING; SUSCEPTIBILITY TO CRACKING IN A 90 DEGREES BEND TEST; AND FATIGUE BEHAVIOR. THE TEST VEHICLE WAS A 32-LEAD DUAL-IN-LINE PACKAGE UTILIZING ALUMINA SUBSTRATES METALLIZED WITH TI/PD/AU FILMS AND CU LEAD FRAMES (CDA 102 AND 110) ELECTROPLATED WITH NI AND AU IN THE RANGES OF 0 TO 41 MUM AND 0.4 TO 20 MUM RESPECTIVELY (0 TO 1630 AND 15 TO 780 MICROINCHES (MUIN) RESPECTIVELY) (7 Refs)
Descriptors: THIN FILM CIRCUITS; WELDING; RELIABILITY; MECHANICAL STRENGTH
Identifiers: STRENGTH; RELIABILITY; THERMOCOMPRESSION BONDED EXTERNAL LEADS; THIN FILM CIRCUITS; OPTIMUM PLATING THICKNESSES; INITIAL BONDABILITY; BOND STRENGTH; CRACKING; BEND TEST; AU; NI; PLATING THICKNESS EFFECTS
06
Section Class Codes: B2524, B2560
Unified Class Codes: SMCEAH, SMGAAR

956967 A7672678, B7637656
CHARACTERISTICS OF POLYCRYSTALLINE SILICON INTEGRATED CIRCUITS
GOROHOV, V.A.; MAISON, E.A.; POLYAKOV, C.A.
VZEIS, MOSCOW, USSR
THIN SOLID FILMS (SWITZERLAND) VOL.35, NO.2 149-53 15 JUNE 1976 Coden: THSFAP
THE INTERRELATION OF THE MICROSTRUCTURE, MORPHOLOGY AND ELECTROPHYSICAL PROPERTIES OF POLYCRYSTALLINE SILICON THIN FILMS GROWN ON NON-ORIENTED INSULATING SUBSTRATES BY CATHODE GETTER SPUTTERING AND BY CHEMICAL VAPOUR DEPOSITION AND ALSO THE CHARACTERISTICS OF INTEGRATED CIRCUIT ELEMENTS SUCH AS RESISTORS, DIODES, JFETS AND MOSFETS, FABRICATED FROM THESE FILMS BY PLANAR TECHNOLOGY, HAVE BEEN INVESTIGATED. THE ELECTRONIC PROPERTIES OF THESE FILMS ARE INTERPRETED IN TERMS OF A MODEL WHICH TAKES INTO ACCOUNT BOTH THE CRYSTALLITE BOUNDARIES AND VOLUME PROPERTIES. IT WAS FOUND THAT INTEGRATED CIRCUITS FABRICATED FROM POLYCRYSTALLINE SILICON FILMS BY PLANAR TECHNOLOGY HAVE SEVERAL ADVANTAGES OVER MONOCRYSTALLINE SILICON ONES AND POSSIBLE APPLICATIONS ARE DISCUSSED (14 Refs)
Descriptors: SILICON; SEMICONDUCTOR THIN FILMS; ELEMENTAL SEMICONDUCTORS; THIN FILM CIRCUITS; THIN FILM DEVICES
Identifiers: MICROSTRUCTURE; MORPHOLOGY; ELECTROPHYSICAL PROPERTIES; CATHODE GETTER SPUTTERING; CHEMICAL VAPOUR DEPOSITION; RESISTORS; DIODES; JFETS; MOSFETS; PLANAR TECHNOLOGY; ELECTRONIC PROPERTIES; POLYCRYSTALLINE SI ICS
02
Section Class Codes: A0364, A7880, B2524, A9118, B2420
Unified Class Codes: RGGEAP, NVVAAK, SMCEAH, ZGCKAK

956966 B7637655
BATCH BONDED CROSSOVERS FOR THIN FILM CIRCUITS. I. DEVELOPMENT
BURNS, J.A.; DILEO, D.A.
ENGNG. RES. CENTER, WESTERN ELECTRIC CO., PRINCETON, NJ, USA
SOLID STATE TECHNOL. (USA) VOL.19, NO.7 26-31, 44 JULY 1976 Coden: SSTEAP
FOR MORE EFFICIENT UTILIZATION OF THE SUBSTRATE AREA OF A THIN FILM INTEGRATED CIRUIT, A CONDUCTOR MAY SPAN, OR PASS ACROSS, ANOTHER CONDUCTOR BY MEANS OF A 'CROSSOVER' THAT PHYSICALLY SEPARATES AND ELECTRICALLY ISOLATES THE SPANNING CONDUCTOR AND THE UNDERLYING CONDUCTOR. IN THE BATCH BONDING PROCESS THAT WAS DEVELOPED FOR INCORPORATING THESE NEW CROSSOVERS WITHIN THIN FILM CIRCUITS, THE CROSSOVERS ARE GENERATED INDEPENDENTLY OF THE PRODUCTION OF THE CERAMIC SUBSTRATES AND THEIR CIRCUIT PATTERNS. THIS SEPARATE, PARALLEL PROCESS ARRANGEMENT HAS RESULTED IN IMPROVED CROSSOVER TEST YIELDS, LESS HANDLING DAMAGE TO COMPLETED CIRCUIT PATTERNS (BRINGING SIGNIFICANT PRODUCT YIELD ADVANTAGES), SHORTER TURNAROUND TIME, AND REDUCED IN-PROCESS INVENTORY-ALL OF WHICH HAVE CONTRIBUTED TO REDUCING THE COST OF HYBRID INTEGRATED CIRCUITS FOR ELECTRONIC SWITCHING SYSTEMS
Descriptors: INTEGRATED CIRCUIT PRODUCTION; THIN FILM CIRCUITS
Identifiers: THIN FILM CIRCUITS; INTEGRATED CIRUIT; BATCH BONDED CROSSOVERS
02
Section Class Codes: B2524, B2560
Unified Class Codes: SMCEAH, SMGAAR

956962 B7637651
MICROWAVE APPLICATIONS OF THICK-FILM TECHNOLOGY
ALLEN, J.L.
ELECTRICAL AND ELECTRONIC SYSTEMS DEPT., UNIV. OF SOUTH FLORIDA, TAMPA, FL, USA
IEEE
PROCEEDINGS OF THE 1976 IEEE SOUTHEASTCON REGION 3 CONFERENCE ON ENGINEERING IN A CHANGING ECONOMY 219-20 1976
5-7 APRIL 1976 CLEMSON, S.C., USA
IEEE NEW YORK, USA
A TUTORIAL REVIEW IS PRESENTED DESCRIBING CONSTRAINTS IMPOSED ON THE UTILIZATION OF THICK-FILM TECHNOLOGY AT MICROWAVE FREQUENCIES. POTENTIAL ADVANTAGES OF FRITLESS (REACTIVELY-BONDED) THICK-FILM INKS FOR MICROWAVE APPLICATIONS ARE DISCUSSED. EMPHASIS IS ON TECHNIQUES AND MATERIALS LIKELY TO LEAD TO IMPROVED HIGH FREQUENCY PERFORMANCE (6 Refs)
Descriptors: MICROWAVE INTEGRATED CIRCUITS; THICK FILM CIRCUITS
Identifiers: TUTORIAL REVIEW; INKS; MICROWAVE APPLICATIONS; TECHNIQUES; MATERIALS; HIGH FREQUENCY PERFORMANCE; THICK FILM TECHNOLOGY
05
Section Class Codes: B2522, B1820, B2540
Unified Class Codes: SMCCAX, ETEAAD, SMEAAB

956961 B7637650
GLASS PASSIVATED THICK FILM CAPACITORS FOR RC CIRCUITS
BRATSCHUM, W.R.
ZENITH RADIO CORP., ELK GROVE VILLAGE, IL, USA
IEEE, ELECTRONIC INDUSTRIES ASSOC.
26TH ELECTRONIC COMPONENTS CONFERENCE 304-12 1976
26-28 APRIL 1976 SAN FRANCISCO, CALIF., USA
IEEE NEW YORK, USA
THICK FILM CAPACITORS OFFER A HIGH UNIT CAPACITANCE FOR A FILM TECHNOLOGY, INCREASED HYBRID DESIGN CAPABILITY, A POTENTIAL INCREASE IN RELIABILITY AND COST ADVANTAGES. THEIR DISADVANTAGES INCLUDE POOR PHYSICAL PROPERTIES, LIMITED ELECTRICAL PROPERTIES, DIFFICULT DEVELOPMENTAL WORK AND COMPLEX PROCESSING. A GLASS FILM PASSIVATION SYSTEM MAY BE USED TO IMPROVE THE PROPERTIES OF HIK THICK FILM CAPACITORS AND ENABLE THE DEVELOPMENT OF LOW COST RC NETWORKS. SUCH NETWORKS CAN BE ECONOMICALLY MADE IF THE FOLLOWING ARE DONE' USE MULTIPLE CIRCUIT FUNCTIONS IN THE DESIGN; USE LOW COST, PROCESS INSENSITIVE MATERIALS; USE HIGH CIRCUIT DENSITY AND MAKE MANY SCREENED COMPONENTS PER PROCESSING OPERATION; USE AUTOMATED, LOW COST PROCESSING OPERATIONS; AVOID HERMETIC PACKAGING; AND ACHIEVE HIGH YIELDS (22 Refs)
Descriptors: THICK FILM CIRCUITS; CAPACITORS; PASSIVATION
Identifiers: RC CIRCUITS; RELIABILITY; COST ADVANTAGES; GLASS FILM PASSIVATION SYSTEM; THICK FILM CAPACITORS
06
Section Class Codes: B2522
Unified Class Codes: SMCCAX

956958 B7637647
PARALLEL GAP WELDING TO THICK FILM METALLIZATION
JOHNSON, D.R.; KNUTSON, R.E.
HYBRID MICROCIRCUIT TECHNOL., SANDIA LABS., ALBUQUERQUE, NM, USA
IEEE, ELECTRONIC INDUSTRIES ASSOC.
26TH ELECTRONIC COMPONENTS CONFERENCE 66-73 1976
26-28 APRIL 1976 SAN FRANCISCO, CALIF., USA
IEEE NEW YORK, USA
THIS STUDY WAS DIRECTED AT THE PARALLEL GAP WELDING RESPONSE OF A SERIES OF GOLD AND PLATINUM-GOLD THICK FILM CONDUCTOR MATERIALS WHICH WERE SUBJECTED TO VARIOUS PEAK TEMPERATURE/BELT SPEED FIRING PROFILES. THE PARALLEL GAP WELDING WAS CONDUCTED USING A VARIETY OF WELD VOLTAGE/PULSE DURATION SETTINGS AND A NOMINAL 0.05 MILLIMETER THICK BY 0.38 MILLIMETER WIDE PURE GOLD RIBBON. EVALUATION OF THE WELDS WAS DETERMINED THROUGH A 90 DEGREES PEEL TEST (12 Refs)
Descriptors: THICK FILM CIRCUITS; RESISTANCE WELDING; METALLISATION
Identifiers: THICK FILM CONDUCTOR MATERIALS; PEAK TEMPERATURE/BELT SPEED FIRING PROFILES; WELD VOLTAGE/PULSE DURATION SETTINGS; PARALLEL GAP WELDING; AU; THICK FILM METALLISATION; PT/AU
06
Section Class Codes: B2522, B2560
Unified Class Codes: SMCCAX, SMGAAR

956570 B7637185
THIN FILM DELAY LINE DEVICE
MIWA, T.; IKUTA, H.
RES. LAB., SUSUMU INDUSTRIAL CO. LTD., KYOTO, JAPAN
IEEE, ELECTRONIC INDUSTRIES ASSOC.
26TH ELECTRONIC COMPONENTS CONFERENCE 199-202 1976
26-28 APRIL 1976 SAN FRANCISCO, CALIF., USA
IEEE NEW YORK, USA
INVESTIGATES A NEW DEVICE CONSISTING OF A DISTRIBUTED LC NETWORK WHICH USES THIN FILM TECHNOLOGY (4 Refs)
Descriptors: DELAY LINES; THIN FILM CIRCUITS; DISTRIBUTED PARAMETER NETWORKS
Identifiers: DISTRIBUTED LC NETWORK; THIN FILM TECHNOLOGY; THIN FILM DELAY LINE
06
Section Class Codes: B1870, B2524
Unified Class Codes: ETNAAP, SMCEAH

956501 B7637071
THICK AND THIN FILMS IN POWER AMPLIFIERS AND CONVERTERS
HART, P.J.
BECKMAN INSTRUMENTS LTD., GLENROTHES, SCOTLAND
NEW ELECTRON. (GB) VOL.9, NO.13 78, 80-1 29 JUNE 1976 Coden: NWELAC
DISCUSSES THICK AND THIN FILM POWER CIRCUITS, THEIR CONSTRUCTION AND APPLICATIONS (78 Refs)
Descriptors: POWER AMPLIFIERS; POWER CONVERTORS; THIN FILM CIRCUITS; THICK FILM CIRCUITS
Identifiers: POWER AMPLIFIERS; POWER CONVERTORS; THICK FILM CIRCUITS; THIN FILM CIRCUITS
02
Section Class Codes: B1840, B1830, B2522, B2524
Unified Class Codes: ETHAAB, ETGAAT, SMCCAX, SMCEAH

956455 B7637009
A GENERAL SKETCH OF MICROWAVE INTEGRATED CIRCUITS
DE BLOCK, M.
MBLE, BRUXELLES, BELGIUM
REV. HF (BELGIUM) VOL.10, NO.2 39-45 1976 Coden: RVUHAF
SOME DOZEN PASSIVE AND ACTIVE COMPONENTS, IN THIN FILM TECHNOLOGY, DEVELOPED SINCE 1970 FOR THE L AND X MICROWAVE BANDS, ARE BRIEFLY DESCRIBED (6 Refs)
Descriptors: MICROWAVE INTEGRATED CIRCUITS; THIN FILM CIRCUITS
Identifiers: MICROWAVE INTEGRATED CIRCUITS; THIN FILM; L-BAND; X-BAND
02
Section Class Codes: B1820, B2524, B2540
Unified Class Codes: ETEAAD, SMCEAH, SMEAAB
Language: FRENCH

956352 B7636687
HERMETICITY OF POLYMERIC LID SEALANTS
TRAEGER, R.K.
SANDIA LABS., ALBUQUERQUE, NM, USA
IEEE, ELECTRONIC INDUSTRIES ASSOC.
26TH ELECTRONIC COMPONENTS CONFERENCE 361-7 1976
26-28 APRIL 1976 SAN FRANCISCO, CALIF., USA
IEEE NEW YORK, USA
ORGANIC ADHESIVES ARE USEFUL LID SEALANTS BECAUSE THEY ARE PROCESSED AT LOW TEMPERATURES, ARE INEXPENSIVE, AND ARE EASY TO REWORK. HOWEVER, THERE HAS BEEN RECENT CONCERN ABOUT THE DEGREE OF PROTECTION ORGANICS CAN PROVIDE MOISTURE SENSITIVE COMPONENTS. DATA PRESENTED IN THIS PAPER SHOWS ORGANIC ADHESIVES CAN SEAL PACKAGES WHICH PASS GROSS AND FINE LEAK TESTS BUT ALLOW WATER VAPOR TO PERMEATE RAPIDLY. PERMEATION MEASUREMENTS ON HYBRID MICROCIRCUIT PACKAGES GAVE SEAL PERMEABILITIES OF 3-7*10/SUP -11/ G/CM-S-TORR; THESE PERMEABILITIES AGREE WITH THOSE LISTED FOR EPOXIES IN THE LITERATURE. WITH THIS PERMEABILITY RANGE AND THE PACKAGE CONFIGURATION USED IN THIS STUDY, THE INTERIOR OF A PACKAGE WILL REACH 50PERCENT OF THE EXTERIOR HUMIDITY IN 6-10 HOURS (15 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; SEALS (STOPPERS); PACKAGING
Identifiers: POLYMERIC LID SEALANTS; MOISTURE SENSITIVE COMPONENTS; HYBRID MICROCIRCUIT PACKAGES; SEAL PERMEABILITIES; HERMETIC PACKAGING
06
Section Class Codes: B1266, B2540
Unified Class Codes: ADGHAH, SMEAAB

949337 B7632587, C7622162
MEASURE-PREDICT TUNING OF HYBRID THIN-FILM FILTERS
LUEDER, E.; MALEK, G.
BELL LABS., HOLMDEL, NJ, USA
IEEE TRANS. CIRCUITS AND SYST. (USA) VOL.CAS-23, NO.7 461-6 JULY 197 I. Coden: ICSYBT
TO ACHIEVE HIGHLY ACCURATE FILTER CHARACTERISTICS IN HYBRID INTEGRATED ACTIVE FILTER CIRCUITS, A NEW TUNING PROCEDURE FOR SALEN-AND-KEY TYPE HYBRID FILTERS HAS BEEN DEVELOPED AND IMPLEMENTED. THE PROPOSED TUNING PROCEDURE TAKES INTO ACCOUNT THE LOSS FACTOR OF THIN-FILM CAPACITORS AND NONIDEAL AMPLIFIERS. AN EXAMPLE THAT DESCRIBES THE TUNING PROCEDURE IN DETAIL IS PRESENTED FOR A SECOND ORDER LOW PASS FILTER. IT IS ALSO APPLICABLE IN THE SAME MANNER TO ALL SECOND-ORDER FUNCTIONS. WITH THE AID OF A COMPUTER, THE PROCEDURE HAS BEEN COMPLETELY AUTOMATED; IT IS THEREFORE WELL SUITED FOR PROCESSING IN MANUFACTURE. IT IS BEING USED IN ON LINE PRODUCTION OF THIN-FILM ACTIVE FILTERS (6 Refs)
Descriptors: ACTIVE FILTERS; HYBRID INTEGRATED CIRCUITS; TUNING; THIN FILM CIRCUITS; ENGINEERING APPLICATIONS OF COMPUTERS
Identifiers: HIGHLY ACCURATE FILTER CHARACTERISTICS; HYBRID INTEGRATED; ACTIVE FILTER CIRCUITS; TUNING PROCEDURE; LOSS FACTOR; THIN-FILM CAPACITORS; NONIDEAL AMPLIFIERS; SECOND ORDER LOW PASS FILTER; COMPUTER; COMPLETELY AUTOMATED; ON LINE PRODUCTION; SALEN AND KEY FILTERS; TUNING BY MEASURE PREDICT METHOD
02
Section Class Codes: B1880, B2540, B2524, C0842
Unified Class Codes: ETRAAM, SMEAAB, SMCEAH, WMEEAQ

947052 B7636241
INTEGRATED CIRCUIT INSTRUMENTATION FOR VEHICLES
GOSS, A.P.
SMITHS INDUSTRIES LTD., LONDON, ENGLAND
IEE, IERE, INST. MECH. ENGRS., SOC. AUTOMOTIVE ENGRS
SBN 0 85296 162 6
INTERNATIONAL CONFERENCE ON AUTOMOBILE ELECTRONICS 75-8 1976
6-9 JULY 1976 LONDON, ENGLAND
IEE LONDON, ENGLAND
DESPITE THE PRESENT NATURAL RELUCTANCE OF THE MOTOR INDUSTRY TO ACCEPT ELECTRONICS, VEHICLE INSTRUMENTATION HAS BEEN ONE AREA WHERE INTEGRATED CIRCUITS (IC) HAVE BEEN ACCEPTED AND ARE NOW BEING USED IN LARGE QUANTITIES. THIS HAS BEEN BROUGHT ABOUT MAINLY BY THE NEED TO REDUCE THE COMPLEXITY OF MANUFACTURE AND THUS REDUCE COSTS, AT THE SAME TIME TO IMPROVE ACCURACY AND GENERAL SPECIFICATION OF INSTRUMENTATION. VARIOUS WAYS OF DOING THIS HAVE BEEN TRIED IN THE PAST, PARTICULARLY USING OFF THE SHELF IC IN CONJUNCTION WITH OTHER SEMICONDUCTORS AND PASSIVE COMPONENTS MOUNTED ON PC BOARDS. WHILST THIS ACHIEVES THE OBJECTIVES OF IMPROVED PERFORMANCE IT FALLS SHORT OF THE IDEAL OF MINIMUM NUMBER OF PIECE PARTS AND HENCE MINIMUM ASSEMBLY TIMES, AND DOES NOT GIVE LOWEST COST. CUSTOM DESIGNED IC SATISFY ALL THESE CRITERIA AND WHEN COMBINED WITH THICK FILM CIRCUITS CAN DRASTICALLY REDUCE PIECE PARTS AND IMPROVE RELIABILITY
Descriptors: MONOLITHIC INTEGRATED CIRCUITS; ROAD VEHICLES; TACHOMETERS
Identifiers: VEHICLE INSTRUMENTATION; INTEGRATED CIRCUITS; THICK FILM CIRCUITS; RELIABILITY; IC INSTRUMENTATION
06
Section Class Codes: B5620, B2528, B4210
Unified Class Codes: TKEAAR, SMCKAK, BECCAB

945996 B7634875
MICROWAVE FREQUENCY COUNTER
MICROWAVE J. (USA) VOL.19, NO.4 33 APRIL 1976 Coden: MCWJAD
THE MODEL 6054B AUTOMATIC MICROWAVE FREQUENCY COUNTER IS DESIGNED FOR MEASUREMENTS FROM 20 MHZ TO 24 GHZ. THE COUNTER INCORPORATES SUCH INNOVATIONS AS A NEW INPUT SAMPLER USING THIN FILM CIRCUITRY AND THE FREQUENCY LOCK AUTOMATIC COMPUTING TRANSFER OSCILLATOR MEASURING TECHNIQUE
Descriptors: FREQUENCY MEASUREMENT; MICROWAVE MEASUREMENT; COUNTERS; THIN FILM CIRCUITS; AUTOMATIC TEST EQUIPMENT
Identifiers: AUTOMATIC MICROWAVE FREQUENCY COUNTER; 20 MHZ TO 24 GHZ; INPUT SAMPLER; THIN FILM CIRCUITRY; FREQUENCY LOCK AUTOMATIC COMPUTING TRANSFER OSCILLATOR
02
Section Class Codes: B4270, B4424, B4425
Unified Class Codes: BECRAX, BKCKAZ, BKCMAK

945928 B7634667
COMPACT COLOR CAMERAS HIGHLY PROMISING FOR NEWS REPORTING
JEE (JAPAN) NO.112 34 APRIL 1976 Coden: JELEBR
THE THIN FILM HYBRID LSI SYSTEM AMPLIFIER FOR COLOR CAMERA USE IS NO MORE THAN ONE-SIXTH THE SIZE OF A CONVENTIONAL STUDIO CAMERA AMPLIFIER. THE MATERIALS USED ARE ALSO LIGHTER THAN THE CONVENTIONAL ONES. THUS ATTACKING MINIATURIZATION FROM ALL POSSIBLE ANGLES. ALSO ATTRACTING ATTENTION IS THE POSSIBILITY OF COLOR CAMERAS USING SOLID-STATE IMAGE PICKUP DEVICES INSTEAD OF TUBES. COLOR REPRODUCTION AND SENSITIVITY HAVE NOT YET GROWN OUT OF THE RUDIMENTARY STAGE
Descriptors: TELEVISION CAMERAS; LARGE SCALE INTEGRATION; HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS; IMAGE SENSORS; COLOUR TELEVISION; VIDEO AMPLIFIERS
Identifiers: THIN FILM HYBRID LSI SYSTEM AMPLIFIER; MINIATURIZATION; SOLID STATE IMAGE PICKUP DEVICES; COLOUR TV CAMERAS
02
Section Class Codes: B3760, B2540, B1266
Unified Class Codes: FKKAAK, SMEAAB, ADGHAH

945557 B7634362
1.7 GHZ IF AMPLIFIERS FOR QUASI-MILLIMETER WAVE RADIO AND GUIDED MILLIMETER WAVE COMMUNICATION SYSTEMS
FUKUDA, S.; MATSUURA, T.; SAITO, Y.; KITAMURA, M.
NIPPON ELECTRIC CO. LTD., TOKYO, JAPAN
NEC RES. AND DEV. (JAPAN) NO.40 72-85 JAN. 1976 Coden: NECRAU
1.7 GHZ IF AMPLIFIERS ARE USED IN QUASI-MILLIMETER WAVE RADIO SYSTEMS AND GUIDED MILLIMETER WAVE SYSTEMS. A QUASI-MILLIMETER WAVE RADIO SYSTEM REQUIRES A LOW NOISE PRE-IF AMPLIFIER TO BEAR THE RELATIVELY HIGH RECEIVING POWER AND A MAIN IF AMPLIFIER TO PROVIDE A WIDE AUTOMATIC GAIN CONTROL RANGE. A GUIDED MILLIMETER WAVE SYSTEM REQUIRES A LOW NOISE PRE-IF AMPLIFIER, A MAIN IF AMPLIFIER AND A POST-IF AMPLIFIER TO PROVIDE BROADER BANDWIDTH. THIS PAPER DESCRIBES DESIGN CONCENTRATIONS AND PERFORMANCE OF EACH AMPLIFIER, AS WELL AS GENERAL DESIGN CONSIDERATIONS. ALL 1.7 GHZ CIRCUITS ARE CONSTRUCTED ON ALUMINA CERAMIC SUBSTRATES UTILIZING HYBRID IC TECHNOLOGY AND THIN FILM TECHNOLOGY (11 Refs)
Descriptors: MICROWAVE AMPLIFIERS; INTERMEDIATE-FREQUENCY AMPLIFIERS; WIDEBAND AMPLIFIERS; SOLID-STATE MICROWAVE CIRCUITS; HYBRID INTEGRATED CIRCUITS; MICROWAVE LINKS; THIN FILM CIRCUITS; MICROWAVE INTEGRATED CIRCUITS
Identifiers: 1.7 GHZ IF AMPLIFIERS; MAIN IF AMPLIFIER; WIDE AUTOMATIC GAIN CONTROL RANGE; HYBRID IC TECHNOLOGY; THIN FILM TECHNOLOGY; AL/SUB 3/O/SUB 3/; MICROWAVE AMPLIFIERS; LOW NOISE PRE IF AMPLIFIER; POST IF AMPLIFIER; GUIDED MICROWAVE SYSTEMS; MICROWAVE COMMUNICATION SYSTEMS; MILLIMETRE WAVE COMMUNICATION SYSTEMS
02
Section Class Codes: B3565, B1820, B2540, B3561, B1840
Unified Class Codes: FEKMAK, ETEAAD, SMEAAB, FEKCAL, ETHAAB

945453 B7634228
LINEAR ARRAY OF PHOTORESISTANCES FOR OPTICAL READING
CASSANNIOL, B.; MONNIER, M.; ROSSIER, D.
IEE, ASSOC. ELLETROTECNICA AND ELLETRONICA ITALIANA, ET AL.
SBN 0 85296 149 9
1ST EUROPEAN SOLID STATE CIRCUITS CONFERENCE-ESSCIRC (EXTENDED ABSTRACTS ONLY) 109 1975
2-5 SEPT. 1975 CANTERBURY, KENT
IEE LONDON, ENGLAND
FAST FACSIMILE TRANSMISSION OF STANDARD A4 DOCUMENTS REQUIRES A SYSTEM IN WHICH THE PAGE IS MOVED IN FRONT OF A LINE OF PHOTODETECTORS. FOR A RESOLUTION OF 6 POINTS/MM THERE ARE 1200 ELEMENTS IN A LINE. THESE ELEMENTS ARE ELECTRONICALLY SCANNED AT 1 MUS PER POINT WHICH CORRESPONDS TO 2 S FOR THE TRANSMISSION TIME OF A PAGE. THE AUTHORS DESCRIBE A PROTOTYPE READER USING THIN-FILM TECHNOLOGY WHICH CONSISTS IN DEPOSITING 1200 PHOTORESISTORS IN A LINE 21 CM LONG. FOR THE PHOTORESISTORS THE AUTHORS USED AN AMORPHOUS SEMICONDUCTOR (AS-FE-TE) WHICH IS DEPOSITED AT ROOM TEMPERATURE ON A GLASS SUBSTRATE. NEITHER HEAT NOR CHEMICAL TREATMENTS ARE REQUIRED FOR SENSITIZATION. AS A RESULT, THIS TECHNOLOGY YIELDS A HIGH UNIFORMITY BETTER THAN 5PERCENT OVER 20 CM. THIS LINEAR ARRAY IS SEQUENTIALLY ADDRESSED WITH A MATRICIAL CROSS-BAR CIRCUIT WHICH IS MADE BY A NEW TECHNOLOGY USING A THIN POLYIMIDE FILM' THE CONNECTION NETWORKS ARE METALLIZED ON THE TWO FACES WITH THE INTERCONNECTIONS MADE THROUGH METALLIZED HOLES (80 MUM IN DIAMETER)
Descriptors: FACSIMILE EQUIPMENT; PHOTORESISTORS; THIN FILM CIRCUITS; AMORPHOUS SEMICONDUCTORS
Identifiers: OPTICAL READING; AMORPHOUS SEMICONDUCTOR; ASSETE; THIN POLYIMIDE FILM; THIN FILM PHOTORESISTORS; FACSIMILE; 21 CM LONG ARRAY; A4 DOCUMENTS; LINEAR ARRAY OF PHOTORESISTORS; 6 POINTS/MM RESOLUTION; 1200 PHOTORESISTORS ARRAY; SEQUENTIALLY ADDRESSED ARRAY; MATRIX CROSSBAR CIRCUIT
06
Section Class Codes: B3510, B2210, B2524
Unified Class Codes: FECGAE, SLEAAS, SMCEAH

944539 B7633159
RESISTOR LOOPS IN HYBRID CIRCUITS
SWART, P.L.; VAN WYK, J.D.
ELEC. ENG. DEPT., RAND AFRIKAANS UNIV., JOHANNESBURG, S.AFRICA
MICROELECTRONICS (GB) VOL.7, NO.3 53-5 MARCH 1976
Coden: MICEB9
RESISTOR CONFIGURATIONS CONTAINING LOOPS OR RINGS ARE ENCOUNTERED FREQUENTLY IN HYBRID THICK OR THIN FILM CIRCUITS. CONFIGURATIONS HAVING SIMPLY INTERCONNECTED LOOPS ARE DISCUSSED. FROM MEASUREMENTS BETWEEN ADJACENT NODES IN THE RESISTOR RING A SET OF EXPERIMENTAL RESISTIVE VALUES MAY BE OBTAINED. IT IS SHOWN HOW THE RING ELEMENTS MAY BE CALCULATED WITH THIS INPUT BY EMPLOYING ITERATIVE TECHNIQUES. TECHNIQUES FOR RAPID CONVERGENCE ARE DISCUSSED. THE TECHNIQUE HAS BEEN APPLIED VIA AN EXISTING MINI-COMPUTER CAMAC-INTERFACE DATA ACQUISITION SYSTEM CAPABLE OF TESTING RINGS WITH UP TO 32 RESISTIVE ELEMENTS. THE FAST CONVERGENCE AND CONSEQUENT HIGH SPEED OF THE METHOD IS WELL SUITED TO APPLICATION IN AN AUTOMATIC TRIMMING SYSTEM AND A QUALITY CONTROL LINE
Descriptors: HYBRID INTEGRATED CIRCUITS; RESISTORS; THIN FILM CIRCUITS; THICK FILM CIRCUITS
Identifiers: HYBRID CIRCUITS; THIN FILM CIRCUITS; INTERCONNECTED LOOPS; RESISTOR RING; ITERATIVE TECHNIQUES; RAPID CONVERGENCE; DATA ACQUISITION SYSTEM; AUTOMATIC TRIMMING SYSTEM; QUALITY CONTROL LINE; THICK FILM CIRCUIT
02
Section Class Codes: B2540
Unified Class Codes: SMEAAB

944538 B7633158
HIGH RELIABILITY TA/AL THIN-FILM HYBRID CIRCUITS
DUCKWORTH, R.G.
CONTROL AND INSTRUMENTATION DIV., ULTRA ELECTRONICS LTD., ACTON, LONDON, ENGLAND
MICROELECTRON. AND RELIAB. (GB) VOL.15, NO.2 141-6 1976 Coden: MCRLAS
OUTLINES A MANUFACTURING SEQUENCE FOR RELIABLE THIN FILM HYBRID CIRCUIT PRODUCTION, FROM BARE SUBSTRATE TO FINAL ENCAPSULATION. THE REASONS WHY PARTICULAR PROCESSES ARE USED ARE GIVEN, AND THE CHOICE OF ALL MATERIALS OF CONSTRUCTION DISCUSSED. CHEMICAL PROCESSING OF THE THIN FILM HAS BEEN ELIMINATED DURING THE MANUFACTURE OF THE BASIC RESISTOR NETWORKS, TO MINIMISE THE RISK OF CONTAMINATION WHILST THE FILM IS IN A REACTIVE STATE. THIS HAS BEEN DONE BY EMPLOYING AN EFFICIENT R.F. SPUTTER ETCHING PROCESS TO FORM THE RESISTIVE FILM PATTERN, AND AN 'INCONTACT' MASKING METHOD FOR THE CONTACT FILM DEPOSITION. FOR GOOD LONG TERM PERFORMANCE, 'AS FIRED' HIGH ALUMINA CERAMIC SUBSTRATES ARE PREFERRED TO GLASS. THE R.F. SPUTTER ETCHING WITH ARGON IONS ALLOWS ACCURATE PATTERNS TO BE EASILY PRODUCED, ON THE RELATIVELY ROUGH CERAMIC SURFACE, FROM FILMS WHICH HAVE BEEN PREVIOUSLY THERMALLY STABILISED IN AIR (4 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; RELIABILITY
Identifiers: MANUFACTURING SEQUENCE; RESISTIVE FILM PATTERN; CONTACT FILM DEPOSITION; HIGH RELIABILITY; TA/AL THIN FILM HYBRID CIRCUIT PRODUCTION; RF SPUTTER ETCHING PROCESS; ALUMINA CERAMIC SUBSTRATES; INCONTACT MARKING METHOD; AR IONS
02
Section Class Codes: B2540, B2524
Unified Class Codes: SMEAAB, SMCEAH

944536 B7633156
ELECTROCHEMICAL TIN-COATING OF TERMINAL TAPE FOR THIN FILM HYBRID INTEGRATED CIRCUITS
BATEV, K.P.; VACEV, K.D.; MATEEV, A.HR.
ELEKTRO PROM.-ST. AND PRIBOROSTR. (BULGARIA) VOL.11, NO.2 60-1 FEB. 1976 Coden: ELPBAV
EXAMINES THE PROCESS OF LAYING AN ELECTROCHEMICAL TIN COATING ON A TERMINAL TAPE USED IN THE MANUFACTURE OF THIN-FILM AND HYBRID INTEGRATED CIRCUITS. A COMPARISON HAS BEEN MADE WITH THE ELECTROCHEMICAL SILVER COATING, WITH REFERENCE TO THE ADVANTAGES OFFERED BY THE TIN COATING IN THE PARTICULAR CASE (5 Refs)
Descriptors: ELECTROPLATING; INTEGRATED CIRCUIT PRODUCTION; THIN FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS
Identifiers: TERMINAL TAPE; HYBRID INTEGRATED CIRCUITS; ELECTROPLATING SN; THIN FILM ICS
02
Section Class Codes: B2540, B5820, B2524
Unified Class Codes: SMEAAB, TMEAAQ, SMCEAH
Language: BULGARIAN

944503 B7633097
BATCH BONDED CROSSOVERS FOR THIN FILM CIRCUITS. II. PRODUCTION IMPLEMENTATION
GLICK, W.F.; SKORA, K.W.; WYDRA, W.T.; OZGA, R.J.
DIONICS INC., WESTBURY, NY, USA.
WESTERN ELECTRIC ENG. (USA) VOL.20, NO.2 11-15 APRIL 1976 Coden: WELEAX
FOR PT.I SEE IBID., P.2-10. FOLLOWING THE DECISION TO USE BATCH BONDED CROSSOVERS ON THIN FILM CIRCUITS, A JOINT MANUFACTURING EVALUATION OF THE CROSSOVERS ON ESS-TYPE CIRCUIT PACKS WAS BEGUN AT THE ALLENTOWN WORKS AND THE HAWTHORNE WORKS (1 Refs)
Descriptors: THIN FILM CIRCUITS; ADHESION; JOINING PROCESSES
Identifiers: BATCH BONDED CROSSOVERS; THIN FILM CIRCUITS; MANUFACTURING EVALUATION; CIRCUIT PACKS; CU POLYIMIDE FILM LAMINATE; MO FRAMES; ACRYLIC ADHESIVE
02
Section Class Codes: B2521, B1267
Unified Class Codes: SMCEAH, ADGKAT

944502 B7633096
BATCH BONDED CROSSOVERS FOR THIN FILM CIRCUITS. I. DEVELOPMENT
BURNS, J.A.; DILEO, D.A.
WESTERN ELECTRIC ENGNG. RES. CENTER, PRINCETON, NJ, USA
WESTERN ELECTRIC ENG. (USA) VOL.20, NO.2 2-10 APRIL 1976 Coden: WELEAX
INSTEAD OF BEING GENERATED BY PROCESSES PERFORMED DIRECTLY UPON THE EASILY DAMAGED CIRCUIT PATTERN, AN ARRAY OF A NEW TYPE OF CROSSOVER IS BATCH BONDED TO A CIRCUIT IN A SINGLE OPERATION THAT JOINS, IN EFFECT, TWO PIECEPARTS PREVIOUSLY PRODUCED AND INSPECTED WITHIN TWO SEPARATE PARALLEL PROCESS FLOWS (2 Refs)
Descriptors: THIN FILM CIRCUITS; ADHESION; JOINING PROCESSES
Identifiers: NEW TYPE OF CROSSOVER; BATCH BONDED; CIRCUIT; SINGLE OPERATION; PRODUCED; INSPECTED; PARALLEL PROCESS FLOWS; THIN FILM CIRCUITS
02
Section Class Codes: B2524, B1267
Unified Class Codes: SMCEAH, ADGKAT

944499 B7633093
PRODUCTION OF THIN FILM STRUCTURES BY ELECTRON BEAM LITHOGRAPHY
LEDOVSKOJ, W.P.; MARGOLIN, W.I.; TIEROK, M.; JAKIMOV, T.N.
FEINGERAETE TECH. (GERMANY) VOL.25, NO.5 225-6 MAY 1976 Coden: FGRTA3
A THERMAL AND A NONTHERMAL VARIANT ARE DISTINGUISHED. THE LATTER IS INVESTIGATED IN MORE DETAIL. THE SEQUENCE OF THE PROCESS IS DESCRIBED AND CONCLUSIONS FOR THE TECHNOLOGICAL APPLICATION ARE DRAWN (3 Refs)
Descriptors: THIN FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; ELECTRON BEAM APPLICATIONS
Identifiers: THIN FILM STRUCTURES; ELECTRON BEAM LITHOGRAPHY; PROCESS; THERMAL VARIANT; NONTHERMAL VARIANT
02
Section Class Codes: B2524, B5820
Unified Class Codes: SMCEAH, TMEAAQ
Language: GERMAN

944498 B7633092
THIN-FILM HYBRID INTEGRATED CIRCUITS WITH HIGHER ACCURACY OF THE RATIO OF INTEGRATED RESISTORS
BATEV, K.P.; VACEV, K.D.
ELEKTRO PROM.-ST. AND PRIBOROSTR. (BULGARIA) VOL.11, NO.3 101-3 MARCH 1976 Coden: ELPBAV
THIN-FILM INTEGRATED CIRCUIT TECHNOLOGY IS DESCRIBED RESULTING IN HIGH ACCURACY RESISTOR FORMING ESPECIALLY IMPORTANT IN RESISTOR DIVIDERS. HIGH ACCURACY IS DUE TO PHOTOLITHOGRAPHIC TECHNIQUES PRODUCING REPETITIVE ALMOST IDENTICAL FILM OUTLINES. EXPERIMENTAL DIVIDER CIRCUITS (TIC-0901) PRODUCED SHOWED RATIO ACCURACY OF 0.5PERCENT WITH INDIVIDUAL RESISTORS TOLERANCES 10PERCENT
Descriptors: THIN FILM RESISTORS; PHOTOLITHOGRAPHY; HYBRID INTEGRATED CIRCUITS
Identifiers: HYBRID INTEGRATED CIRCUITS; HIGH ACCURACY RESISTOR FORMING; PHOTOLITHOGRAPHIC TECHNIQUES; 0.5PERCENT RATIO ACCURACY; THIN FILM CIRCUITS; EXPERIMENTAL DIVIDER CIRCUITS; THIN FILM RESISTORS; EXPERIMENTAL RESULTS
02
Section Class Codes: B2524, B2540
Unified Class Codes: SMCEAH, SMEAAB
Language: BULGARIAN

944484 B7633076
DO YOU DESIGN YOUR FILM CIRCUIT FOR FABRICATION?
ACKERMANN, W.; REINL, H.
SIEMENS AG, MUNCHEN, GERMANY
COMPONENTS REP. (GERMANY) VOL.10, NO.5 134-8 DEC. 1975
Coden: CMREC3
WITH FILM CIRCUITS, A PROFOUND KNOWLEDGE OF THE FABRICATION TECHNOLOGY AND THE MANUFACTURING PROCESSES IS INDISPENSABLE FOR THE EQUIPMENT AND CIRCUIT DESIGNERS IN VIEW OF AN OPTIMAL DEVELOPMENT AND AN ECONOMIC FABRICATION. THE ARTICLE FURTHER GIVES THE CIRCUIT DESIGNER IDEAS FOR TECHNICALLY SIMPLE AND THEREFORE COST EFFECTIVE CIRCUIT CONCEPTS. THE MOST IMPORTANT DESIGN PRINCIPLES FOR FILM CIRCUITS ARE LISTED IN A GUIDE LINE (2 Refs)
Descriptors: THIN FILM CIRCUITS; THICK FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION
Identifiers: FABRICATION TECHNOLOGY; MANUFACTURING PROCESSES; COST EFFECTIVE CIRCUIT CONCEPTS; DESIGN PRINCIPLES; THICK FILM CIRCUITS; THIN FILM CIRCUITS; CIRCUIT DESIGN
02
Section Class Codes: B2520
Unified Class Codes: SMCAAL

943499 B7632417
COMPENSATION OF SOME OPERATIONAL-AMPLIFIER BASED RC-ACTIVE NETWORKS
WILSON, G.
DIV. ELECTRICAL ENGNG., JAMES COOK UNIV. OF NORTH QUEENSLAND, TOWNSVILLE, NORTH QUEENSLAND, AUSTRALIA
IEEE TRANS. CIRCUITS AND SYST. (USA) VOL.CAS-23, NO.7 443-6 JULY 1976 Coden: ICSYBT
MEANS OF COMPENSATING FOR THE FINITE GAIN BANDWIDTH OF OPERATIONAL AMPLIFIER, WHEN USED IN VOLTAGE CONTROLLED VOLTAGE SOURCE AND INVERTING INTEGRATOR BLOCKS, ARE DESCRIBED AND ARE SHOWN TO VIRTUALLY ELIMINATE EXCESS PHASE SHIFTS OVER A PRESCRIBED FREQUENCY RANGE. AS APPLIED TO INTEGRATOR, THE COMPENSATING TECHNIQUE SIMULTANEOUSLY REDUCES GAIN (PERIOD) AND PHASE ERRORS. THE METHODS SHOULD PROVE OF MAXIMUM ADVANTAGE WHERE TRIMMING OF THE RC ELEMENTS IS DIFFICULT OR EXPENSIVE AS IN THIN-FILM REALISATION. IT IS SHOWN THAT THE OVERALL TEMPERATURE STABILITY OF THE COMPENSATED NETWORK CAN BE SIGNIFICANTLY IMPROVED (11 Refs)
Descriptors: OPERATIONAL AMPLIFIERS; ACTIVE NETWORKS; INTEGRATING CIRCUITS; THIN FILM CIRCUITS
Identifiers: FINITE GAIN BANDWIDTH; OPERATIONAL AMPLIFIER; VOLTAGE CONTROLLED VOLTAGE SOURCE; INVERTING INTEGRATOR BLOCKS; ELIMINATE EXCESS PHASE SHIFTS; PRESCRIBED FREQUENCY RANGE; INTEGRATOR; COMPENSATING TECHNIQUE; GAIN; PHASE ERRORS; TRIMMING; RC ELEMENTS; THIN-FILM REALISATION; TEMPERATURE STABILITY; RC ACTIVE NETWORKS
02
Section Class Codes: B1840, B1880, B1890, B2524
Unified Class Codes: ETHAAB, ETRAAM, ETTAAC, SMCEAH

937316 B7628650, C7619783
SUBNANOSECOND BASE-COUPLED LOGIC CIRCUITS
MEYER, F.
SIEMENS AG, MUNICH, GERMANY
IEE, ASSOC. ELLETROTECNICA AND ELLETRONICA ITALIANA, ET AL.
SBN 0 85296 149 9
1ST EUROPEAN SOLID STATE CIRCUITS CONFERENCE-ESSCIRC (EXTENDED ABSTRACTS ONLY) 32-3 1975
2-5 SEPT. 1975 CANTERBURY, KENT
IEE LONDON, ENGLAND
DISCUSSES BASE-COUPLED LOGIC (BCL) A NEW CLASS OF LOGIC CIRCUIT CONFIGURATION, DESIGNED FOR SUBNANOSECOND PROPAGATION DELAYS, RISE AND FALL TIMES. IT IS BASED ON A BASE-COUPLED CURRENT MODE SWITCH, OPERATING FROM A LOWER SUPPLY VOLTAGE THAN EMITTER-COUPLED LOGIC (ECL), ITS POWER DISSIPATION IS REDUCED. LOGIC DESIGN IS SIMPLIFIED SINCE MINIMIZED BOOLEAN EQUATIONS ARE IMPLEMENTED DIRECTLY, WITHOUT TRANSFORMATIONS. EXPERIMENTAL RESULTS FROM THIN-FILM BCL CIRCUITS ARE DISCUSSED
Descriptors: LOGIC CIRCUITS; LOGIC GATES; DIGITAL INTEGRATED CIRCUITS; THIN FILM CIRCUITS
Identifiers: BASE COUPLED LOGIC; BCL; SUBNANOSECOND PROPAGATION DELAY; ULTRA HIGH SPEED LOGIC; MINIMISED BOOLEAN EQUATIONS; THIN FILM CIRCUITS; EXPERIMENTAL RESULTS
06
Section Class Codes: C9260, C9220, B2524
Unified Class Codes: XEGAAP, XECAAJ, SMCEAH

933458 B7629574
THIN FILM CIRCUITS IN TRANSMISSION EQUIPMENT
SCHIPPER, C.A.
PHILIPS TELECOMMUN. REV. (NETHERLANDS) VOL.34, NO.1 38-41 APRIL 1976 Coden: PTLRAW
REVIEWS THE SIGNIFICANCE OF HYBRID THIN FILM CIRCUITS FOR TRANSMISSION EQUIPMENT AND IT PROVIDES THE SALIENT POINTS OF THE SPECIFICATIONS AND TECHNOLOGY NEEDED. FURTHERMORE, AN ELABORATION IS GIVEN OF HOW A MODEL SHOP FOR HYBRID CIRCUITS, USED AS AN IN-HOUSE FACILITY, MAY SUPPORT THE ELECTRICAL DEVELOPMENT. ESPECIALLY DIRECT CONTACTS BETWEEN ELECTRONIC ENGINEERS AND TECHNOLOGISTS COULD LEAD TO OPTIMAL DESIGNS AND RELATIVELY SHORT LEAD TIMES
Descriptors: DIGITAL COMMUNICATION SYSTEMS; HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS
Identifiers: HYBRID THIN FILM CIRCUITS; TRANSMISSION EQUIPMENT; SPECIFICATIONS; TECHNOLOGY; MODEL SHOP; DIGITAL TRANSMISSION EQUIPMENT
02
Section Class Codes: B3510, B2540, B2524
Unified Class Codes: FECAAX, SMEAAB, SMCEAH

932663 B7628711
SCREEN-PRINTED COPPER CONDUCTORS FOR HYBRID CIRCUITRY
BAUDRY, H.; MONNERAYE, M.
LAB. D'ELECTRONIQUE ET DE PHYS. APPLIQUEE, LIMEIL-BREVANNES, FRANCE
IEE, ASSOC. ELLETROTECNICA AND ELLETRONICA ITALIANA, ET AL.
SBN 0 85296 149 9
1ST EUROPEAN SOLID STATE CIRCUITS CONFERENCE-ESSCIRC (EXTENDED ABSTRACTS ONLY) 84 1975
2-5 SEPT. 1975 CANTERBURY, KENT
IEE LONDON, ENGLAND
DESCRIBES A COPPER PASTE WITH A NON-TRADITIONAL VITREOUS BINDER (A SEALING MATERIAL FOR DIRECT CERAMIC-TO-METAL SEALS), AN IMPROVED ORGANIC TEMPORARY BINDER ('VEHICLE'), AND A SELECTED COPPER POWDER. FIRING SUCH A MATERIAL IS POSSIBLE EITHER IN NEUTRAL ATMOSPHERE OR IN A REDUCING GAS. ADHESION TO CERAMIC SUBSTRATES IS REPORTED AND RELATED TO FIRING CONDITIONS. ELECTRICAL CONDUCTIVITY IS BETTER THAN CONDUCTIVITY OF GOLD AND HIGH FREQUENCY DATA ARE GIVEN. IN SPITE OF THE INCREASED COST OF THE ORGANIC VEHICLE, AND OF THE DEVELOPMENT OF A SPECIAL GLASS BINDER, AND FINAL COST PRICE OF THE PASTE REMAINS APPROXIMATELY A TENTH OF THAT OF GOLD PASTES
Descriptors: THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS
Identifiers: HYBRID CIRCUITRY; VITREOUS BINDER; ORGANIC TEMPORARY BINDER; FIRING CONDITIONS; SCREEN PRINTING CU PASTES ; SCREEN PRINTED CU CONDUCTORS; CERAMIC TO METAL SEALING MATERIAL; ELECTRICAL CONDUCTIVITY; HF DATA; LOW COST PASTE
06
Section Class Codes: B2540, B2522
Unified Class Codes: SMEAAB, SMCCAX

932662 B7628710
ENGINEERING OF MICROELECTRONIC THIN AND THICK FILMS
JOWETT, C.E.
SBN 0 333 18655 9
1976
MACMILLAN LONDON, ENGLAND
TO ENABLE DESIGNERS, PRODUCTION AND PROJECT ENGINEERS TO USE THICK AND THIN FILMS TO THE BEST ADVANTAGE, THIS BOOK EXAMINES THE GENERAL ENGINEERING ASPECT PARTICULARLY WHERE IT WILL LEAD TO CIRCUIT DESIGN AND PRODUCTION RULES DIFFERENT FROM THOSE THAT HAVE BECOME COMMON PRACTICE WITH DISCRETE COMPONENT ASSEMBLIES
Descriptors: THIN FILM CIRCUITS; THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS
Identifiers: GENERAL ENGINEERING ASPECT; THIN FILMS; THICK FILMS; MICROELECTRONICS
03
Section Class Codes: B2540, B2524, B2522
Unified Class Codes: SMEAAB, SMCEAH, SMCCAX

932661 B7628709
AN EVALUATION OF TECHNIQUES FOR BONDING BEAM-LEAD DEVICES TO GOLD THICK FILMS
DAWES, C.J.
WELDING INST., MICRO WELDING SECTION, CAMBRIDGE, ENGLAND
SOLID STATE TECHNOL. (USA) VOL.19, NO.3 23-8 MARCH 1976 Coden: SSTEAP
DISCUSSES THREE TECHNIQUES FOR BONDING BEAM-LEAD DEVICES TO FITTED AU SCREEN PRINTED THICK FILMS ON CERAMIC SUBSTRATES. THE AUTHOR DISCUSSES RESULTS OF EVALUATION TESTS ON THERMOCOMPRESSION (TC) WOBBLE BONDING, TC COMPLIANT BONDING, AND ULTRASONIC TC WOBBLE BONDING. THE IMPORTANT PARAMETERS AND THEIR EFFECTS ON RELIABILITY AND BOND STRENGTH ARE DESCRIBED (10 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; BEAM-LEAD DEVICES; THICK FILM CIRCUITS; JOINING PROCESSES; INTEGRATED CIRCUIT PRODUCTION
Identifiers: EVALUATION OF TECHNIQUES; AU THICK FILMS; BEAM LEAD DEVICE BONDING; BONDING TO AU THICK FILMS; BOND EVALUATION; EXPERIMENTAL RESULTS; HYBRID ICS
02
Section Class Codes: B2540, B2564, B1267
Unified Class Codes: SMEAAB, SMGEAN, ADGKAT

932659 B7628707
APPLICATIONS OF THICK FILM HYBRIDS
WHITELAW, D.
BECKMAN INSTRUMENTS LTD., GLENROTHES, SCOTLAND
NEW ELECTRON. (GB) VOL.9, NO.6 66, 69, 71 23 MARCH 1976 Coden: NWELAC
THE MILITARY DEFENCE AEROSPACE MARKET HAS BEEN THE PRIME AREA FOR HYBRIDS FOR MANY YEARS. THE CONSUMER MARKET HAS PROVED TO BE EXTREMELY GOOD FOR RESISTOR NETWORKS BUT DUE TO THE HIGH VOLUME REQUIREMENTS, MONOLITHIC INTEGRATED CIRCUITS HAVE BEEN FAR MORE COST EFFECTIVE THAN HYBRIDS IN THE MAJORITY OF CASES. IN THE GENERAL INDUSTRIAL MARKET, HYBRIDS HAVE BEEN ACTIVE IN SOME SPECIFIC AREAS, NAMELY DATA PROCESSING, COMMUNICATIONS, AND NAVIGATION
Descriptors: THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS
Identifiers: AEROSPACE MARKET; PRIME AREA; HYBRIDS; CONSUMER MARKET; RESISTOR NETWORKS; INDUSTRIAL MARKET; DATA PROCESSING; COMMUNICATIONS; NAVIGATION; PACKAGING; ECONOMICS; PRICING; PRINTED CIRCUITS
02
Section Class Codes: B2540, B2522
Unified Class Codes: SMEAAB, SMCCAX

932657 B7628705
HOW TO RESOLVE THERMAL PROBLEMS IN HYBRID MICROELECTRONICS
KERSUZAN, G.
ELECTRON. AND MICROELECTRON. IND. (FRANCE) NO.218, 24-9 1 APRIL 1976 Coden: EMCIAS
A THEORETICAL INTRODUCTION TO HEAT TRANSFER PROBLEMS IN THIN-FILM CIRCUITS ALSO CONTAINS SOME EMPIRICAL COEFFICIENTS AND A TABLE OF THERMAL CONDUCTIVITIES OF VARIOUS RELEVANT SUBSTANCES. CONSIDERATION IS GIVEN TO HORIZONTAL AND VERTICAL MOUNTING ON TO A PRINTED CIRCUIT AND TO MOUNTING ON A HEAT SINK (3 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS
Identifiers: HYBRID MICROELECTRONICS; HEAT TRANSFER; THERMAL CONDUCTIVITIES; MOUNTING; PRINTED CIRCUIT; HEAT SINK; THIN FILM CIRCUITS
02
Section Class Codes: B2540, B2524
Unified Class Codes: SMEAAB, SMCEAH
Language: FRENCH

932619 B7628649
THIN-FILM TECHNOLOGY
CICHETTI, M.; ROGGIA, D.
TELETTRA (ITALY) NO.27 45-50 NOV. 1975 Coden: TELTBC
A GENERAL DESCRIPTION OF THE TECHNOLOGY IS GIVEN AND A COMPARISON WITH THICK-FILM TECHNOLOGY IS MADE
Descriptors: THIN FILM CIRCUITS
Identifiers: GENERAL DESCRIPTION; COMPARISON; THIN FILM TECHNOLOGY
02
Section Class Codes: B2524
Unified Class Codes: SMCEAH

932618 B7628648
SOLOK TERMINATIONS FOR THICK FILM INTEGRATED CIRCUITS
SCHAAFSMA, C.
FINOMMECH. AND MIKROTECH. (HUNGARY) VOL.15, NO.2 50-1 FEB. 1976 Coden: FNMKAY
FOR THICK FILM HYBRID INTEGRATED CIRCUITS, LIQUID CRYSTAL DISPLAYS AND FOR SIMILAR COMPONENTS, THE SOLOK CONNECTOR SYSTEM OF THE FIRM BERG HAS BEEN DEVELOPED. SOME TYPES FROM THE SYSTEM ARE DESCRIBED
Descriptors: THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; LIQUID CRYSTAL DEVICES; ELECTRIC CONNECTORS
Identifiers: SOLOK TERMINATIONS; THICK FILM INTEGRATED CIRCUITS; THICK FILM HYBRID INTEGRATED CIRCUITS; LIQUID CRYSTAL DISPLAYS; SOLOK CONNECTOR SYSTEM; BERG
02
Section Class Codes: B2524, B2540, B2250
Unified Class Codes: SMCEAH, SMEAAB, SERAAB
Language: HUNGARIAN

932617 B7628647
REALIZATION OF A THREE LAYER THIN FILM RC NETWORK
LOJACONO, R.; SALERNO, M.
ISTITUTO DI COMUNICAZIONI, ELETTRICHE, UNIV. DI ROMA, ROMA, ITALY
ALTA FREQ. (ITALY) VOL.45, NO.3 213-17 MARCH 1976 Coden: ALFRAJ
ANALYSIS OF THREE LAYER THIN FILM DISTRIBUTED RC NETWORK TECHNOLOGY IS PRESENTED. FORMULA AND GRAPHS ARE QUOTED FOR COMPONENT VALUES WITH EXPERIMENTAL RESULTS. THE PROTOTYPE CONFIRMED THAT IT IS POSSIBLE TO OBTAIN HIGH ACCURACIES IN RESPECT OF TIME CONSTANTS AND FREQUENCY (7 Refs)
Descriptors: DISTRIBUTED PARAMETER NETWORKS; THIN FILM CIRCUITS
Identifiers: THREE LAYER THIN FILM; DISTRIBUTED RC NETWORK ANALYSIS
02
Section Class Codes: B2524
Unified Class Codes: SMCEAH
Language: ITALIAN

932616 B7628646
SOPHISTICATED TECHNIQUES SOLVE INK MANUFACTURING PROBLEMS
VITRIOL, W.A.; HODGE, P.M.
BECKMAN INSTRUMENTS INC., HELIPOT DIV., FULLERTON, CA, USA
SOLID STATE TECHNOL. (USA) VOL.19, NO.3 33-7 MARCH 1976 Coden: SSTEAP
AS THE COMPLEXITY OF HYBRID THICK-FILM INTEGRATED CIRCUITS AND NUMBER OF MATERIALS INCREASE, A MORE COMPLETE CHARACTERIZATION IS DEMANDED. THE AUTHOR DESCRIBES EQUIPMENT USED TO GIVE A TOTAL PICTURE OF THE CHEMICAL AND PHYSICAL PROPERTIES AT HAND. THE SAME EQUIPMENT THAT IS USED FOR GIVING A COMPLETE CHARACTERIZATION OF MATERIALS CAN ALSO BE USED FOR PROBLEM SOLVING. THIS PAPER SHOWS, USING SEVERAL EXAMPLES, HOW HAVING TOTAL CONTROL OVER THICK FILM MATERIAL PROPERTIES CAN GIVE A DISTINCT ADVANTAGE IN SOLVING PROCESS AND MATERIAL PROBLEMS THROUGH THE USE OF DEVELOPMENTAL TOOLS
Descriptors: THICK FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION
Identifiers: INK MANUFACTURING PROBLEMS; TOTAL CONTROL; THICK FILM MATERIAL PROPERTIES; THICK FILM INKS; HYBRID INTEGRATED CIRCUITS; INK CHARACTERISATION; CHARACTERISATION TECHNIQUES
02
Section Class Codes: B2522
Unified Class Codes: SMCCAX

932615 B7628645
FILM CIRCUIT ACTIVITY IN THE UK
BISWELL, D.
FILM CIRCUIT DIV., ITT COMPONENTS GROUP, HARLOW, ENGLAND
NEW ELECTRON. (GB) VOL.9, NO.6 62, 64-5 23 MARCH 1976 Coden: NWELAC
MEASURED IN FINANCIAL TERMS THE UK HAS THE LARGEST ACTIVITY LEVEL IN FILM CIRCUITS OF ALL EUROPEAN COUNTRIES. IT CAN ALSO BOAST A VERY WIDE APPLICATION RANGE COVERING THE ENTIRE SPECTRUM FROM CONSUMER PRODUCTS TO MEDICAL AND SPACE ELECTRONICS. THE PURPOSE OF THIS ARTICLE IS BRIEFLY TO REVIEW OUR PROGRESS IN EACH FIELD AND COMPARE ITS STATUS WITH THAT OF THE REST OF THE WORLD. RECENTLY, MECHANISED MANUFACTURING METHODS AND EXPERIENCE IN KNOWING WHERE TO PLACE FIRM CIRCUITS OF VARIOUS TYPES TO ADVANTAGE, HAS UNLOCKED LARGE EXPLOITABLE MARKET AREAS
Descriptors: THICK FILM CIRCUITS; THIN FILM CIRCUITS
Identifiers: FINANCIAL TERMS; WIDE APPLICATION RANGE; CONSUMER PRODUCTS; MEDICAL; SPACE ELECTRONICS; MECHANISED MANUFACTURING METHODS; LARGE EXPLOITABLE MARKET; UK MARKETING ACTIVITY; THICK FILM CIRCUITS; AVIONICS; THIN FILM CIRCUITS
02
Section Class Codes: B2522, B2524
Unified Class Codes: SMCCAX, SMCEAH

932116 B7628084
HIGH LEVEL MIXERS GO THIN FILM WITH COMPLEMENTARY LO DRIVE AMPLIFIERS
CHEADLE, D.L.
WATKINS-JOHNSON CO., PALO ALTO, CA, USA
MICROWAVE SYST. NEWS (USA) VOL.6, NO.1 72-7 FEB.-MARCH 1976 Coden: MWSNA9
SMALL SIZE, IMPROVED HIGH FREQUENCY 3RD ORDER SUPPRESSION AND HIGHER RF INPUT POWER HANDLING CAPACITY ARE CHIEF FEATURES IN NEW FAMILY OF MIXERS. CASCADABLE AMPLIFIERS PROVIDE +20 DBM LO DRIVE IN TO-8 PACKAGE (2 Refs)
Descriptors: MIXERS (CIRCUITS); RADIOFREQUENCY AMPLIFIERS; THIN FILM CIRCUITS
Identifiers: IMPROVED HIGH FREQUENCY; 3RD ORDER SUPPRESSION; RF INPUT POWER HANDLING; TO-8 PACKAGE; HIGH LEVEL MIXERS; THIN FILM CIRCUITS; CASCADABLE AMPLIFIERS; LOCAL OSCILLATOR DRIVE AMPLIFIERS
02
Section Class Codes: B1860, B3740, B2524
Unified Class Codes: ETMAAG, FKGAAM, SMCEAH

921946 B7625681
CONSIDERATIONS ON THE DESIGN OF A NEW PCM MULTIPLEX TERMINAL
LUCHETTI, M.; VAGLIANI, F.C.
TELETTRA, DIGITAL TRANSMISSION AND WIRE COMMUNICATION DIV., VIMERCATE, ITALY
IEEE, ET AL.
1976 INTERNATIONAL CONFERENCE ON DIGITAL COMMUNICATIONS A6/1-5 1976
9-11 MARCH 1976 ZURICH, SWITZERLAND
IEEE NEW YORK, USA
DESCRIBES THE PROJECT CHOICES AND SOME TECHNICAL AND FUNCTIONAL FEATURES OF A NEW PCM MULTIPLEX TERMINAL FOR 30 SPEECH CHANNELS. THE USE OF NEW COMPONENTS AND TECHNOLOGIES HAS GREATLY INFLUENCED DESIGN AND STRUCTURE, PERMITTING A GREATER RELIABILITY AND COMPACTNESS. LSI, CMOS, TTLLS, THIN AND THICK FILM CIRCUITS AND BEAM LEAD DEVICES HAVE BEEN USED WHICH MAKE CUSTOM INTEGRATED CIRCUITS UNNECESSARY (8 Refs)
Descriptors: MULTIPLEXING EQUIPMENT; PULSE-CODE MODULATION LINKS; DIGITAL INTEGRATED CIRCUITS; LARGE SCALE INTEGRATION; TIME DIVISION MULTIPLEXING
Identifiers: PCM MULTIPLEX TERMINAL; 30 SPEECH CHANNELS; DESIGN; STRUCTURE; RELIABILITY; COMPACTNESS; LSI; CMOS; TTL; THICK FILM CIRCUITS; BEAM LEAD DEVICES; THIN FILM CIRCUITS
06
Section Class Codes: B3550, B3420, B1870, B2528
Unified Class Codes: FEGAAC, FCEAAN, ETNAAP, SMCKAK

921250 B7624925
FUSED SILICA' A BETTER SUBSTRATE FOR (MICROWAVE) MIXERS?
CRESCENZI, E.J., JR.; MARKI, F.A.; KENNEDY, W.
SOLID STATE WATKINS-JOHNSON CO., PALO ALTO, CA, USA
MICROWAVES (USA) VOL.15, NO.1 34-5, 39-40, 43 JAN. 1976 Coden: MCRWAR
DISCUSSES THE ADVANTAGES OF FUSED SILICA, A MATERIAL COMMONLY USED IN OPTICS, FOR J-BAND MIXER APPLICATIONS. IT ALLOWS THIN-FILM CIRCUITS TO BE BUILT ON RELATIVELY LOW DIELECTRIC CONSTANT SUBSTRATES (7 Refs)
Descriptors: SUBSTRATES; MICROWAVE INTEGRATED CIRCUITS; THIN FILM CIRCUITS; MIXERS (CIRCUITS); SOLID-STATE MICROWAVE CIRCUITS
Identifiers: FUSED SILICA; SUBSTRATES; MICROWAVE MIXERS; J-BAND; LOW DIELECTRIC CONSTANT; THIN FILM CIRCUITS; MICROWAVE INTEGRATED CIRCUITS
02
Section Class Codes: B2540, B1860, B1820, B2524
Unified Class Codes: SMEAAB, ETMAAG, ETEAAD, SMCEAH

921224 B7624895
THE SQUEEGEE IN PRINTING OF ELECTRONIC CIRCUITS
DUBEY, G.C.
SOLID STATE PHYS. LAB., DELHI, INDIA
MICROELECTRON. AND RELIAB. (GB) VOL.14, NO.5-6 427-9 1975 Coden: MCRLAS
THE SQUEEGEE IS AN IMPORTANT TOOL IN SCREEN PRINTING OF THICK FILM CIRCUITS TO CONTROL THE UNIFORMITY IN PRINT THICKNESS (WHICH SUBSEQUENTLY CONTROLS THE COMPONENT VALUES). THE PRESENT PAPER COMPARES THE VARIOUS MATERIALS AND SHAPES OF SQUEEGEE USED IN SCREEN PRINTING. IT HAS BEEN SHOWN THAT POLYURETHANE OF CONSIDERABLE HARDNESS AND MODULUS IN SQUARE EDGE SHAPE IS THE BEST MATERIAL FOR USE AS A SQUEEGEE IN OFF CONTACT PRINTING (9 Refs)
Descriptors: THICK FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION
Identifiers: SQUEEGEE; SCREEN PRINTING; THICK FILM CIRCUITS; POLYURETHANE; OFF CONTACT PRINTING
02
Section Class Codes: B2522
Unified Class Codes: SMCCAX

921218 A7650818, B7624888
INFRARED SCANNING MICROSCOPE (FOR MICROELEMENT INSPECTION)
OVCHARENKO, G.M.; SOBOLEVA, N.F.; SHABASHEV, O.K.
OPT.-MEKH. PROM.-ST. (USSR) VOL.42 31-3 OCT. 1975 Coden: OPMPAQ
Trans of: SOV. J. OPT. TECHNOL. (USA) VOL.42, NO.10 588-90 OCT. 1975 Coden: SJOTBH
A PHOTOGRAPH AND A SCHEMATIC OF THE OPTICAL HEAD OF THE MICROSCOPE, DEVELOPED FOR THE TESTING OF HYBRID AND INTEGRATED MICROCIRCUITS AND MULTILAYER PRINTED CIRCUIT BOARDS ETC., ARE SHOWN. A DESCRIPTION IS GIVEN OF THE MODE OF OPERATION AND TYPICAL THERMOGRAMS. A MICROCIRCUIT AND A TRANSISTOR JUNCTION, INDICATE ITS PERFORMANCE. FIELD OF VIEW IS 2*2 MM, TIME TO PRODUCE IMAGE 2.5 MIN, TEMPERATURE RANGE 20-150 DEGREESC. RESOLUTION OF ±10 MUM IS CLAIMED (2 Refs)
Descriptors: MICROSCOPES; INFRARED IMAGING; INTEGRATED CIRCUIT TESTING; HYBRID INTEGRATED CIRCUITS; PRINTED CIRCUITS
Identifiers: MICROELEMENT INSPECTION; OPTICAL HEAD; INTEGRATED MICROCIRCUITS; MULTILAYER PRINTED CIRCUIT BOARDS; MODE OF OPERATION; THERMOGRAMS; TRANSISTOR JUNCTION; IR SCANNING MICROSCOPE; HYBRID MICROCIRCUITS
02
Section Class Codes: A0645, A0620, B2520, B2540, B2230, B1269
Unified Class Codes: BGHNAS, BGFAAM, SMCAAL, SMEAAB, SEMAAW, ADGMAE

920860 B7624513
DESIGNING AND REALISING ACTIVE THICK-FILM RC FILTERS
RUPP, W.
INST. FUR NETZWERKTHEORIE AND SCHALTUNGSTECH., TECH. UNIV., MUNCHEN, GERMANY
NTG-FACHBER. (GERMANY) VOL.51 85-9 1975
DESCRIBES THE STEPS OF A DESIGN METHOD (OPTIMISING RESPONSE AND DIMENSIONING THE CIRCUIT) AND THE ADJUSTMENTS TO THE THICK-FILM FILTER AFTER PRODUCTION (USING A NETWORK ANALYSER). AS AN EXAMPLE THE REALISATION OF A FILTER BANK (9G BP FILTERS FOR 20HZ - 15 KHZ) IS BRIEFLY DESCRIBED (8 Refs)
Descriptors: ACTIVE FILTERS; THICK FILM CIRCUITS
Identifiers: ACTIVE THICK FILM RC FILTERS; DESIGN
02
Section Class Codes: B1880, B2522
Unified Class Codes: ETRAAM, SMCCAX
Language: GERMAN

920726 B7624351
A FEEDFORWARD S-BAND MIC AMPLIFIER SYSTEM
HSIEH, C.-C.
DEPT. OF ELECTRICAL ENGNG. AND COMPUTER SCI., UNIV. OF SANTA CLARA, SANTA CLARA, CA, USA
IEEE J. SOLID-STATE CIRCUITS (USA) VOL.SC11, NO.2 271-8 APRIL 1976 Coden: IJSCBC
A 2.2 GHZ HIGH-POWER FEEDFORWARD AMPLIFIER SYSTEM HAS BEEN DESIGNED AND FABRICATED, WHICH HAS AN RF GAIN OF 30 DB AND DELIVERS AN OUTPUT POWER OF 1.25 W WITH ALL IM DISTORTION PRODUCTS AT LEAST DOWN 50 DB FROM THE CARRIER LEVEL. THE POWER AMPLIFIERS AND PASSIVE CIRCUIT COMPONENTS USED IN THIS SYSTEM ARE ALL REALISED IN THIN-FILM HYBRID FORM. THE THEORETICAL DEVELOPMENT OF THE SYSTEM IS DESCRIBED. THE RESULT OF THE TEMPERATURE STABILITY TESTS IS GIVEN. THE COMPUTER OPTIMISATION TECHNIQUE WITH MULTIBAND WEIGHTING FUNCTIONS USED THROUGHOUT THE AMPLIFIER DESIGN PROCESS IS PRESENTED. FINALLY, PRACTICAL APPLICATIONS AND A COMPARISON OF THE ADVANTAGES AND DRAWBACKS OF THIS (FEEDFORWARD) AMPLIFIER SYSTEM WITH THOSE PROVIDED BY USING THE CONVENTIONAL (BACK-OFF) APPROACH ARE DISCUSSED (14 Refs)
Descriptors: MICROWAVE INTEGRATED CIRCUITS; THIN FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; MICROWAVE AMPLIFIERS; POWER AMPLIFIERS
Identifiers: FEEDFORWARD S-BAND MIC AMPLIFIER SYSTEM; RF GAIN; OUTPUT POWER; IM DISTORTION PRODUCTS; POWER AMPLIFIERS; TEMPERATURE STABILITY TESTS; COMPUTER OPTIMISATION TECHNIQUE; MULTIBAND WEIGHTING FUNCTIONS; THIN FILM HYBRID FORM; 2.2 GHZ HIGH POWER AMPLIFIER SYSTEM
02
Section Class Codes: B1820, B1840, B2540, B2524
Unified Class Codes: ETEAAD, ETHAAB, SMEAAB, SMCEAH

920714 B7624338
DESIGN, FABRICATION, AND APPLICATION OF UNIFORMLY DISTRIBUTED RC NETWORKS FOR USE IN ELECTRONIC CIRCUITS
KAVANAUGH, M.F.
UNIV. MISSOURI, ROLLA, USA
THE INDEFINITE ADMITTANCE MATRIX FOR THE DOUBLE-RESISTIVE AND SINGLE-RESISTIVE UNIFORMLY DISTRIBUTED RC NETWORKS IS USED AS THE STARTING POINT. THE RESULTS ARE APPLIED TO REDUCTION IN THE NUMBERS OF ELEMENTS NEEDED FOR RC-COUPLED AMPLIFIERS, MULTIVIBRATOR CIRCUITS HIGH-Q (10 TO 150) BAND-PASS AMPLIFIERS, AND PHASE-SHIFT OSCILLATORS. THE PROCEDURES FOR DESIGNING AND FABRICATING UNIFORMLY DISTRIBUTED RC NETWORKS ARE REVIEWED IN DETAIL. A REVIEW OF BOTH THIN-FILM FABRICATION BY VACUUM DEPOSITION AND SEMICONDUCTOR FABRICATION BY DIFFUSION IS INCLUDED
Descriptors: DISTRIBUTED PARAMETER NETWORKS; THIN FILM CIRCUITS; AMPLIFIERS; MULTIVIBRATORS; OSCILLATORS; ADMITTANCE
Identifiers: UNIFORMLY DISTRIBUTED RC NETWORKS; ELECTRONIC CIRCUITS; INDEFINITE ADMITTANCE MATRIX; MULTIVIBRATOR CIRCUITS
10
Section Class Codes: B1650, B2524, B1840, B1850
Unified Class Codes: ERMAAH, SMCEAH, ETHAAB, ETKAAR
Availability: UNIV. MICROFILMS, ANN ARBOR, MICH., USA, ORDER NO. 75-22322

909279 B7622041
ACTIVE TONE CONTROL DEVICE IN TANTALUM THINFILM TECHNOLOGY
BOSSELMANN, W.
SIEMENS AG, MUNCHEN, GERMANY
COMPONENTS REP. (GERMANY) VOL.10, NO.4 104-7 OCT. 1975
Coden: CMREC3
DISCUSSES TONE CONTROL NETWORKS USED IN HI FI CLASSIFIED AF AMPLIFIERS. ACTIVE RC FILTERS OF TA-THIN FILM TECHNOLOGY OFFER THE MOST ADAPTABILITY BECAUSE OF THE CENTRE FREQUENCY IS CONTINUOUSLY VARIABLE. THE ARTICLE EXPLAINS THE FUNCTION AND DESIGN OF SUCH ACTIVE FILTER NOT WITHOUT CONSIDERING PASSIVE RC- AND LCR CIRCUITS. THE THINFILM CIRCUIT LAYOUT AND REGULATING POSSIBILITIES OF THIS MODERN TONE CONTROL MEET HIGH REQUIREMENTS (1 Refs)
Descriptors: AUDIO-FREQUENCY AMPLIFIERS; ACTIVE FILTERS; THIN FILM CIRCUITS; TANTALUM
Identifiers: ACTIVE FILTER; CIRCUIT LAYOUT; HIFI AF AMPLIFIERS; ACTIVE TONE CONTROL NETWORKS; TA THIN FILM IC; ADJUSTABLE CENTRE FREQUENCY; ACTIVE RC FILTERS; CIRCUIT DIAGRAMS
02
Section Class Codes: B3780, B1840, B1880, B2524
Unified Class Codes: FKRAAF, ETHAAB, ETRAAM, SMCEAH

908004 B7620574
ALUMINA CERAMICS FOR ELECTRONIC AND ELECTRICAL PURPOSES
PODHORANYI, I.; SZTANKOVICS, L.
HIRADSTECH. IPARI KUT. INTEZ. KOZL. (HUNGARY) VOL.15, NO.3 34-45 1975 Coden: HIKKAB
HIGH PURITY MATERIALS WITH 99.8 PER CENT AL/SUB 2/O/SUB 3/ CONTENTS ARE USED MAINLY IN TRANSMITTING TUBES, AND IN MICROWAVE AND VACUUM-TECHNOLOGICAL APPLICATIONS. FROM CERAMICS WITH HIGH, 97-98 PER CENT, ALUMINA CONTENTS THE PACKAGING OF THICK FILM AND SEMICONDUCTOR INTEGRATED CIRCUITS, TUNABLE VHF COIL-BODIES AND RESISTOR BODIES ARE FABRICATED. FINALLY CERAMICS WITH 95 PER CENT ALUMINA CONTENTS ARE USED FOR INSULATING PURPOSES AS ANTENNA INSULATORS AND OTHER ELECTRICAL INSULATORS. THE CHARACTERISTICS OF THE THREE CERAMIC TYPES ARE TABULATED. SOME OF THE MORE IMPORTANT REQUIREMENTS CONCERNING THE RAW MATERIAL AND THE PROCESSING OF CERAMICS AN THE USE OF FINISHED CERAMICS ARE GIVEN
Descriptors: CERAMICS; INSULATING MATERIALS; INTEGRATED CIRCUITS; MICROWAVE TUBES
Identifiers: TRANSMITTING TUBES; PACKAGING; SEMICONDUCTOR INTEGRATED CIRCUITS; RESISTOR BODIES; ANTENNA INSULATORS; ELECTRICAL INSULATORS; ALUMINA CERAMICS; ELECTRONIC APPLICATIONS; ELECTRICAL APPLICATIONS; MICROWAVE APPLICATIONS; VACUUM APPLICATIONS; THICK FILM CIRCUITS; TUNABLE VHF COIL BODIES
02
Section Class Codes: B2610, B2522, B2528, B2850
Unified Class Codes: SNCAAY, SMCCAX, SMCKAK, SCAAAN
Language: HUNGARIAN

907092 B7620562
SOLDERLESS THICK FILM HYBRIDS
HETHERINGTON, D.
NEWMARKET TRANSISTORS LTD., NEWMARKET, ENGLAND
ELECTRON (GB) (GB) NO.91 29, 31 11 MARCH 1976 Coden: ELTNCL
PROJECTION RESISTANCE WELDING HAS BEEN USED FOR MANY YEARS FOR HERMETICALLY SEALED TO18, TO5, TO8 AND TO3 SEMICONDUCTOR PACKAGES BUT IT IS ONLY RECENTLY THAT TECHNIQUES HAVE BEEN DEVELOPED THAT MAKE THE PROJECTION WELDING OF LARGER RECTANGULAR PACKAGES FOR HYBRID CIRCUITS A VIABLE PRODUCTION METHOD. BY USING THESE NEW WELDING TECHNIQUES FOR THE PACKAGING AND EPOXIES FOR THE ATTACHMENT OF ACTIVE DEVICES A METHOD OF MANUFACTURING THICK FILM HYBRID CIRCUITS WITHOUT THE USE OF SOLDER HAS BEEN DEVELOPED
Descriptors: INTEGRATED CIRCUIT PRODUCTION; THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS
Identifiers: PROJECTION WELDING; METHOD OF MANUFACTURING; SOLDERLESS THICK FILM HYBRIDS
02
Section Class Codes: B2540, B2522
Unified Class Codes: SMEAAB, SMCCAX

907989 B7620559
CHIP CAPACITOR MARKING
SPARKES, R.
VITRAMON LTD., HIGH WYCOMBE, ENGLAND
ELECTRON. EQUIP. NEWS (GB) 15 MARCH 1976 Coden: EEQNAN
WITH THE INCREASING USE OF MONOLITHIC CERAMIC CAPACITORS FOR HYBRID MICROCIRCUIT APPLICATIONS IN INDUSTRY THE NEED FOR A SUITABLE METHOD OF 'CHIP CAPACITOR MARKING' HAS BEEN IDENTIFIED. THE PAPER EXPLAINS IN BRIEF THE DEVELOPMENT OF SUCH A MARKING SYSTEM, WHICH IS NOW IN USE IN A WIDE VARIETY OF APPLICATIONS. THE SYSTEM IS OPTIMUM IN TERMS OF SIMPLICITY AND PRACTICALITY. IT PROVIDES CHIP USERS WITH A POSITIVE WAY TO IDENTIFY THE CAPACITANCE VALUE OF A CHIP CAPACITOR
Descriptors: HYBRID INTEGRATED CIRCUITS; CAPACITORS; MONOLITHIC INTEGRATED CIRCUITS
Identifiers: MONOLITHIC CERAMIC CAPACITORS; CHIP CAPACITOR MARKING; HYBRID MICROCIRCUITS
02
Section Class Codes: B2540, B2528, B2670
Unified Class Codes: SMEAAB, SMCKAK, SNMAAR

907986 B7620556
INVESTIGATIONS INTO PRODUCTION STANDARDS FOR THICK FILM HYBRID CIRCUITS
CASTRACASI, G.; GORLA, C.
ALTA FREQ. (ITALY) VOL.45, NO.1 77-81 JAN. 1976 Coden: ALFRAJ
THE CIRCUITS DISCUSSED COVER A WIDE RANGE, FROM SIMPLE RESISTIVE NETWORKS TO VERY COMPLEX HYBRID CIRCUITS, FOR D.C. OPERATION AND AT SEVERAL HUNDRED MHZ. THE TOLERANCE ON THE PASSIVE ITEMS BEING NEVER MORE THAN +OR- 2PERCENT , AND THE NOISE LESS THAN 1 MUV/V. SUCH CIRCUITS REQUIRE EXPENSIVE PASTES TO PRODUCE THE CONDUCTING, RESISTIVE AND INSULATING COMPONENTS WHICH HAVE TO BE APPLIED AUTOMATICALLY. BESIDES THE STANDARDISATION OF COMPONENTS IT IS ALSO NECESSARY TO STANDARDISE METHODS OF PRODUCTION. DESCRIBES IMMERSION SOLDERING TECHNIQUES, THE STANDARDISATION OF FIVE DIFFERENT TYPES OF TERMINALS WITH AUTOMATIC MACHINERY FOR FITTING THEM. DISCUSSES THE STANDARDISATION OF COMPONENT DESIGN AND METHODS OF ASSEMBLY USING CEMENTS WHICH FACILITATE ASSEMBLY AT THE RATE OF 2000 COMPONENTS PER HOUR. AND DEALS FINALLY WITH STANDARD METHODS OF CIRCUIT DESIGN
Descriptors: THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; STANDARDS
Identifiers: THICK FILM CIRCUITS; HYBRID CIRCUITS; PRODUCTION STANDARDS; LOW TOLERANCES; LOW NOISE LEVEL; COMPONENTS STANDARDISATION; IMMERSION SOLDERING; ASSEMBLY; STANDARD CIRCUIT DESIGNS
02
Section Class Codes: B2540, B2522
Unified Class Codes: SMEAAB, SMCCAX
Language: ITALIAN

907985 B7620555
A CONSISTENT TECHNIQUE FOR ASSEMBLING THIN FILM HYBRID CIRCUITS
CONTA, R.
ALTA FREQ. (ITALY) VOL.45, NO.1 72-77 JAN. 1976 Coden: ALFRAJ
UNENCAPSULATED ITEMS, ARE MOUNTED ON AREAS ELECTRICALLY GOLD PLATED TO A DEPTH OF 4 TO 5 MUM, USING EUTECTIC AU-SI SOLDERING ALLOYS AT 380 DEGREESC AIDED BY NITROGEN JETS AT 400 DEGREESC. EPOXY RESIN METHODS OF ASSEMBLY HAVE BEEN INVESTIGATED BUT, DESPITE SOME ADVANTAGES, THEY CAUSE HIGH THERMAL AND ELECTRICAL RESISTANCE, THEY MAY CAUSE CORROSION AND ARE NOT SUITABLE FOR SMALL ITEMS LESS THAN 0.35 MM/SUP 2/. ULTRASONIC SOLDERING WITH ALUMINIUM THREADS CONTAINING 1PERCENT SILICON HAS GIVEN VERY SATISFACTORY RESULTS. DESCRIBES METHODS OF ASSEMBLING CERAMIC CAPACITORS BY IMMERSING THEM IN A BATH OF SOLDER PRIOR TO SECURING THEM TO THE SUBSTRATE BY REMELTING THE SOLDER AT THE TERMINALS AND METHODS OF MANUFACTURING AND ASSEMBLING THE OUTPUT TERMINALS. DESCRIBES THE PROTECTION ARRANGEMENTS (CLEANING IN ALCOHOL VAPOUR, COATING WITH SILICONE RESIN AND POLYMORISATION IN AN OVEN) PRIOR TO ENCAPSULATION WITH EPOXY RESIN CONTAINING QUARTZ. FINALLY LISTS THE TESTS PERFORMED AFTER ASSEMBLY
Descriptors: THIN FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; INTEGRATED CIRCUIT PRODUCTION
Identifiers: THIN FILM CIRCUITS; HYBRID CIRCUITS; CONSISTENT ASSEMBLING TECHNIQUE; GOLD PLATED; SOLDERING ALLOYS; NITROGEN JETS; ULTRASONIC SOLDERING; POLYMERISATION; ENCAPSULATION
02
Section Class Codes: B2540, B2524
Unified Class Codes: SMEAAB, SMCEAH
Language: ITALIAN

907459 B7619954
HYBRID THIN-FILM PULSE AMPLIFIER WITH SUBNANOSECOND RISE TIME
KALISZ, J.; KAZMIERSKI, T.; MROCZKOWSKI, Z.
WOJSKOWA AKAD. TECHNICZNA, WARSAW, POLAND
ELEKTRONIKA (POLAND) VOL.17, NO.1 32-4 1976 Coden: EKNTBZ
THE DESIGN OF THE HYBRID THIN-FILM PULSE AMPLIFIER WITH 26 DB GAIN AND 400 PS RISE TIME IS PRESENTED. DESCRIPTION OF CONSTRUCTION AND TECHNOLOGY AND AN APPLICATION EXAMPLE IN A HIGHLY SENSITIVE 550 MHZ FREQUENCY DIVIDER ARE GIVEN (8 Refs)
Descriptors: PULSE AMPLIFIERS; THIN FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; FREQUENCY DIVIDERS
Identifiers: SUBNANOSECOND RISE TIME; PULSE AMPLIFIER; CONSTRUCTION; TECHNOLOGY; HYBRID CIRCUIT; THIN FILM CIRCUIT; 26 DB GAIN; 400 PS RISE TIME; 550 MHZ FREQUENCY DIVIDER
02
Section Class Codes: B1840, B1870, B2524, B2540
Unified Class Codes: ETHAAB, ETNAAP, SMCEAH, SMEAAB
Language: POLISH

907227 B7619551
FINANCIAL CONSCIOUSNESS IN THE MANUFACTURING OF THIN-FILM HYBRIDS
LENINGTON, R.L.
HYCOMP INC., MAYNARD, MA, USA
IEEE TRANS. MANUF. TECHNOL. (USA) ,VOL.MET-5, NO.1 13-17 MARCH 1976 Coden: IETMBC
ACHIEVEMENT OF HIGH YIELDS AND LOW PRODUCTION COST ARE ALMOST AN IMPOSSIBILITY IN A THIN-FILM HYBRID MICROCIRCUIT OPERATION WITHOUT THE COMBINATION OF A STRONG QUALITY ASSURANCE PROGRAM AND AN ACCURATE COST ACCOUNTING SYSTEM. THE PROCESS PROBLEMS ENCOUNTERED AS COMPONENT SIZE GETS SMALLER MAKING IT INCREASINGLY DIFFICULT TO MAINTAIN CIRCUIT INTEGRITY AND RESOLUTION ARE OUTLINED. THE NECESSITY OF MAINTAINING PROCESS CONTROLS WITH WELL EXECUTED QUALITY AND COST PROGRAMS ARE REVIEWED
Descriptors: INTEGRATED CIRCUIT PRODUCTION; THIN FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; QUALITY CONTROL
Identifiers: COST ACCOUNTING SYSTEM; THIN FILM HYBRIDS; QUALITY CONTROL
02
Section Class Codes: B1263, B2540
Unified Class Codes: ADGDAL, SMEAAB

898085 B7617117, C7612442
A 6-6-IN 20-LPI ELECTROLUMINESCENT DISPLAY PANEL
BRODY, T.P.; FANG CHEN LUO; SZEPESI, Z.P.; DAVIES, D.H.
WESTINGHOUSE RES. LABS., PITTSBURGH, PA, USA
PROC. SOC. INF. DISP. (USA) VOL.16, NO.3 158-67 1975 Coden: SIDPAA
THE AUTHORS HAVE BEEN WORKING ON A SOLUTION OF THE SOLID-STATE DISPLAY ADDRESSING PROBLEM WHICH CONSISTS OF BUILDING THE ADDRESSING CIRCUITS (AND EVENTUALLY, ALSO SCANNING OR DECODING CIRCUITS) DIRECTLY ON THE PANEL, AND FULLY INTEGRATED WITH THE PARTICULAR DISPLAY MEDIUM. THE TECHNIQUE UTILIZED FOR THIS APPROACH IS THAT OF A VACUUM-DEPOSITED THIN FILM TRANSISTOR MATRIX. THIS PAPER REPORTS ON THE DESIGN, CONSTRUCTION, AND PERFORMANCE OF A 12000 ELEMENT EL PANEL, SUITABLE FOR ALPHANUMERIC, VECTORGRAPHIC, AND MONOCHROME TV IMAGE PRESENTATION. THE BASIC CIRCUIT, REPEATED AT EVERY PICTURE ELEMENT, CONSISTS OF AN X-Y-ADDRESSED LOGIC TRANSISTOR, A POWER TRANSISTOR, AND A STORAGE CAPACITOR. THE ENTIRE CIRCUIT WAS FABRICATED THROUGH MULTIPLE EVAPORATIONS IN A MULTISOURCE SYSTEM USING ONE PUMPDOWN CYCLE. THE FINISHED THIN-FILM CIRCUIT IS COVERED WITH A SPRAYED EL-PHOSPHOR. AN EVAPORATED AU/PBO LAYER FORMS THE CONTINUOUS TOP ELECTRODE. THE ENTIRE DISPLAY PANEL IS FINALLY SEALED WITH A GLASS COVER PLATE (9 Refs)
Descriptors: DISPLAY SYSTEMS; ELECTROLUMINESCENCE; THIN FILM CIRCUITS
Identifiers: ELECTROLUMINESCENT DISPLAY PANEL; DISPLAY ADDRESSING; ADDRESSING CIRCUITS; THIN FILM TRANSISTOR MATRIX; LOGIC TRANSISTOR; POWER TRANSISTOR; STORAGE CAPACITOR; THIN FILM CIRCUIT
02
Section Class Codes: B2898, C9640, B2524
Unified Class Codes: SRMAAC, XMGAAY, SMCEAH

898488 B7616866, C7611906
SMALL COMPUTER AIDED DESIGN AND DOCUMENTATION OF THICK FILM INTEGRATED CIRCUITS. II
REPKA, G.; ALBRECHT, M.
BUE ELEKTRONIKAI TECHNOL., TANSZEK, HUNGARY
FINOMMECH. AND MIKROTECH. (HUNGARY) VOL.14, NO.12 375-80 DEC. 1975 Coden: FIMKAY
THE PAPER SHOWS THE USE OF THE PROGRAM SYSTEM ELABORATED FOR THE TABLE CALCULATOR HP 9810, IN THE FIELD OF DOCUMENTATION. FURTHER SOME ALGORITHMS ARE DISCUSSED. THE POSSIBILITIES OF THE FUTURE DEVELOPMENT OF THE PROGRAM SYSTEM ARE EXAMINED
Descriptors: THICK FILM CIRCUITS; COMPUTER-AIDED DESIGN
Identifiers: COMPUTER AIDED DESIGN; DOCUMENTATION; THICK FILM INTEGRATED CIRCUITS
02
Section Class Codes: B2522, C8042
Unified Class Codes: SMCCAX, WMEEAQ

897750 C7611137
AUTOMATIC DIAGNOSIS OF LOGIC FAULTS IN CERAMIC CIRCUIT PACKS
PATTON, R.L.
WESTERN ELECTRIC ENG. (USA) VOL.20, NO.1 16-19 JAN. 1976 Coden: WELEAX
DISCUSSES A COMPUTER-CONTROLLED SYSTEM DEVELOPED TO AUTOMATICALLY DIAGNOSE LOGIC FAULTS FOUND ON THIN FILM CERAMIC CIRCUIT PACKS USED IN NO. 1A. ESS AND NO.4 TOLL ESS. THE SYSTEM CONSISTS OF A COMPUTER-CONTROLLED TEST FACILITY, PROBING STATION, AND SOFTWARE PROGRAMS USING SCHEMATIC TRACE ANALYSIS AND ON-LINE SIMULATION TO DETERMINE WHAT LOGIC FAULTS ARE CONTAINED ON A FAILING CIRCUIT PACK. THE CIRCUIT PACK IS LOGICALLY EXERCISED, AND FAILING OUTPUTS ARE LOGGED. WITH SCHEMATIC TRACE ANALYSIS, IDENTIFICATION OF FAILING OUTPUTS DETERMINES A SET OF GATES ON THE CIRCUIT WHICH MUST BE PROBED. THE GATE FAILURES ARE LOGGED, THEN PRINTED UPON COMPLETION OF THE TEST SEQUENCE. TESTING, FOR AN AVERAGE CIRCUIT PACK, REQUIRES LESS THAN FIVE MINUTES
Descriptors: LOGIC TESTING; INTEGRATED CIRCUIT TESTING; AUTOMATIC TESTING; THIN FILM CIRCUITS; PRODUCTION TESTING; SWITCHING SYSTEMS
Identifiers: LOGIC FAULTS; CERAMIC CIRCUIT PACKS; THIN FILM CERAMIC CIRCUIT PACKS; PROBING STATION; SOFTWARE PROGRAMS; SCHEMATIC TRACE ANALYSIS; LOGIC FAULTS DIAGNSOSIS; AUTOMATIC DIAGNOSIS TESTING; LOGIC TESTING; NO.1A ELECTRONIC SWITCHING SYSTEMS; NO.4 ELECTRONIC SWITCHING SYSTEMS; ATE; COMPUTER CONTROLLED TEST SYSTEM; ONLINE SIMULATION; LOGIC EXERCISING; LOGIC DISCREPANCIES
02
Section Class Codes: C7896, C9420, C7862
Unified Class Codes: SMCEAH, VMZRAY, XGCAAH, ADGMAE, VMMEAE, FEGAAC

891329 B7618088
AN OSCILLOSCOPE VERTICAL-CHANNEL AMPLIFIER THAT COMBINES MONOLITHIC, THICK-FILM HYBRID, AND DISCRETE TECHNOLOGIES
MILLARD, J.K.
HEWLETT-PACKARD, PALO ALTO, CA, USA
HEWLETT-PACKARD J. (USA) VOL.27, NO.4 8-11 DEC. 1975 Coden: HPJOAX
TO MINIMIZE MAINTENANCE AND CALIBRATION TIMES BY MINIMIZING THE NUMBER OF PARTS AND THE NUMBER OF ADJUSTMENTS, A HIGH DEGREE OF INTEGRATION WAS INCORPORATED IN THE VERTICAL AMPLIFIER SYSTEM OF THE MODEL 1740A OSCILLOSCOPE
Descriptors: CATHODE-RAY OSCILLOSCOPES; WIDEBAND AMPLIFIERS; THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS
Identifiers: MODEL 1740A OSCILLOSCOPE; VERTICAL CHANNEL AMPLIFIER; HYBRID THICK FILM TECHNOLOGY; COMBINED IC TECHNOLOGIES
02
Section Class Codes: B4270, B1840, B2540, B2522
Unified Class Codes: BECRAX, ETHAAB, SMEAAB, SMCCAX

891122 B7617799
A NEW 2700-CHANNEL RADIO RELAY SYSTEM
AMADEI, G.; VICINI, P.
GTE TELECOMUNICAZIONI SPA., MILAN, ITALY
MICROWAVE SYST. NEWS (USA) VOL.5, NO.4 31, 33-4, 36-7 AUG.-SEPT. 1975 Coden: MWSNA9
UTILISING THE LATEST THIN FILM TECHNOLOGY, THIS 6.4-7.1 GHZ RADIO TRANSCEIVER FULFILLS ALL CCIR REQUIREMENTS FOR HIGH CAPACITY TELEPHONE RELAY EQUIPMENTS. LOW POWER CONSUMPTION AND COMPACT SIZE ARE FEATURED (1 Refs)
Descriptors: MICROWAVE LINKS; RADIOTELEPHONY; TRANSCEIVERS; THIN FILM CIRCUITS
Identifiers: RADIO RELAY SYSTEM; THIN FILM TECHNOLOGY; RADIO TRANSCEIVER; HIGH CAPACITY TELEPHONE RELAY; POWER CONSUMPTION; COMPACT SIZE; 6.4 TO 7.1 GHZ
02
Section Class Codes: B3565, B2524
Unified Class Codes: FEKMAK, SMCEAH

890584 B7616905
THICK FILM ADVANCES SIMPLIFY COMPLEX HYBRID MODULE DESIGN
KIRBY, P.
ELECTRON. ENGINEERING (GB) VOL.48, NO.577 35-8 MARCH 1976 Coden: ELCEA9
THE SUPERFICIAL SIMILARITY BETWEEN TODAY'S THICK FILM HYBRID CIRCUITS AND SOME OF THE EARLY CIRCUITS PRODUCED ABOUT FIFTEEN YEARS AGO IS MISLEADING, BECAUSE SIGNIFICANT PROGRESS HAS BEEN MADE IN EVERY ASPECT OF THE SUBJECT. THE AUTHOR EXPLAINS HOW THESE IMPROVEMENTS CAN BE BROUGHT TOGETHER TO PRODUCE A NEW RANGE OF ADVANCED HYBRID MODULES WHICH CANNOT BE REALISED BY ANY OTHER AVAILABLE TECHNIQUE
Descriptors: HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS
Identifiers: COMPLEX HYBRID MODULE DESIGN; THICK FILM TECHNIQUES
02
Section Class Codes: B2540, B2522
Unified Class Codes: SMEAAB, SMCCAX

890565 B7616867
USING A ROTATIONAL VISCOMETER TO CHARACTERIZE THICK FILM MATERIALS. II
DRUFER, R.J.; STANLEY, E.C.
TECHNOL. AND APPLICATION, HAAKE INC., SADDLE BROOK, NJ, USA
INSUL./CIRCUITS (USA) VOL.22, NO.1 23-7 JAN. 1976 Coden: ISCUBF
FOR PT.I SEE IBID., VOL.21, NO.13, P.31-6 (1975). MEASURING PRINCIPLES ARE ILLUSTRATED WITH CASE HISTORIES. AMONG THE FORMULATIONS COVERED ARE' A THICK FILM RESISTOR PASTE AND THREE GOLD CONDUCTOR PASTES. NINE CASE STUDIES ARE PRESENTED TO ILLUSTRATE THE MANNER IN WHICH A VISCOMETER CAN HELP PASTE SUPPLIERS, AND THOSE ATTEMPTING NEW FORMULATIONS OR
Descriptors: THICK FILM CIRCUITS; VISCOMETERS; VISCOSITY MEASUREMENT
Identifiers: ROTATIONAL VISCOMETER; THICK FILM MATERIALS; THICK FILM RESISTOR PASTE; GOLD CONDUCTOR PASTES; CASE STUDIES ; MATERIALS CHARACTERISATION; MEASUREMENT PRINCIPLES
02
Section Class Codes: B2522
Unified Class Codes: SMCCAX

890564 B7616865, C7609117
THE SMALL COMPUTER TPA-I IN THE TECHNOLOGICAL DEVELOPMENT OF THE RADIO ENGINEERING FACTORY REMIX
AMBROZY, D.; SZAKACS, B.
FINOMMECH. AND MIKROTECH. (HUNGARY) VOL.14, NO.10 302-7 OCT. 1975 Coden: FNMKAY
TECHNOLOGICAL DEVELOPMENT, WITHIN THIS THE PRODUCTION OF INTEGRATED CIRCUITS IS ONE OF THE FIELDS OF APPLICATION FOR SMALL COMPUTERS. BESIDE EXISTING CONFIGURATIONS VARIOUS PROGRAMS SUCCESSFULLY EMPLOYED IN THE FIELD OF PRODUCING HYBRID THICK FILM INTEGRATED CIRCUITS ARE DESCRIBED IN THE PAPER, SUCH AS PROGRAMS FOR TOPOLOGICAL DESIGN AND ARRANGEMENT FOR DOCUMENTATION. THE FUNCTIONING OF THE PROGRAMS, THEIR FIELDS OF APPLICATION, AND EXPERIENCE IN CONNECTION WITH THESE TASKS ARE DISCUSSED
Descriptors: INTEGRATED CIRCUIT PRODUCTION; HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS; ELECTRONICS APPLICATIONS OF COMPUTERS; MINICOMPUTERS; COMPUTER-AIDED DESIGN
Identifiers: RADIO ENGINEERING FACTORY REMIX; TOPOLOGICAL DESIGN; DOCUMENTATION; IC PRODUCTION; HYBRID ICS; THICK FILM ICS; MINICOMPUTER TPA-I
02
Section Class Codes: B2522, B2540, C8842, C9840
Unified Class Codes: SMCCAX, SMEAAB, WMEEAQ, XREAAF
Language: HUNGARIAN

884060 B7613989, C7609577
HYBRID TECHNIQUES YIELD 4 GHZ LOGIC CIRCUITS FOR NTT'S PROPOSED 1-2 GB/S PCM COMMS SYSTEM
JEE (JAPAN) NO.106 28-9 SEPT. 1975 Coden: JELEBR
DISCUSSES THE PCM COMMUNICATION SYSTEM AND THE NEED FOR ULTRA HIGH-SPEED LOGIC. THE EFFECT OF PACKAGE PARASITICS, THE CHIP TRANSISTORS, THE MANUFACTURE OF THE THIN-FILM HYBRID ICS AND FUTURE PROBLEMS ARE CONSIDERED
Descriptors: LOGIC CIRCUITS; DIGITAL COMMUNICATION SYSTEMS; HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS; DIGITAL INTEGRATED CIRCUITS; PULSE-CODE MODULATION
Identifiers: 4 GHZ LOGIC CIRCUITS; PCM COMMUNICATION SYSTEM; PACKAGE PARASITICS; CHIP TRANSISTORS; PCBS; MULTILAYER BOARDS; LAMINATES; HIGH SPEED LOGIC; THIN FILM HYBRID IC; 2 GB/S PCM COMMUNICATION SYSTEM
02
Section Class Codes: B3560, B2524, B1870, C9260, B2540
Unified Class Codes: FEKAAA, SMCEAH, ETNAAP, XEGAAP, SMEAAB

883131 B7612984, C7607723
AUTOMATED LASER TRIMMING WITH LINEAR MOTOR BEAM POSITIONING
WOLFE, G.
CIRCUITS MANUF. (USA) VOL.15, NO.10 46-53 OCT. 1975 Coden: CMFGAF
DESCRIBES LASER TRIMMING EQUIPMENT FOR THICK AND THIN FILM RESISTORS AND HYBRID CIRCUIT CARDS
Descriptors: LASER BEAM MACHINING; INTEGRATED CIRCUIT PRODUCTION; AUTOMATIC CONTROL
Identifiers: LINEAR MOTOR BEAM POSITIONING; AUTOMATED LASER TRIMMING; THICK FILM CIRCUITS; THIN FILM CIRCUITS
02
Section Class Codes: C7862, B2520, B2980, B1267
Unified Class Codes: VMMEAE, SMCAAL, EGMAAA, ADGKAT

882962 B7613003, C7607433
USING A ROTATIONAL VISCOMETER TO CHARACTERIZE THICK FILM MATERIALS. I
OLIVER, R.J.; STANLEY, E.C.
TECHNOL. AND APPLICATION, HAAKE INC., SADDLE BROOK, NJ, USA
INSUL./CIRCUITS (USA) VOL.21, NO.13 31-6 DEC. 1975 Coden: ISCUBF
DISCUSSES THE USE OF A MODERN RANGE ROTATIONAL VISCOMETER TO OBTAIN CHARACTERISTIC FLOW CURVES ON INKS AND PASTES THAT ARE USED IN MICROELECTRONIC CIRCUITS. IMPORTANT RHEOLOGICAL CONCEPTS AND DEFINITIONS ARE SUMMARIZED. THE MEASURING PRINCIPLES ARE ILLUSTRATED WITH A NUMBER OF CASE STUDIES ON ACTUAL THICK FILM PASTES. FINALLY, CONCEPTS USEFUL TO FORMULATORS OF THESE MATERIALS ARE DICUSSED (10 Refs)
Descriptors: THICK FILM CIRCUITS; VISCOMETERS; RHEOLOGY; MATERIALS TESTING
Identifiers: ROTATIONAL VISCOMETER; THICK FILM MATERIALS; CHARACTERISTIC FLOW CURVES; INKS; PASTES; RHEOLOGICAL CONCEPTS; THICK FILM MICROELECTRONICS; OPERATION; WIDE RANGE VISCOMETERS; MATERIALS TESTING
02
Section Class Codes: B2522, C7624, B1268
Unified Class Codes: SMCCAX, BEECAR, ZGTAAA

879766 B7613054
HYBRID TECHNOLOGY APPLIED TO THE CHIP INTERCONNECTION PROBLEM
KIRBY, P.L.
WELWYN ELECTRIC LTD., BEDLINGTON, ENGLAND
MICROELECTRON. AND RELIAB. (GB) VOL.14, NO.4 369 1975 Coden: MCRLAS
SEMINEX '75 24-28 FEB. 1975 LONDON, ENGLAND
ABSTRACT ONLY GIVEN SUBSTANTIALLY AS FOLLOWS. REVIEWS EXISTING TECHNIQUES AND ILLUSTRATE POSSIBLE FUTURE DEVELOPMENT IN BOTH THIN AND THICK FILM INTERCONNECTION TECHNOLOGIES. INTERESTING DEVELOPMENT INVOLVING THE USE OF VERY THIN COPPER LAYERS ON P.C. BOARDS POINTS THE WAY TO HIGH DENSITY INTERCONNECTION CIRCUITS FOR LSI CHIPS WHICH COULD ALLOW DIRECT CHIP ATTACHMENT AND PROVIDE AN ALTERNATIVE INTERCONNECTION SYSTEM TO THE USE OF CERMETS ON CERAMIC SUBSTRATES
Descriptors: THICK FILM CIRCUITS; THIN FILM CIRCUITS; PRINTED CIRCUITS; MONOLITHIC INTEGRATED CIRCUITS; LARGE SCALE INTEGRATION; HYBRID INTEGRATED CIRCUITS
Identifiers: CHIP INTERCONNECTION; EXISTING TECHNIQUES; THICK FILM INTERCONNECTION TECHNOLOGIES; VERY THIN COPPER LAYERS; HIGH DENSITY INTERCONNECTION CIRCUITS; LSI; DIRECT CHIP ATTACHMENT; HYBRID TECHNOLOGY; THIN FILM INTERCONNECTION TECHNOLOGY; PCBS; LSI CHIP INTERCONNECTION
06
Section Class Codes: B2540, B2564, B2528, B2230
Unified Class Codes: SMEAAB, SMGEAN, SMCKAK, SEMAAW

879763 B7613051
A VERSATILE TA/SUB 2/N-W-AU/SIO/SUB 2//AL/SIO/SUB 2/ THIN FILM HYBRID MICROCIRCUIT METALLISATION SYSTEM
HAMPY, R.E.
SANDIA LABS., ALBUQUERQUE, NM, USA
IEEE TRANS. PARTS, HYBRIDS AND PACKAG. (USA) VOL.PHP-11, NO.4 263-72 DEC. 1975 Coden: IEPHAA
A VERSATILE THIN FILM METALLISATION TECHNIQUE IN WHICH BOTH GOLD AND ALUMINUM CAN BE INCORPORATED ON SAPPHIRE OR FINE GRAINED ALUMINA SUBSTRATES IN A TWO LEVEL METALLISATION SYSTEM WITH THIN FILM RESISTORS IS DESCRIBED. THE METALLISATION SYSTEM PERMITS EFFECTIVE INTERCONNECTION OF A MIXTURE OF DEVICES HAVING BOTH GOLD AND ALUMINUM TERMINATIONS WITHOUT CREATING UNDESIRABLE GOLD-ALUMINUM INTERFACES. DEVICES CAN BE ATTACHED BY EPOXY OR SILICONE DIRECTLY ON THE CIRCUITRY. PROCESSING TEMPERATURES UP TO 400 DEGREESC CAN BE TOLERATED FOR SHORT TIMES WITHOUT EFFECT ON BONDABILITY, RESISTOR, CONDUCTOR, AND INSULATOR CHARACTERISTICS, THUS PERMITTING SILICON-GOLD EUTECTIC DIE ATTACHMENT, COMPONENT SOLDERING, AND HIGHER TEMPERATURES DURING LEAD BONDING. TESTS CONDUCTED ON SPECIAL TEST PATTERN CIRCUITS INDICATE GOOD STABILITY OVER THE TEMPERATURE RANGE -55 DEGREESC TO +150 DEGREESC. AGING STUDIES SHOWED NO DEGRADATION IN CHARACTERISTICS IN TESTS OF 500 HOURS DURATION AT 150 DEGREESC (25 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; METALLISATION; THIN FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION
Identifiers: TA/SUB 2/N-W-AU/SIO/SUB 2//AL/SIO/SUB 2/; HYBRID MICROCIRCUIT; VERSATILE THIN FILM METALLISATION TECHNIQUE; COMPONENT SOLDERING; LEAD BONDING; SI-AU EUTECTIC DIE ATTACHMENT
02
Section Class Codes: B2540, B2524
Unified Class Codes: SMEAAB, SMCEAH

879761 B7613049
THICK FILM HYBRID TECHNOLOGY' LOW-COST HIGH-POWER MODULES
ELECTRON. AND MICROELECTRON. IND. (FRANCE) NO.212 45 15 NOV. 1975 Coden: EMCIAS
DESCRIBES THE USE OF DUPONT 9061 ALLOY (OF SILVER AND PALLADIUM) AS A CHEAP REPLACEMENT FOR GOLD AND PLATINUM AS MATERIALS FOR USE IN THICK FILM CIRCUIT BOARD MANUFACTURE. THE NEW ALLOY WITH 96PERCENT ALUMINIUM TRACKS CAN BE PROCESSED IN AIR AT 760C (INSTEAD OF IN CONTROLLED ATMOSPHERES AT 1600C) AND HAS PROVED SATISFACTORY IN POWER REGULATING MODULES CONTROLLING UP TO 3.75 KW
Descriptors: HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS; SILVER ALLOYS; PALLADIUM ALLOYS; MODULES
Identifiers: DUPONT 9061 ALLOY; POWER REGULATING MODULES; HYBRID CIRCUITS; PROCESSING IN AIR; LOW COST MODULES; HIGH POWER MODULES; AG-PD ALLOY; AU-PT REPLACEMENT; 96PERCENT AL TRACKS; THICK FILM CIRCIUTS; PCB MANUFACTURE
02
Section Class Codes: B2540, B2522, B1266, B1830
Unified Class Codes: SMEAAB, SMCCAX, ADGHAH, ETGAAT
Language: FRENCH

879760 B7613048
CHOOSING THICK FILM HYBRID MICROELECTRONICS
SIMONS, A.
STC-CANNON COMPONENTS PTY LTD., LIVERPOOL, ENGLAND
AUST. ELECTRON. ENG. (AUSTRALIA) VOL.8, NO.5 19-24 MAY 1975 Coden: AUEEBS
DISCUSSES THE ADVANTAGES, THE TECHNOLOGY AND APPLICATIONS OF THICK-FILM CIRCUITS. A SUMMARY OF THICK-FILM COMPONENT PARAMETERS IS GIVEN. THE ADVANTAGES OF GREATER RELIABILITY, SMALL SIZE, AND LOWER INITIAL DEVELOPMENT COSTS OVER DISCRETE COMPONENT DESIGN ARE SHOWN
Descriptors: THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; RELIABILITY; ECONOMICS
Identifiers: HYBRID MICROELECTRONICS; COMPONENT PARAMETERS; RELIABILITY; SIZE; COSTS; THICK FILM CIRCUITS; THICK FILM TECHNOLOGY; INTEGRATED CIRCUIT PRODUCTION
02
Section Class Codes: B2540, B2522, B1263
Unified Class Codes: SMEAAB, SMCCAX, ADGDAL

879742 B7613006
MATERIAL CHARACTERISATION OF TI-CU-NI-AU (TCNA)-A NEW LOW COST THIN FILM CONDUCTOR SYSTEM
MORABITO, J.M.; THOMAS, J.H.; LESH, N.G.
BELL LABS., ALLENTOWN, PA, USA
IEEE TRANS. PARTS, HYBRIDS AND PACKAG. (USA) VOL.PHP-11, NO.4 253-62 DEC. 197571 Coden: IEPHAA
THE CONTINUED INCREASE IN THE COST OF PRECIOUS METALS SUCH AS PALLADIUM AND GOLD HAS STIMULATED INCREASED INTEREST IN THE DEVELOPMENT OF LOWER COST, BUT EQUALLY RELIABLE, SUBSTITUTES FOR NOBLE METAL THIN FILM CONDUCTOR SYSTEMS SUCH AS TI-PD-AU. THIS PAPER DISCUSSES A TI-CU-NI-AU (TCNA) SUBSTITUTE WHICH ELIMINATES THE USE OF PD AND REDUCES THE THICKNESS OF GOLD NECESSARY FOR A .005 OHMS PER SQUARE SHEET RESISTANCE FROM 5 MUM TO .2 MUM. THE REDUCTION IN GOLD THICKNESS CAN RESULT IN CONSIDERABLE COST SAVINGS. THE TCNA FILMS WERE DEPOSITED BY PLATING, I.E., ELECTRON GUN EVAPORATION OF TI AND CU FOLLOWED BY THE PLATING OF CU-NI-AU (28 Refs)
Descriptors: CONDUCTORS (ELECTRIC); THIN FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION
Identifiers: TI-CU-NI-AU (TCNA); THIN FILM CONDUCTOR SYSTEM; PLATING; ELECTRON GUN EVAPORATION
02
Section Class Codes: B2524, B2540
Unified Class Codes: SMCEAH, SMEAAB

879740 B7613004
CHEMICAL ANALYSES OF THICK-FILM GOLD CONDUCTOR INKS
HITCH, T.T.; WHITAKER, H.H.; BOTNICK, E.M.; GOYDISH, B.L.
RCA DAVID SARNOFF RES. CENTER, PRINCETON, NJ, USA
IEEE TRANS. PARTS, HYBRIDS AND PACKAG. (USA) VOL.PHP-11, NO.4 248-53 DEC. 1975 Coden: IEPHAA
THE INORGANIC CONSTITUENTS OF SEVENTEEN COMMERCIAL GOLD-BASED CONDUCTOR INKS HAVE BEEN CHEMICALLY ANALYSED IN DETAIL. A VARIETY OF TECHNIQUES WERE EMPLOYED INCLUDING A PRECURSOR BAKE OF INK SAMPLES IN OXYGEN, WHICH BURNED OFF THE ORGANIC VEHICLES, FOLLOWED BY WET CHEMICAL ANALYSIS TO DETERMINE THE PROPORTION OF GOLD IN THE INORGANIC SOLIDS OF THE INKS. SOLIDS MASS SPECTROMETRY AND OPTICAL EMISSION SPECTROMETRY WERE USED TO DEFINE THE RELATIVE AMOUNTS OF OTHER ELEMENTS PRESENT. ATOMIC ABSORPTION SPECTROMETRY WAS THEN EMPLOYED, WHERE APPLICABLE, TO MORE PRECISELY DEFINE THE PROPORTIONS OF IMPORTANT BINDER CONSTITUENTS IN THE INKS. THE PAPER BRIEFLY DESCRIBES EACH OF THE ANALYTICAL METHODS USED AND REFERS TO MORE DETAILED DESCRIPTIONS OF EACH METHOD. DESCRIPTIONS ARE GIVEN OF INNOVATIVE LABORATORY TECHNIQUES USED TO PERFORM THE STUDY AND WITH THE OTHER MATERIAL GIVEN AND REFERENCED SHOULD ENABLE THE READER TO DUPLICATE THE ANALYSES (17 Refs)
Descriptors: THICK FILM CIRCUITS; CHEMICAL ANALYSIS; CONDUCTORS (ELECTRIC)
Identifiers: PRECURSOR BAKE; WET CHEMICAL ANALYSIS; OPTICAL EMISSION SPECTROMETRY; THICK FILM AU CONDUCTOR INKS; CHEMICAL ANALYSIS; SOLID MASS SPECTROMETRY; ATOMIC ABSORPTION SPECTROMETRY
02
Section Class Codes: B2522
Unified Class Codes: SMCCAX

879738 B7613001
NON-PRECIOUS METALS FOR REPLACING GOLD IN THICK FILM INKS
IMHOF, M.; KERSUZAN, M.
ELECTRON. AND MICROELECTRON. IND. (FRANCE) NO.212 46-7 15 NOV. 1975 Coden: EMCIA5
DESCRIBES THE CERMALLOY SYSTEM OF THICK FILM CIRCUIT MANUFACTURE USING COPPER OR NICKEL BEARING INKS WITH GLASS SEALING MATERIAL AND DIELECTRICS ALL PROCESSED AT BETWEEN 850 AND 900C IN A NITROGEN ATMOSPHERE, THE PARTIAL PRESSURE OF OXYGEN IS HELD TO LESS THAN 4 PPM. USING THESE TECHNIQUES THE USE OF GOLD AND OTHER PRECIOUS METALS CAN BE AVOIDED. THE CONDUCTORS ADHERE WELL TO NEARLY ALL COMMONLY USED SUBSTRATES, AND RESISTANCES WITH TEMPERATURE COEFFICIENTS OF LESS THAN 150 PPM/C FOR VALUES OF BETWEEN 50 AND 3000 OHM/SQUARE CAN BE LAID DOWN. IT IS ANTICIPATED THAT THESE CHEAP MATERIALS WILL AID THE EXPANSION OF THICK-FILM TECHNIQUES
Descriptors: THICK FILM CIRCUITS; THICK FILM RESISTORS
Identifiers: THICK FILM INKS; CERMALLOY SYSTEM; THICK FILM CIRCUIT MANUFACTURE; GLASS SEALING MATERIAL; THICK FILM [illegible] NON-PRECIOUS METALS; NO REPLACEMENT; CU BEARING INKS; ATMOSPHERE; PROCESSING AT 850 TO 900 DEGREES C
02
Section Class Codes: B2522, B2210
Unified Class Codes: SMCCAX, SEEAAS
Language: FRENCH

879737 B7613000
PHOTO-CHEMICAL METHODS FOR IC MANUFACTURING
LUPINSKI, W.
ELEKTRONIKA (POLAND) VOL.16, NO.11 451-5 1975 Coden: EKNTBZ
THE PAPER PRESENTS NEW ACHIEVEMENTS IN THE FIELD OF PHOTO-CHEMICAL METHODS AS APPLIED FOR THE TECHNOLOGY OF INTEGRATED CIRCUITS, THICK- AND THIN-FILM CIRCUITRY AND SHAPE ETCHING, AND TO PRINTED CIRCUITS (17 Refs)
Descriptors: INTEGRATED CIRCUIT PRODUCTION; THIN FILM CIRCUITS; THICK FILM CIRCUITS; PHOTOLITHOGRAPHY; MONOLITHIC INTEGRATED CIRCUITS; ETCHING; PRINTED CIRCUITS
Identifiers: ETCHING; IC MANUFACTURE; PHOTOCHEMICAL PROCESSING; THICK FILM CIRCUITS; THIN FILM CIRCUITS
02
Section Class Codes: B2522, B2230, B2528, B2524
Unified Class Codes: SMCCAX, SEMAAW, SMCKAK, SMCEAH
Language: POLISH

879734 B7612997
THE DETECTION AND ANALYSIS OF THERMALLY INDUCED DISPLACEMENTS IN POWERED MICROELECTRONIC CIRCUITS UTILIZING HOLOGRAPHIC INTERFEROMETRY
HAYES, E.S.; FRIEDRICH, O.M., JR.; DOUGAL, A.A.
Report No.: TR-167AFSOR-TR-75-1061; Issued by: UNIV. TEXAS, AUSTIN, USA;
MARCH 1975
A METHOD OF PRODUCING HOLOGRAMS OF MICROSCOPIC SUBJECTS WAS DEVELOPED IN WHICH A MAGNIFYING LENS SYSTEM WAS INTRODUCED INTO THE RECORDING PHASE. GOOD QUALITY HOLOGRAMS WERE REALIZED OF THREE BASIC TYPES OF ELECTRONIC CIRCUITS, NAMELY' AN INTEGRATED CIRCUIT, A HYBRID MICROCIRCUIT, AND A DISCRETE COMPONENT CIRCUIT. DOUBLE EXPOSURE HOLOGRAMS WERE THEN RECORDED OF EACH CIRCUIT. THE VARIOUS MODES OF EXPANSION FOR EACH CIRCUIT WERE EXPLAINED BY RELATING THE OBSERVED FRINGE PATTERNS TO THE CIRCUIT GEOMETRIES AND THE THERMAL HEATING CONDITIONS IMPOSED
Descriptors: HOLOGRAPHIC INTERFEROMETRY; INTEGRATED CIRCUIT TESTING
Identifiers: THERMALLY INDUCED DISPLACEMENTS; POWERED MICROELECTRONIC CIRCUITS; HOLOGRAPHIC INTERFEROMETRY; HOLOGRAMS; MAGNIFYING LENS SYSTEM; ELECTRONIC CIRCUITS; INTEGRATED CIRCUIT; HYBRID MICROCIRCUIT; DISCRETE COMPONENT CIRCUIT
11
Section Class Codes: B2520, B2540, B1269
Unified Class Codes: SMCAAL, SMEAAB, ADGMAE
Availability: NTSI, SPRINGFIELD, VA. 22161, USA

879322 B7612537
TEMPERATURE STABILITY OF THE Q-FACTOR OF AN ACTIVE BANDPASS RC FILTER WITH A NULLING CIRCUIT IN THE FEEDBACK LOOP
BERENSHTEIN, B.SH.; VOROB'EV, A.M.
IZV. VUZ RADIOELEKTRON. (USSR) VOL.18, NO.8 59-63 AUG. 1975 Coden: IVUZD5
AN EXPRESSION IS DERIVED FOR THE INSTABILITY OF THE Q-FACTOR OF AN ACTIVE RC FILTER, RESULTING FROM CHANGES OF DIELECTRIC LOSSES WITH CAPACITORS OF THE FILTER. A FORMULA IS ALSO OBTAINED FOR THE DESIGN OF FILTERS WITH A STABLE Q-FACTOR. THESE FORMULAE ARE VERIFIED EXPERIMENTALLY, USING A DISTRIBUTED RC FILTER, WITH A TA-TA/SUB 2/O/SUB 5/-AL STRUCTURE, AT A NULLING FREQUENCY OF 3200 HZ. GOOD AGREEMENT EXISTS BETWEEN THE TWO SETS OF RESULTS (3 Refs)
Descriptors: ACTIVE FILTERS; BAND-PASS FILTERS; THIN FILM CIRCUITS; Q-FACTOR; DISTRIBUTED PARAMETER NETWORKS
Identifiers: Q-FACTOR; ACTIVE BANDPASS RC FILTER; NULLING CIRCUIT; FEEDBACK LOOP; DIELECTRIC LOSSES; TEMPERATURE STABILITY
02
Section Class Codes: B1880, B2524, B1650
Unified Class Codes: ETRAAM, SMCEAH, ERMAAH
Language: RUSSIAN

879281 B7612461
A HIGH SPEED, HIGH RESOLUTION CLOCKED COMPARATOR
VAGLIANI, F.; SESTAN, F.; ANTOGNETTI, P.; BERTORA, F.
INST. OF ELECTRONICS, GENOVA, ITALY
ALTA FREQ. (ITALY) VOL.44, NO.11 679-80 NOV. 1975 Coden: ALFRAJ
THE HYBRID THIN-FILM CLOCKED COMPARATOR DESCRIBED HAS BEEN DESIGNED FOR USE IN A PCM ENCODER. SUCH DESIGN TAKES ADVANTAGE OF THE FUNCTIONAL INTEGRATION BETWEEN THE DIFFERENTIAL COMPARATOR AND THE BISTABLE; IT EXPLOITS THE POSITIVE FEEDBACK OF THE FLIP-FLOP AS AN ESSENTIAL MEANS FOR ACHIEVING HIGH SPEED AND SENSITIVITY, THUS ALLOWING THE REDUCTION OF COMPLEXITY AND POWER CONSUMPTION (2 Refs)
Descriptors: COMPARATORS (CIRCUITS); THIN FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; DIGITAL-ANALOGUE CONVERSION
Identifiers: HIGH SPEED, HIGH RESOLUTION CLOCKED COMPARATOR; PCM ENCODER; HYBRID THIN FILM IC
02
Section Class Codes: B1870, B1890, B2524, B2540
Unified Class Codes: ETNAAP, ETTAAC, SMCEAH, SMEAAB

879276 B7612455
IMPROVED FREQUENCY RESPONSE FOR M/W DETECTOR
MICROWAVE J. (USA) VOL.18, NO.4 16 APRIL 1975 Coden: MCWJAD
THIS FAMILY OF MICROWAVE DETECTORS, USING LOW BARRIER/HOT CARRIER DIODE (LBHCD) TECHNOLOGY, HAS IMPROVED FREQUENCY RESPONSE AND IMPEDANCE MATCH COMPARED WITH EARLIER POINT-CONTACT TECHNOLOGY
Descriptors: MICROWAVE DETECTORS; SCHOTTKY-BARRIER DIODES; THIN FILM CIRCUITS
Identifiers: MICROWAVE DETECTOR; LOW BARRIER HOT CARRIER DIODE; IMPROVED FREQUENCY RESPONSE; IMPROVED IMPEDANCE MATCH; THIN FILM CIRCUIT TECHNOLOGY
02
Section Class Codes: B1860, B2460, B2524
Unified Class Codes: ETMAAG, SKMAAF, SMCEAH

871529 B7609040, C7606195
INPUT/OUTPUT TECHNIQUES FOR COMPUTERIZED HYBRID-MICROCIRCUIT MASKING
SHEETS, L.R.
ELECTRONICS ENGNG. DEPT., BENDIX CORP., KANSAS CITY, MO, USA
MICROELECTRONICS (GB) VOL.5, NO.3 50-6 1974 Coden: MICEB9
THIS PAPER DESCRIBES CERTAIN INPUT/OUTPUT TECHNIQUES THAT HAVE BEEN DEVELOPED TO SIMPLIFY THE COMPUTERIZED FABRICATION OF PHOTOMASKS FOR THIN-FILM HYBRID MICROCIRCUITS. THESE TECHNIQUES MINIMIZE THE AMOUNTS OF DATA THAT ARE REQUIRED FOR SPECIFYING A PHOTOMASK AND EXPEDITE THE PREPARATION OF ARTWORK FOR SUCH MASKS. SPECIAL PROGRAM SUBROUTINES MAKE THE SYSTEM SUITABLE FOR USE WITH EITHER OF TWO GRAPHIC-OUTPUT DEVICES, THE GERBER PLOTTER AND THE CALCOMP 718 PLOTTER. AN INTERACTIVE-GRAPHICS INPUT IS CURRENTLY UNDER STUDY (3 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS; MASKS; ELECTRONICS APPLICATIONS OF COMPUTERS
Identifiers: PHOTOMASKS; ARTWORK; COMPUTER AIDED FABRICATION ; THIN FILM HYBRID CIRCUITS; GRAPHIC OUTPUT DEVICES
02
Section Class Codes: B2540, B2524, C8842
Unified Class Codes: SMEAAB, SMCEAH, WMEEAQ

871512 B7608084, C7606178
SMALL COMPUTER AIDED DESIGN AND DOCUMENTATION OF THICK FILM INTEGRATED CIRCUITS. I
RIPKA, G.; ALBRECHT, M.
BME ELEKTRONIKAI TECHNOLOGIA TANSZEK, BUDAPEST, HUNGARY
FINOMMECH. AND MIKROTECH. (HUNGARY) VOL.14, NO.9 269-74 SEPT. 1975 Coden: FNMKAY
PRESENTS A PROGRAM SYSTEM ELABORATED FOR A TABLE CALCULATOR TYPE HP 9810 FACILITATING THE DESIGN AND DOCUMENTATION OF THICK FILM INTEGRATED CIRCUITS. THE FIRST PART SHOWS THE USE OF THE PROGRAM SYSTEM AT DESIGNING. THE DESIGNER RECEIVES A GRAPHIC DISPLAY OF THE DESIGNED RESISTORS, FURTHER OF THE HYBRID ELEMENTS AND THE SUBSTRATE. THESE CAN BE USED AS AUXILIARY DATA AT DESIGNING THE TOPOLOGY
Descriptors: COMPUTER-AIDED DESIGN; TOPOLOGY; ELECTRONICS APPLICATIONS OF COMPUTERS; THICK FILM CIRCUITS
Identifiers: COMPUTER AIDED DESIGN; DOCUMENTATION; THICK FILM INTEGRATED CIRCUITS; TABLE CALCULATOR TYPE HP 9810; GRAPHIC DISPLAY; LAYOUT DESIGN
02
Section Class Codes: B2522, C8842
Unified Class Codes: SMCCAX, WMEEAQ
Language: HUNGARIAN

870760 B7608347, C7605411
A PHASE CONTINUOUS PROGRAMMABLE OSCILLATOR
MORAN, P.L.
DEPT. OF ELECTRONIC AND ELECTRICAL ENGNG., LOUGHBOROUGH UNIV. OF TECHNOL., LOUGHBOROUGH, ENGLAND
MICROELECTRONICS (GB) VOL.7, NO.1 40-4 SEPT. 1975 Coden: MICEB9
A NUMBER OF VOLTAGE CONTROLLED OSCILLATORS USE NON-LINEARITY TO CONVERT FIXED AMPLITUDE TRIANGULAR WAVES TO 'SINE' WAVES. SINCE THIS CONVERSION IS A FUNCTION OF AMPLITUDE ONLY (TO A FIRST APPROXIMATION), THE SINE WAVE FREQUENCY MAY BE ALTERED AT WILL BY CHANGING THE FREQUENCY OF THE TRIANGULAR WAVE. THE SUBJECT OF THIS PAPER IS AN ALTERNATIVE METHOD OF PRODUCING SINE WAVES. THE FREQUENCY MAY BE PROGRAMMED EITHER DIGITALLY OR IN AN ANALOGUE MANNER AND IT MAY BE CHANGED WITHIN A SMALL FRACTION OF A CYCLE, USING THIS TECHNIQUE IT IS POSSIBLE TO GENERATE MULTIPLE OUTPUTS EACH OF A DIFFERENT PHASE, OF PARTICULAR INTEREST TO COMMUNICATIONS ENGINEERS IS THE ABILITY TO PRODUCE PHASE QUADRATURE SIGNALS. THE TECHNIQUE REQUIRES A RELATIVELY LARGE NUMBER OF RESISTORS ALL HAVING A PRECISE RELATIONSHIP. IT IS, THEREFORE, PARTICULARLY SUITABLE FOR CONSTRUCTION USING THICK FILM TECHNIQUES
Descriptors: OSCILLATORS; FREQUENCY CONTROL; PROGRAMMED CONTROL; THICK FILM CIRCUITS
Identifiers: PHASE CONTINUOUS PROGRAMMABLE OSCILLATOR; MULTIPLE OUTPUTS; PHASE QUADRATURE SIGNALS; THICK FILM TECHNIQUES
02
Section Class Codes: B1850, B2522, C7424
Unified Class Codes: ETKAAR, SMCCAX, VGCKAD

869294 B7610380
ACTIVE TONE CONTROL IN TANTALUM THIN,FILM TECHNOLOGY
BOSSELMANN, W.
SIEMENS AG, BEREICH BAUELEMENTE, GRUNDLAGENENTWICKLUNG, MUNICH, GERMANY
ELEKTRON INT. (AUSTRIA) NO.10 350-3 1975 Coden: EKITA9
IN SIMPLE L.F. AMPLIFIERS, THE HIGH AND LOW PASS TONE CONTROL SECTIONS ARE NOT ADEQUATELY DECOUPLED, AND THE MID-FREQUENCY RANGE IS AFFECTED BY BOTH POTENTIOMETERS. A SYNTHESIS PROCESS PERMITS THE DESIGN OF AN ACTIVE BANDPASS FILTER IN WHICH THE MID-FREQUENCY IS CONSTANTLY VARIABLE WITH NO ALTERATION IN THE BANDWIDTH, USING TWO FOUR-POLES, TAA 765 AND TBA 221 OP AMPS. IN A TANTALUM THIN FILM CIRCUIT, THE SPECIFICATION ATTAINABLE IS' 30 HZ TO 20 KHZ; CONTINUOUSLY VARIABLE 2 TO 6 KHZ; MAX RISE/FALL +OR- 10 DB; I/P 10 V EFF; I/P Z>10K; O/P Z<1K (1 Refs)
Descriptors: THIN FILM CIRCUITS; ACTIVE FILTERS; BAND-PASS FILTERS; OPERATIONAL AMPLIFIERS; TANTALUM
Identifiers: ACTIVE TONE CONTROL; ACTIVE BAND PASS FILTER; OPERATIONAL AMPLIFIERS; CONSTANTLY VARIABLE MILD FREQUENCY; TA THIN FILM TECHNOLOGY
02
Section Class Codes: B3780, B1840, B2524, B1880
Unified Class Codes: FKRAAF, ETHAAB, SMCEAH, ETRAAM
Language: GERMAN

869199 B7610279
NEW BLACK-AND-WHITE MODULAR CHASSIS
RIECHMANN, W.
FUNKSCHAU (GERMANY) VOL.47, NO.22 109-11 24 OCT. 1975
Coden: FUSHA2
DESCRIBES BLAUPUNKT'S SM MONOCHROME CHASSIS (FOR TV RECEIVERS) ON WHICH ALL COMPONENTS EXCEPT THE POWER SUPPLY AND HORIZONTAL DEFLECTION CIRCUITRY (WITH H.V. COMPONENTS) ARE MOUNTED AS SEPARATE MODULES CONSTRUCTED EITHER AS THICK FILM CIRCUITS OR AS ICS. BRIEFLY DESCRIBED IN TERMS OF MECHANICAL CONSTRUCTION AND ELECTRONIC CIRCUITRY ARE THE HORIZONTAL OUTPUT STAGE AND H.V. RECTIFIER (NON-MODULAR), AND THE VERTICAL DEFLECTION MODULE
Descriptors: TELEVISION RECEIVERS; THICK FILM CIRCUITS; RECTIFYING CIRCUITS; MODULES
Identifiers: MODULAR CHASSIS; MONOCHROME CHASSIS; TV RECEIVERS; THICK FILM CIRCUITS; MECHANICAL CONSTRUCTION; ELECTRONIC CIRCUITRY; HORIZONTAL OUTPUT STAGE; VERTICAL DEFLECTION MODULE; HV RECTIFIER
02
Section Class Codes: B3740, B1266, B2522, B1830
Unified Class Codes: FKGAAM, ADGHAH, SMCCAX, ETGAAT
Language: GERMAN

869003 B7610046
'A THICK FILM ELECTRONIC HYBRID COIL'
JACKSON, L.N.
ROYAL MELBOURNE INST. OF TECHNOL., MELBOURNE, VICTORIA, AUSTRALIA
PROC. INST. RADIO AND ELECTRON. ENG. AUST. (AUSTRALIA) VOL.36, NO.5 117-18 MAY 1975 Coden: PRAUAG
A CIRCUIT IS DESCRIBED WHICH CAN REPLACE THE CONVENTIONAL HYBRID COIL AS A TWO WIRE/FOUR WIRE CONVERTOR IN COMMUNICATION CIRCUITS. THE CIRCUIT HAS BEEN REALISED AS A THICK FILM MICROCIRCUIT (2 Refs)
Descriptors: TELEPHONE STATION EQUIPMENT; CONVERTORS; THICK FILM CIRCUITS
Identifiers: ELECTRONIC HYBRID COIL; TWO WIRE/FOUR WIRE CONVERTOR; THICK FILM MICROCIRCUIT
02
Section Class Codes: B3532, B2522
Unified Class Codes: FEECAY, SMCCAX

868604 B7609560
CERAMIC SUBSTRATES LASER MACHINED' A VITAL PRODUCT
MOLINES, J.
ELECTRON. AND MICROELECTRON. IND. (FRANCE) NO.209 39-43 1 OCT. 1975 Coden: EMCIAS
DISCUSSES PRODUCTION LASER BEAM MACHINING OF CERAMIC SUBSTRATES FOR HYBRID MICROCIRCUITS. SEVERAL EXAMPLES ARE GIVEN
Descriptors: INTEGRATED CIRCUIT PRODUCTION; HYBRID INTEGRATED CIRCUITS; LASER BEAM MACHINING; SUBSTRATES; CERAMICS
Identifiers: LASER BEAM MACHINING; CERAMIC SUBSTRATES; HYBRID MICROCIRCUITS; PRODUCTION MACHINING
02
Section Class Codes: B2980, B2540, B2610, B1269
Unified Class Codes: EGMAAA, SMEAAB, SNCAAY, ADGMAE

868164 B7609036
SOLDERING HYBRID MICROCIRCUITS WITH PASTE SOLDER
BERNIER, D.
RES. AND DEV., KESTER SOLDER DIV., LITTON SYSTEMS, CHICAGO, IL, USA
INSUL./CIRCUITS (USA) VOL.21, NO.12 27-8 NOV. 1975
Coden: ISCUBF
Descriptors: HYBRID INTEGRATED CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; SOLDERING
Identifiers: HYBRID MICROCIRCUITS; PASTE SOLDER
02
Section Class Codes: B2540
Unified Class Codes: SMEAAB

868162 B7609034
REWORK TECHNIQUE REMOVES BEAM-LEAD DEVICES INTACT FOR POST-MORTEM TESTS
YOUNGBERG, D.A.; LENHARDT, B.W.
BENDIX CORP., KANSAS CITY, MO, USA
INSUL./CIRCUITS (USA) VOL.21, NO.12 21-2 NOV. 1975
Coden: ISCUBF
THERMOCOMPRESSION BONDING GENERALLY IS USED TO ATTACH BEAM-LEAD DEVICES (BLD) TO SUBSTRATES DURING ASSEMBLY OF HYBRID MICROCIRCUITS (HMC). SEVERAL REASONS MAY DICTATE THE NEED TO REMOVE AND REPLACE ONE OR MORE OF THESE BLD. A SCRAPE-OFF TECHNIQUE GENERALLY USED THROUGHOUT INDUSTRY CAN SELDOM REMOVE THE BLD INTACT AND UNDAMAGED. HOWEVER, A TECHNIQUE HAS BEEN DEVELOPED THAT CAN BE USED TO REMOVE BLDS FROM A HYBRID AND MAINTAIN DEVICE INTEGRITY FOR POST-MORTEM TESTS. THE TECHNIQUE DOES NOT DAMAGE SUBSTRATE METALLIZATION OR THE HYBRID CIRCUIT
Descriptors: HYBRID INTEGRATED CIRCUITS; BEAM-LEAD DEVICES
Identifiers: HYBRID MICROCIRCUITS; THERMOCOMPRESSION BONDING; POST MORTEM TESTING; BEAM LEAD DEVICES; REWORK TECHNIQUE
02
Section Class Codes: B2540
Unified Class Codes: SMEAAB

868161 B7609033
HYBRID CIRCUITS PROVIDE DESIGN FLEXIBILITY
PEIRCE, C.
GENERAL INSTRUMENT LTD., LONDON, ENGLAND
ELECTRON (GB) NO.84 15, 27 6 NOV. 1975 Coden: ELTNCL
IN THE MANUFACTURE OF HYBRID CIRCUITS A CONDUCTOR PATTERN IS FIRED ONTO A CERAMIC SUBSTRATE. CERMET RESISTORS ARE THEN SCREENED AND FIRED AND OTHER COMPONENTS SUCH AS CAPACITOR CHIPS AND SEMICONDUCTORS ARE APPLIED BY CONVENTIONAL ASSEMBLY TECHNIQUES. THE MAJOR EMPHASIS IN THE PAST HAS BEEN ON HYBRIDS FOR MILITARY APPLICATIONS, BUT COST REDUCTIONS HAVE BEEN SO GREAT THAT INDUSTRIAL AND CONSUMER APPLICATIONS ARE GROWING FAST
Descriptors: HYBRID INTEGRATED CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; CERMETS; THICK FILM CIRCUITS
Identifiers: DESIGN FLEXIBILITY; HYBRID CIRCUITS; CONDUCTOR PATTERN; CERAMIC SUBSTRATE; CAPACITOR CHIPS; SEMICONDUCTORS; ASSEMBLY TECHNIQUES; COST REDUCTIONS; CERMET RESISTORS
02
Section Class Codes: B2540, B2522
Unified Class Codes: SMEAAB, SMCCAX

868160 B7609032
REALISE YOUR RC FILTERS IN HYBRID THIN FILM TECHNOLOGY
DUPONT, M.
ELECTRON. AND MICROELECTRON. IND. (FRANCE) NO.210 47-50 15 OCT. 1975 Coden: EMCIAS
THE PROPERTIES OF ACTIVE RC FILTERS AND THEIR REALISATION USING OPERATIONAL AMPLIFIERS IS OUTLINED FOR QUALITY FACTORS ABOVE AND BELOW 10, USING TANTALUM FILMS (5 Refs)
Descriptors: ACTIVE FILTERS; OPERATIONAL AMPLIFIERS; HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS
Identifiers: HYBRID THIN FILM; ACTIVE RC FILTERS; OPERATIONAL AMPLIFIERS; TANTALUM FILMS
02
Section Class Codes: B2540, B2524, B1880
Unified Class Codes: SMEAAB, SMCEAH, ETRAAM
Language: FRENCH

868156 B7609028
BOND CHIPS WITH CONDUCTIVE EPOXIES
HETHERINGTON, D.R.
NEWMARKET TRANSISTORS, LTD., NEWMARKET, ENGLAND
ELECTRON. DES. (USA) VOL.23, NO.20 82-5 27 SEPT. 1975 Coden: ELODAW
THEIR LOW CURING TEMPERATURES AVOID DAMAGE TO DELICATE PARTS, WHILE THE ASSEMBLY PROCESS IS INEXPENSIVE AND EASILY AUTOMATED
Descriptors: INTEGRATED CIRCUIT PRODUCTION; SUBSTRATES; HYBRID INTEGRATED CIRCUITS
Identifiers: EPOXIES; HYBRID MICROCIRCUITS; PNEUMATIC DISPERSING; SCREEN PRINTING; CURE TIME; BOND STRENGTH
02
Section Class Codes: B2540, B2560
Unified Class Codes: SMEAAB, SMGAAR

868155 B7609027
GOLD IN HYBRID MICRO-ELECTRONICS
ELEKTRONIK (GERMANY) VOL.24, NO.11 103-5 NOV. 1975 Coden: EKRKAR
GOLD IS INCREASINGLY APPLIED IN THIN-FILM AND THICK-FILM HYBRID CIRCUITS; IT DOES NOT TARNISH OR CORRODE, IS A GOOD CONDUCTOR AND CAN BE EASILY WORKED AND DEPOSITED. IN THIN-FILM TECHNIQUE THE CRAU CONDUCTOR IS NOW FIRMLY ESTABLISHED. PRODUCTION METHODS LIKE MICRO-ENGRAVING, VACUUM DEPOSITING AND SUBLIMATION, AND FINE-ADJUSTMENT METHODS BY SPARK EROSION AND LASER BEAMS ARE BRIEFLY DESCRIBED. FOR THICK-FILMS GOLD IS MOSTLY ALLOYED WITH PALLADIUM AND PLATINUM. TYPICAL CIRCUIT DESIGNS ARE ILLUSTRATED IN FIVE PHOTOGRAPHS
Descriptors: HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS; THICK FILM CIRCUITS; GOLD ALLOYS; VAPOUR DEPOSITION; INTEGRATED CIRCUIT PRODUCTION
Identifiers: CRAU CONDUCTOR; SUBLIMATION; HYBRID ICS; VACUUM DEPOSITION; THIN FILM CIRCUITS; MICROENGRAVING; THICK FILM CIRCUITS; AU APPLICATIONS; TRIMMING; PRODUCTION METHODS; AU-PT ALLOYS; METALLIC THIN FILMS; AU-PD ALLOYS; AU
02
Section Class Codes: B2540, B2522, B2524
Unified Class Codes: SMEAAB, SMCCAX, SMCEAH
Language: GERMAN

868135 B7608093
FILM DISTRIBUTED NETWORKS' A REVIEW
BOSE, N.K.
DEPT. OF ELECTRICAL ENGNG. AND COMPUTER SCI., UNIV. OF CALIFORNIA, BERKELEY, CA, USA
MICROELECTRONICS (GB) VOL.5, NO.3 30-6 1974 Coden: MICEB9
SUMMARIZES BRIEFLY THE AVAILABLE ANALYSIS AND SYNTHESIS TECHNIQUES THAT ARE APPLICABLE TO FILM DISTRIBUTED AND LUMPED-DISTRIBUTED NETWORKS. SPECIAL ATTENTION IS GIVEN TO THE LAYOUT PROBLEM AND THE FACTORS TO BE TAKEN INTO ACCOUNT AND THE TOOLS TO BE USED IN AN OVERALL LAYOUT OPTIMIZATION PROBLEM (41 Refs)
Descriptors: THIN FILM CIRCUITS; DISTRIBUTED PARAMETER NETWORKS; REVIEWS; THICK FILM CIRCUITS
Identifiers: DISTRIBUTED PARAMETER NETWORKS; THIN FILM CIRCUITS; LAYOUT OPTIMISATION; THICK FILM CIRCUITS
02
Section Class Codes: B2524, B1880, B2522
Unified Class Codes: SMCEAH, ETRAAM, SMCCAX

868133 A7613858, B7608991
OXIDATION OF TITANIUM THIN FILMS
SYLWESTROWICZ, W.D.
FAIRLEIGH DICKINSON UNIV., MADISON, NJ, USA
J. ELECTROCHEM. SOC. (USA) VOL.122, NO.11 1504-8 NOV. 1975 Coden: JESOAN
TITANIUM THIN FILMS EXPOSED TO AN OXIDISING ARGON ATMOSPHERE IN THE TEMPERATURE RANGE FROM 30 DEGREES TO 400 DEGREESC. IN SPECIMENS EXPOSED TO THE TEMPERATURE ABOVE 300 DEGREESC TWO STAGES WERE OBSERVED. INITIALLY, RESISTANCE INCREASED LINEARLY WITH TIME AND TEMPERATURE COEFFICIENT VALUES WERE POSITIVE. AFTER PROLONGED EXPOSURE RESISTANCE INCREASED EXPONENTIALLY WITH TIME, AND NEGATIVE TEMPERATURE COEFFICIENTS WERE OBSERVED. IT IS SUGGESTED THAT THIS BEHAVIOR RESULTS FROM A PROGRESSIVE OXIDATION AT GRAIN BOUNDARIES. WHEN OXIDATION IS COMPLETE THROUGH GRAIN BOUNDARIES TO THE SUBSTRATE, CONDUCTION IS THEN DEPENDENT ON A TUNNELLING PROCESS THROUGH THE SEMICONDUCTING TITANIUM OXIDE LEADING TO THE OBSERVED EXPONENTIAL TEMPERATURE AND TIME OF EXPOSURE DEPENDENCE (6 Refs)
Descriptors: METALLIC THIN FILMS; TITANIUM; OXIDATION; THIN FILM CIRCUITS
Identifiers: RESISTANCE; GRAIN BOUNDARIES; TUNNELLING PROCESS; 30 TO 400 DEGREES C; TI FILMS; OXIDATION
02
Section Class Codes: A7864, B2524
Unified Class Codes: NVREAJ, SMCEAH

868131 B7608989
NEW MATERIALS DEVELOPMENTS
LANE, G.
ELECTRON. AND MICROELECTRON. IND. (FRANCE) NO.209 50-1 1 OCT. 1975 Coden: EMCIAS
REVIEWS INDUSTRIAL DEVELOPMENT OF THICK FILM INTO NEW, IMPORTANT AREAS. THE FOLLOWING NEW DEVELOPMENTS ARE BRIEFLY COVERED: PLASMA DISPLAY TECHNOLOGY; CAVITY PRINTING MATERIALS AND TECHNIQUES FOR CHIP CARRIERS; DIPPING MATERIALS FOR END TERMINATIONS (THESE CAN BE USED FOR WRAP AROUNDS ON CONVENTIONAL SUBSTRATES OR FOR CAPACITOR END TERMINATIONS); LOW-COST CONDUCTORS FOR THICK FILM (THIS WILL INCLUDE PLATINUM-SILVER AND NICKEL); LASER STABLE INKS FOR COMMERCIAL APPLICATIONS SUCH AS AUTOMOTIVE, COMMUNICATIONS OR THERMAL PRINTERS
Descriptors: THICK FILM CIRCUITS; DISPLAY SYSTEMS
Identifiers: CAVITY PRINTING MATERIALS; CHIP CARRIERS; DIPPING MATERIALS; END TERMINATIONS; LASER STABLE INKS; THICK FILM CIRCUITS; NEW MATERIALS DEVELOPMENTS; LOW COST CONDUCTORS; PLASMA DISPLAYS
02
Section Class Codes: B2524, B2098, B2059
Unified Class Codes: SMCEAH, SRMAAC, SCTAAS

868130 B7608988
SCREENS' ESSENTIAL TOOLS FOR THICK FILM PRINTING
FRANCONVILLE, F.
HONEYWELL-BULL, SAINT-OUEN, FRANCE
ELECTRON. AND MICROELECTRON. IND. (FRANCE) NO.209 44-9 1 OCT. 1975 Coden: EMCIAS
DISCUSSES SOME OF THE MAIN PARAMETERS OF SCREENS WHICH ARE USED, IN THICK FILM TECHNOLOGY, FOR ACHIEVING HIGH DENSITY AND PRECISE FINE LINE PRINTING FOR MULTI-LAYER CIRCUITS. MATERIAL SELECTION, CONTROL AND EVOLUTION OF THE SCREEN PARAMETERS ARE PRESENTED VERSUS THEIR EFFECT ON THE QUALITY TO BE OBTAINED AND PRESERVED IN PRODUCING THESE CIRCUITS. AFTER AN EXPERIMENT OF MANUFACTURING AND USING MASKS, SCREENS WITH MESH COATED BY EMULSION STENCIL WERE SELECTED AS THE MAIN TOOL FOR THE APPLICATIONS DESCRIBED
Descriptors: THICK FILM CIRCUITS; PRINTED CIRCUITS; PRINTING; INTEGRATED CIRCUIT PRODUCTION
Identifiers: THICK FILM PRINTING; PRECISE FINE LINE PRINTING; SCREEN PARAMETERS; SCREEN PRINTING; SCREENS; SCREEN MESH MATERIALS; HIGH DENSITY PRINTING; MULTILAYER CIRCUITS; COATED MESH SCREENS
02
Section Class Codes: B2524, B1269
Unified Class Codes: SMCEAH, ADGMAE

868129 B7608987
THICK FILM CONVEYOR FURNACES-CURRENT STATUS
ANIES, A.
MOSTEK CORP., CARROLLTON, TX, USA
SOLID STATE TECHNOL. (USA) VOL.18, NO.11 12 NOV. 1975 Coden: SSTEAP
Descriptors: THICK FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; ELECTRIC FURNACES
Identifiers: THICK FILM CIRCUIT PRODUCTION; CONVEYOR FURNACES; FIRING
02
Section Class Codes: B2522, B5820, B5642
Unified Class Codes: SMCCAX, TMEAAQ, TKKCAQ

868128 B7608986
THICK-FILM TECHNOLOGY
FUNK, W.
PHILIPS FORSCHUNGSLAB. HAMBURG GMBH, HAMBURG, GERMANY
PHILIPS TECH. REV. (NETHERLANDS) VOL.35, NO.5 144-50 1975 Coden: PTREAN
DISCUSSES MANUFACTURE OF HYBRID CIRCUITS BY THE THICK FILM TECHNOLOGY WHICH IS A MODIFICATION OF THE SCREEN-PRINTING PROCESS COMBINED WITH A CERAMIC FIRING PROCESS. THE METHOD MEETS THE REQUIREMENTS PLACED ON THE INTERCONNECTIONS IN FAST DIGITAL HYBRID CIRCUITS. AFTER A GENERAL DESCRIPTION OF THE PROCESS, THE PROBLEMS ASSOCIATED WITH APPLICATION TO MASS PRODUCTION ARE DISCUSSED. THE MOST SUCCESS HAS BEEN OBTAINED WITH CERAMIC AL/SUB 2/O/SUB 3/ SUBSTRATES (96PERCENT PURITY), GLASS-FRIT PASTES FIRED AT 950-1000 DEGREESC, AND SPECIALLY DEVELOPED SCREENS. THE MANY INDICATIONS POINTING TO A RAPID GROWTH IN THE USE OF THE METHOD ARE SUMMARIZED (4 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; DIGITAL INTEGRATED CIRCUITS; THICK FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; SUBSTRATES
Identifiers: THICK FILM TECHNOLOGY; CERAMIC FIRING PROCESS; DIGITAL HYBRID CIRCUITS; CERAMIC AL/SUB 2/O/SUB 3/ SUBSTRATES; GLASS FRIT PASTES; SCREEN PRINTING; INTEGRATED CIRCUIT PRODUCTION
02
Section Class Codes: B2522, B2540
Unified Class Codes: SMCCAX, SMEAAB

868127 B7608985
THE EFFECT OF THE TRIMMING TECHNIQUE FOR TOP HAT TYPE RESISTORS ON THE DESIGN PROCESS
HAJDU, I.
BME ELEKTRONIKAI TECHNOLOGIA TANSZEK, BUDAPEST, HUNGARY
FINOMMECH. AND MIKROTECH. (HUNGARY) VOL.14, NO.9 275-7 SEPT. 1975 Coden: FMMKAY
IN DESIGNING THE TOPOLOGY OF THICK FILM INTEGRATED CIRCUITS THE USE OF THE SO-CALLED TOP HAT TYPE RESISTORS CAN BE VALUABLE ON ACCOUNT OF THE GREAT DEGREE OF POSSIBLE VALUE ADJUSTMENT. THE TRIMMING METHOD HAS A TIGHT CONNECTION OF CERTAIN ASPECTS OF THE DESIGN (5 Refs)
Descriptors: THICK FILM RESISTORS; THICK FILM CIRCUITS
Identifiers: TRIMMING TECHNIQUE; TOP HAT TYPE RESISTORS; THICK FILM INTEGRATED CIRCUITS; TOPOLOGY DESIGN; THICK FILM RESISTORS
02
Section Class Codes: B2522, B2540, B2210
Unified Class Codes: SMCCAX, SMEAAB, SEEAAS
Language: HUNGARIAN

868126 B7608983
SOME SYSTEM CONSIDERATIONS OF THICK FILMS
MORAN, P.L.
LOUGHBOROUGH UNIV., LOUGHBOROUGH, ENGLAND
ELECTRON. IND. (GB) VOL.1, NO.4 19-21 DEC. 1975 Coden: EINDD9
DISCUSSES THE PROPERTIES OF ALUMINA AND THE COMPROMISES REQUIRED IN THE DESIGN OF ACTIVE FILTERS (21 Refs)
Descriptors: THICK FILM CIRCUITS; ACTIVE FILTERS; SUBSTRATES
Identifiers: SYSTEM CONSIDERATIONS; ALUMINA; ACTIVE FILTERS; DESIGN COMPROMISES; THICK FILM CIRCUITS; PROPERTIES OF ALUMINA; AL/SUB 2/O/SUB 3/
02
Section Class Codes: B2522, B1880
Unified Class Codes: SMCCAX, ETRAAM

868125 B7608982
THICK-FILM RESISTOR NETWORKS REDUCE DIGITAL SYSTEM COSTS
LOUDON, R.
ELECTRON (GB) NO.84 21-2, 25 6 NOV. 1975 Coden: ELINCL
RESISTORS CAN BE A SIGNIFICANT COST ELEMENT IN A TYPICAL DIGITAL SYSTEM. AVAILABLE BOARDSPACE, HANDLING TIME AND ASSEMBLY TIME ARE MAJOR COST FACTORS. THE INCORPORATION OF RESISTORS IN A PREPACKAGED NETWORK CAN SIGNIFICANTLY REDUCE A SYSTEM COST
Descriptors: DIGITAL CIRCUITS; THICK FILM RESISTORS; PACKAGING; ECONOMICS; THICK FILM CIRCUITS
Identifiers: DIGITAL SYSTEM; COST FACTORS; PREPACKAGED NETWORK; THICK FILM RESISTOR NETWORKS
02
Section Class Codes: B2522, B2210, B1266, B1870
Unified Class Codes: SMCCAX, SEEAAS, ADGHAH, ETNAAP

868123 B7608980
A NEWLY DEVELOPED MULTILAYER INTERCONNECTION TECHNIQUE (THICK FILM SCREENING)
KOCSIS, A.
APPL. SCI. DIV., SHERBROOKE UNIV., QUEBEC, CANADA
ELECTRON. AND MICROELECTRON. IND. (FRANCE) NO.209 62-3 1 OCT. 1975 Coden: EMCIAS
DESCRIBES A NOVEL METHOD TO PRODUCE PRACTICAL INTERCONNEXION FOR MULTILAYER STRUCTURES DOWN TO 3 MIL DIAMETER WITH VERY HIGH YIELD (98PERCENT), PREVIOUSLY IMPOSSIBLE TO OBTAIN WITH CONVENTIONAL THICK FILM SCREENING TECHNIQUES
Descriptors: THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; PRINTED CIRCUITS; INTEGRATED CIRCUIT PRODUCTION
Identifiers: MULTILAYER INTERCONNECTION TECHNIQUE; NOVEL METHOD; 3 MIL DIAMETER; HIGH YIELD; THICK FILM SCREENING TECHNIQUES; 98PERCENT YIELD; THICK FILM CIRCUITS; HYBRID ICS; HIGH LINE DENSITIES
02
Section Class Codes: B2522, B2540
Unified Class Codes: SMCCAX, SMEAAB

867714 B7608502
TRIMMING TO 'TENTHS' TAKES TECHNIQUE (THICK-FILM RESISTOR TRIMMING FOR MICROMINIATURE CIRCUITS)
FISHEL, J.
MICROELECTRONICS (GB) VOL.5, NO.2 57-8 1973 Coden: MICEB9
THICK-FILM RESISTOR TRIMMING TECHNIQUES ARE NOW REASONABLY WELL ESTABLISHED AND NO LONGER POSE ANY GREAT PRODUCTION DIFFICULTIES WITH THE LARGE RESISTORS FOUND IN CONVENTIONAL HYBRID CIRCUITS. HOWEVER, IN MICROMINIATURE CIRCUITS TRIMMING EACH RESISTOR CAN BE QUITE AN ART. THE AUTHOR DESCRIBES AN ABRASIVE JET TRIMMING TECHNIQUE WHICH CAN BE USED EFFICIENTLY TO TRIM ANY SPECIFICATION
Descriptors: THICK FILM RESISTORS; THICK FILM CIRCUITS
Identifiers: RESISTOR TRIMMING; MICROMINIATURE CIRCUITS; ABRASIVE JET TRIMMING TECHNIQUE; THICK FILM RESISTORS; HYBRID ICS
02
Section Class Codes: B2210, B2522
Unified Class Codes: SEEAAS, SMCCAX

867592 B7608305
1 MHZ TO 1.5 GHZ THIN-FILM AMPLIFIER FEATURES THREE STAGES IN A TO-3 CAN
HOBBS, G.
AVANTEK INC., SANTA CLARA, CA, USA
MICROWAVE SYST. NEWS (USA) VOL.5, NO.3 46-7 JUNE-JULY 1975 Coden: MWSNA9
BY EXTENDING THE CONCEPT OF THIN-FILM WIDEBAND AMPLIFIERS TO INCLUDE MULTIPLE STAGES, THIS NEW UNIT OFFERS GAIN, PERFORMANCE AND COST BENEFITS
Descriptors: MICROWAVE AMPLIFIERS; WIDEBAND AMPLIFIERS; SOLID-STATE MICROWAVE CIRCUITS; THIN FILM CIRCUITS
Identifiers: MICROWAVE AMPLIFIER; THIN FILM; 1 MHZ TO 1.5 GHZ; THREE STAGES; WIDEBAND; SINGLE SUBSTRATE; COMPUTER AIDED DESIGN
02
Section Class Codes: B1840, B1820, B2524
Unified Class Codes: ETHAAB, ETEAAD, SMCEAH

860135 B7604321, C7605003
A 10-BIT DIGITAL-ANALOGUE CONVERTOR
LOJEK, B.
SDELOVACI TECH. (CZECHOSLOVAKIA) VOL.23, NO.9 325-6 SEPT. 1975 Coden: SDTEAM
DESCRIBES A 10-BIT CONVERTOR EMPLOYING AN ACCURATE R-2R CIRCUIT; A SWITCH WITH A SMALL INTERNAL RESISTANCE AND LOW VOLTAGE OFFSET WHICH EMPLOYS THREE TRANSISTORS; AND AN OPERATIONAL OUTPUT AMPLIFIER. USING A THIN FILM RESISTOR CIRCUIT, HIGHER SPEED AND MORE FAVOURABLE THERMAL BEHAVIOUR [illegible]
RESISTORS; THIN FILM CIRCUITS; OPERATIONAL AMPLIFIERS
Identifiers: THIN FILM RESISTOR CIRCUIT; SPEED; THERMAL BEHAVIOUR; DIGITAL ANALOGUE CONVERSION; OPERATIONAL AMPLIFIER
02
Section Class Codes: B1890, C9960, B2210, B2524
Unified Class Codes: ETTAAC, XTKAAS, SEEAAS, SMCEAH
Language: CZECH

856272 B7605757
PRODUCTION EXPERIENCES OF THIN FILM HYBRID CIRCUITS FOR SERIES OF 8000 TELEPHONE CHANNELS IN N2 TECHNIQUE
MOSCA, E.; CANALE, G.P.
MARCONI ITALIANA, GENOVA, ITALY
ALTA FREQ. (ITALY) VOL.44, NO.9 524-35 SEPT. 1975 Coden: ALFRAJ
DIFFICULTIES ENCOUNTERED IN THE MANUFACTURE OF LARGE SCALE (8000 CHANNEL, 72000 MICROCIRCUIT, 40000 RESISTIVE NETWORKS) THIN FILM CIRCUITS ARE DESCRIBED. PRODUCTION PROCESS IS DETAILED INCLUDING COMPONENT DETAILS, PRODUCTION PROGRAMMES, TOLERANCES, ASSEMBLY ETC. UNDERLIMING SPECIAL DIFFICULTIES ENCOUNTERED AND BREAK DOWNS. SECOND PART DEALS WITH OPERATIONAL EXPERIENCES DURING FIRST 1000 HOURS OF SERVICE COMPARING THE PERFORMANCE WITH CONVENTIONAL COMMUNICATION CIRCUITS. NEED FOR DESIGN STANDARDIZATION AND PROCESS AUTOMATION IS UNDERLINED IN CONCLUSION
Descriptors: HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; TELEPHONE EQUIPMENT
Identifiers: THIN FILM HYBRID CIRCUITS; 8000 TELEPHONE CHANNELS IN N2 TECHNIQUE; PRODUCTION EXPERIENCE
02
Section Class Codes: B3550, B2540, B2524
Unified Class Codes: FEGAAC, SMEAAB, SMCEAH
Language: ITALIAN

855433 A7610438, B7604738
AN EVAPORATOR FACILITY FOR DEPOSITION OF MULTIELEMENT THIN FILM PATTERNS
MERAY, L.H.
RCA LABS., PRINCETON, NJ, USA
AMERICAN VACUUM SOC.
J. VAC. SCI. AND TECHNOL. (USA) VOL.12, NO.1 555
JAN.-FEB. 1975 Coden: JVSTAL
21ST NATIONAL SYMPOSIUM OF THE AMERICAN VACUUM SOCIETY
8-11 OCT. 1974 ANAHEIM, CALIF., USA
ABSTRACT ONLY, SUBSTANTIALLY AS FOLLOWS. A FACILITY WHICH INCLUDES A MASK CHANGER AND EVAPORATOR, DESIGNED FOR USE IN FABRICATING THIN FILM CIRCUITS FOR EXPERIMENTAL PURPOSES IS DESCRIBED. MECHANICAL PROBLEMS INVOLVED IN ITS USE ARE OUTLINED
Descriptors: THIN FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; VAPOUR DEPOSITION; VACUUM TECHNIQUES
Identifiers: DEPOSITION OF MULTIELEMENT THIN FILM PATTERNS; MASK CHANGER; EVAPORATOR; THIN FILM CIRCUITS; MECHANICAL PROBLEMS
06
Section Class Codes: B2524, A9112, A0634
Unified Class Codes: SMCEAH, ZGCCAX, BGGEAR

855432 B7604737
STUDIES ON THE AL/SUB 2/O/SUB 3/-TI-MO-AU METALLIZATION SYSTEM
HARRIS, J.M.; LUGUJJO, E.; CAMPISANO, S.U.; NICOLET, M.A.; SHIMA, R.
CALIFORNIA INST. TECHNOL., PASADENA, USA
AMERICAN VACUUM SOC.
J. VAC. SCI. AND TECHNOL. (USA) VOL.12, NO.1 524-7
JAN.-FEB. 1975 Coden: JVSTAL
21ST NATIONAL SYMPOSIUM OF THE AMERICAN VACUUM SOCIETY
8-11 OCT. 1974 ANAHEIM, CALIF., USA
THE EXPERIMENTAL PROCEDURE FOR SAMPLE PREPARATION AND BACKSCATTERING SPECTROMETRY ANALYSIS OF MULTILAYER METALLIZATION STRUCTURES IS DESCRIBED. RESULTS OF BI-METAL COUPLES MO-AU AND TI-MO ARE FIRST DISCUSSED AND SCHEMATIC SPECTRA ARE GIVEN. SIMILAR RESULTS ARE DISCUSSED FOR THE TI-MO-AU TRIPLE LAYER. THE EFFECT OF A CARBON SUBSTRATE IS ALSO CONSIDERED. IT IS SHOWN THAT MO-AU BILAYERS MIX DURING DEPOSITION AND THAT AT 600 DEGREESC, 1000 AA OF MO DOES NOT PREVENT TI-AU MIXING ALTHOUGH O/SUB 2/ INHIBITS MOTION OF TI THROUGH MO (11 Refs)
Descriptors: METALLISATION; THIN FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION
Identifiers: SAMPLE PREPARATION; BACKSCATTERING SPECTROMETRY ANALYSIS; MO-AU; TI-MO; TI-MO-AU TRIPLE LAYER; AL/SUB 2/O/SUB 3/-TI-MO-AU METALLIZATION SYSTEM; MULTILAYER STRUCTURES; BIMETAL COUPLES; C SUBSTRATE; C- MIXING; DIFFUSION; PRESENCE
Unified Class Codes: SMCEAH

855431 B7604736
COST EFFICIENCY OF THICK-FILM CONDUCTORS
RIEMER, D.E.
BOEING MICROELECTRONICS, SEATTLE, WA, USA
SOLID STATE TECHNOL. (USA) VOL.18, NO.10 42-5 OCT. 1975 Coden: SSTEAP
COST CONSIDERATIONS IN THE SELECTION OF THICK FILM MATERIALS ARE DISCUSSED. COST PERFORMANCE FACTORS ARE DEFINED THAT PERMIT THE COMPARISON OF THE COST EFFICIENCY OF VARIOUS BULK METAL-FILM OR THICK-FILM CONDUCTORS. DEPOSITION WEIGHT IS USED TO CHARACTERISE CONDUCTOR INKS FOR EFFICIENT USE IN HYBRID CIRCUITS (2 Refs)
Descriptors: THICK FILM CIRCUITS
Identifiers: THICK FILM MATERIALS; COST EFFICIENCY; CONDUCTOR INKS; HYBRID CIRCUITS; THICK,FILM CIRCUITS
02
Section Class Codes: B2522
Unified Class Codes: SMCCAX

855430 B7604735
MEASUREMENT OF THE SOLDERABILITY OF THICK-FILM CIRCUITS; RELATIONSHIP BETWEEN SOLDER STRENGTH AND A SOLDERABILITY TEST
PANTANELLI, G.P.
BELL TELEPHONE LABS. INC., ALLENTOWN, PA, USA
SOLID STATE TECHNOL. (USA) VOL.18, NO.10 39-41 OCT. 1975 Coden: SSTEAP
RESULTS OF SOLDER WETTING, AS MEASURED BY A SURFACE TENSION APPARATUS ARE CORRELATED TO VISUAL APPEARANCE OF A SPECIMEN WETTED BY SOLDER AND TO THE PULL STRENGTH ON A LEAD SOLDERED TO THE SPECIMEN. THE INFLUENCE OF AN 85 DEGREESC/85PERCENT RELATIVE HUMIDITY AGING CONDITION ON THE BOND HOLDING STRENGTH OF THE SOLDER JOINT IS ALSO INVESTIGATED TO EVALUATE THE LONG TERM RELIABILITY OF LEADS SOLDERED TO SEVERAL THICK FILM SOLDER PADS BY TWO SOLDER COMPOSITIONS, 62SN-36PB-2AG AND 1.0SN-97.5PB-1.5AG (4 Refs)
Descriptors: THICK FILM CIRCUITS; SOLDERING; RELIABILITY
Identifiers: SOLDERABILITY; SOLDER STRENGTH; SOLDERABILITY TEST; SOLDER WETTING; SURFACE TENSION APPARATUS; VISUAL APPEARANCE; PULL STRENGTH; HUMIDITY AGING; BOND HOLDING STRENGTH; RELIABILITY; SOLDER PADS
02
Section Class Codes: B2522, B1263
Unified Class Codes: SMCCAX, ADGDAL

855427 B7604732
SCREEN PRINTING STENCILS FOR THICK FILM CIRCUITS
FREUDENHEIM, H.
MICROMASK LTD., LONDON, ENGLAND
ELECTRON. PROD. METHODS AND EQUIP. (GB) VOL.4, NO.7 37-9
SEPT. 1975 Coden: ELPDB4
OUTLINES SEVERAL FACTORS WHICH INFLUENCE THE QUALITY OF THICK FILM CIRCUITS AND DESCRIBES IN DETAIL TWO SCREEN PRINTING STENCILS WHICH MEET THE SPECIAL REQUIREMENTS OF THE MICRO ELECTRONICS INDUSTRY. 'DURAMASK' AND 'DURAMET'. 'DURAMASK' IS A POLYMER STENCIL WHICH IS COMPLIANT TO ACCOMMODATE THE UNEVEN SURFACE FEATURES WHICH CAN BE ENCOUNTERED ON THICK FILM SUBSTRATES. 'DURAMET' IS A METAL MASK WHICH HAS BEEN METALLURGICALLY BONDED TO A WIRE CLOTH, TO COMBINE ITS STABILITY WITH MAXIMUM ELASTICITY. DURAMET IS NORMALLY WELDED TO AN OUTER POLYMER MESH
Descriptors: THICK FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; MASKS
Identifiers: SCREEN PRINTING STENCILS; POLYMER STENCIL; METAL MASK; THICK FILM CIRCUITS PRODUCTION; INTEGRATED CIRCUIT PRODUCTION
02
Section Class Codes: B2522
Unified Class Codes: SMCCAX

855426 A7604007, B7604731
TECHNIQUE AND APPLICATIONS OF AUGER ELECTRON SPECTROSCOPY
PALMBERG, P.W.
PHYS. ELECTRONICS INDUSTRIES INC., EDEN PRAIRIE, MN, USA
ELECTROCHEMICAL SOC.
ELECTROCHEMICAL SOCIETY SPRING MEETING. (EXTENDED ABSTRACTS)
926-7 1975
11-16 MAY 1975 TORONTO, CANADA
ELECTROCHEMICAL SOC. PRINCETON, N.J., USA
THE SENSITIVITY OF ELEMENT DETECTION IN AUGER ELECTRON SPECTROSCOPY IS DISCUSSED. IT IS SHOWN THAT THE IN DEPTH DISTRIBUTION OF ELEMENTS IN THIN FILM STRUCTURES CAN BE OBTAINED BY COMBINING THE METHOD WITH INERT GAS SPUTTER ETCHING. APPLICATIONS TO INTERFACIAL CHEMISTRY EXPLORATION IN THIN FILM STRUCTURES ON MICROCIRCUITS, AND TWO DIMENSIONAL IMPURITY DISTRIBUTIONS AT GRAIN BOUNDARIES ARE MENTIONED
Descriptors: THIN FILM CIRCUITS; AUGER EFFECT; ELECTRON SPECTROSCOPY
Identifiers: AUGER ELECTRON SPECTROSCOPY; ELEMENT DETECTION; INERT GAS SPUTTER ETCHING; INTERFACIAL CHEMISTRY; THIN FILM STRUCTURES; MICROCIRCUITS; IMPURITY DISTRIBUTIONS; TRACE ELEMENT ANALYSIS
06
Section Class Codes: B2520, A0695
Unified Class Codes: SMCAAL, BGZMZZ

ACTIVE RC FILTERS IN THE HYBRID THIN TANTALUM FILM TECHNIQUE
BOSSELMANN, W.
SIEMANS AG, MUNICH, GERMANY
ELEKTRON INT. (AUSTRIA) NO.9 313-16 1975 Coden: EKITA9
THE GENERAL MATHEMATICAL FORMULAE FOR ACTIVE HIGH-PASS AND LOW-PASS FILTERS USING R-C NETWORKS ARE GIVEN BUT NOT DESIGN METHODS. WITH A SINGLE OPERATIONAL AMPLIFIER AND A QUALITY FACTOR Q/SUB R/<10, THE COMPONENT TOLERANCES ARE NOT CLOSE. TANTALUM FILMS SPUTTERED ON A CERAMIC SUBSTRATE ARE USEFUL FOR CONSTRUCTION OF THE PASSIVE ELEMENTS OF HYBRID CIRCUITS AS OXIDATION OF THE TA TO THE PENTOXIDE PROVIDES A CAPACITOR DIELECTRIC (5 Refs)
Descriptors: ACTIVE FILTERS; HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS
Identifiers: OPERATIONAL AMPLIFIER; QUALITY FACTOR; COMPONENT TOLERANCES; PASSIVE ELEMENTS; ACTIVE RC FILTERS; LOW PASS FILTERS; HIGH PASS FILTERS; HYBRID THIN TA FILM; HYBRID INTEGRATED CIRCUITS; TA OXIDATION
02
Section Class Codes: B1880, B2540, B2524
Unified Class Codes: ETRAAM, SMEAAB, SMCEAH
Language: GERMAN

844722 B7602218
A THICK-FILM AMPLIFIER SIGNAL CONDITIONING SYSTEM
BRAY, H.W.
ADVANCED DATA SYSTEMS, DOUGLAS AIRCRAFT CO., LONG BEACH, CA, USA
WASHBURN, B.:
ISA
SBN 0 87664 261 X
PROCEEDINGS OF THE 21ST INTERNATIONAL INSTRUMENTATION SYMPOSIUM 207-11 1975
19-21 MAY 1975 PHILADELPHIA, PA., USA
ISA PITTSBURGH, PA., USA
SINCE ITS INCEPTION IN 1968, THE SIGNAL CONDITIONING SYSTEM USED BY THE DOUGLAS AIRCRAFT FLIGHT TEST DIVISION HAS UTILIZED A PRECISION HIGH-GAIN DIFFERENTIAL D.C.-COUPLED AMPLIFIER PER DATA CHANNEL. THE PERFORMANCE OF THE AMPLIFIERS WAS UNIQUE IN SUCH AREAS AS: GAIN SELECTION OF 0.16 TO 1000 IN STEPS OF TIMES 2.5; FILTER SELECTION OF 10 TO 150 HZ; RESISTOR CALIBRATION VALUE SELECTION; TEMPERATURE DRIFT NOT TO EXCEED 30 MV AT THE OUTPUT OVER 100 DEGREESC WITH 1K SOURCE UNBALANCE OR 10K SOURCE RESISTANCE IN EACH LEG OF THE INPUT; AND AN OUTPUT OFFSET ADJUSTMENT OF +OR- FULL SCALE. A RECENTLY DEVELOPED REPLACEMENT AMPLIFIER UTILIZES A THICK-FILM HYBRID HIGH-GAIN DIFFERENTIAL AMPLIFIER. THE POWER REQUIREMENTS HAVE BEEN DECREASED BY 75 PERCENT AND THE SIZE DECREASED BY 70 PERCENT. THIS PAPER DESCRIBES THE NEW AMPLIFIER DESIGN AND SPECIFICATIONS, THE THICK-FILM HYBRID'S CONSTRUCTION AND ASSEMBLY, AND THE SYSTEM'S MODULAR PHILOSOPHY (11 Refs)
Descriptors: DIFFERENTIAL AMPLIFIERS; THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS
Identifiers: AMPLIFIER DESIGN; THICK FILM AMPLIFIER SIGNAL CONDITIONING SYSTEM; HYBRID INTEGRATED CIRCUITS; DIFFERENTIAL AMPLIFIERS
06
Section Class Codes: B4250, B1840, B2540, B2522
Unified Class Codes: BECMAA, ETHAAB, SMEAAB, SMCCAX

843771 B7601101
BETTER MATERIALS AND EQUIPMENT TRIM COSTS AND RAISE RELIABILITY
GROSSMAN, M.
ELECTRON. DES. (USA) VOL.23, NO.15 24, 26, 28, 30, 32 19 JULY 1975 Coden: ELODAW
ADVANCES IN THICK-FILM TECHNOLOGY FOR HYBRID CIRCUITS, INCLUDING IMPROVED THICK-FILM PRINTING MACHINES AND SCREENS, INCREASED VARIETY OF INKS OR PASTES, IMPROVEMENTS IN COMPONENT ATTACHEMENT MATERIALS AND TECHNIQUES, HIGHER POWER-HANDLING CAPABILITY AND FUNCTIONAL TRIMMING, ARE DISCUSSED (3 Refs)
Descriptors: INTEGRATED CIRCUIT PRODUCTION; RELIABILITY; ECONOMICS; HYBRID INTEGRATED CIRCUITS; PACKAGING; THICK FILM CIRCUITS
Identifiers: COSTS; RELIABILITY; HYBRID CIRCUITS; PRINTING MACHINES; SCREENS; INKS; PASTES; COMPONENT ATTACHEMENT HANDLING CAPABILITY; PACKAGING
02
Section Class Codes: B2540, B1263, B2522
Unified Class Codes: SMEAAB, ADGDAL, SMCCAX

843720 B7601032
APPLICATIONS OF LOW TEMPERATURE RF PLASMA ETCHING TO THIN-FILM TECHNOLOGY
JACOB, A.
PLASMA RANDD LAB., PROCESS CONTROL DIV., WALTHAM, MA, USA
ELECTROCHEMICAL SOC.
ELECTROCHEMICAL SOCIETY SPRING MEETING. (EXTENDED ABSTRACTS) 457-9 1975
11-16 MAY 1975 TORONTO, CANADA
ELECTROCHEMICAL SOC. PRINCETON, N.J., USA
ONE OF THE MORE IMPORTANT CONSIDERATIONS IN THE FABRICATION OF INTEGRATED CIRCUITS FROM THIN FILMS IS THE PROFILE OF THE STEPS WHICH ARE TO BE ETCHED IN THE VARIOUS STRUCTURES. ALONG WITH SPECIAL REQUIREMENTS FOR FINE RESOLUTION PATTERNING, A UNIQUE METHOD HAS BEEN DEVELOPED TO RID THE FINAL ETCHED PROFILE FROM THE EVER-EXISTANT ELECTRIC FIELD NONUNIFORMITIES. THIS METHOD EMPLOYS INDUCTIVE RF POWER COUPLING AND A PERFORATED METALLIC MATERIAL HANDLING ZONE WITHIN WHICH SUBSTRATES ARE MAINLY EXPOSED TO EVENLY DISPERSED ELECTRICALLY NEUTRAL ACTIVE SPECIES. BY ALLOWING PREFERENTIALLY ELECTRICALLY NEUTRAL SPECIES WITHIN THE PERFORATED PROCESSING VOLUME, THE EFFECTS OF EXTERNAL ELECTRIC FIELD PERTURBATIONS ARE PRACTICALLY NEUTRALIZED, THUS ENABLING EXTREMELY UNIFORM ETCHING THROUGHOUT AN ENTIRE SUBSTRATE BATCH AT SUBSTANTIALLY REDUCED GAS TEMPERATURES
Descriptors: INTEGRATED CIRCUIT PRODUCTION; ETCHING; PLASMA APPLICATIONS; THIN FILM CIRCUITS
Identifiers: LOW TEMPERATURE; RF PLASMA ETCHING; INTEGRATED CIRCUITS; THIN FILMS; ETCHED PROFILE; ELECTRIC FIELD NONUNIFORMITIES; PERFORATED METALLIC MATERIAL HANDLING ZONE; SUBSTRATE BATCH
06
Section Class Codes: B2524
Unified Class Codes: SMCEAH

B43718 B7601030
TANTALUM NITRIDE THIN FILM CIRCUITS ON POLYMIDE
TERADA, T.; USHIGOME, M.; TAMAKI, S.
NIPPON ELECTRIC CO., SEMICONDUCTOR DIV., NAKAHARA-KU, KAWASAKI CITY, JAPAN
ELECTROCHEMICAL SOC.
ELECTROCHEMICAL SOCIETY SPRING MEETING. (EXTENDED ABSTRACTS) 122- 3 1975
11-16 MAY 1975 TORONTO, CANADA
ELECTROCHEMICAL SOC. PRINCETON, N.J., USA
TANTALUM NITRIDE THIN FILM CIRCUITS SPUTTERED ON POLYIMIDE HAVE BEEN STUDIED. WHEN SPUTTERED AT 150 DEGREESC, THE AUTHORS HAVE FOUND THE BETTER FILM FOR WHICH THE TEMPERATURE COEFFICIENT OF RESISTANCE HAS BEEN FROM -60 TO +20 PPM/DEGREESC AT THE TEMPERATURE RANGE OF 25 DEGREESC TO 125 DEGREESC AND THE CHANGE OF THE RESISTANCE HAS BEEN +1.0PERCENT AT 120 DEGREESC FOR 3600 HOURS. SOME PROBLEMS IN THE PRODUCTION OF STABLE THIN FILMS ARE DISCUSSED
Descriptors: SPUTTERING; THIN FILM CIRCUITS
Identifiers: THIN FILM CIRCUITS; POLYIMIDE; SPUTTERING
06
Section Class Codes: B2524
Unified Class Codes: SMCEAH

B43716 B7601028
TEMPERATURE MEASURING DEVICE FOR THICK-FILM IC'S
NOWAKOWSKI, A.; JACKOWSKI, J.
ELEKTRONIKA (POLAND) VOL.16, NO.7-8 312-14 1975
Coden: ELNTBZ
THE PAPER DEALS WITH MEASUREMENT PROBLEMS OF TEMPERATURE DISTRIBUTION IN INTEGRATED CIRCUITRY. SPECIAL ATTENTION IS PAID TO DETECTION OF INFRARED RADIATION. A MEASUREMENT DEVICE FOR THICK-FILM IC INVESTIGATION IS DESCRIBED (5 Refs)
Descriptors: THICK FILM CIRCUITS; TEMPERATURE MEASUREMENT
Identifiers: TEMPERATURE MEASURING DEVICE; THICK FILM IC'S; INTEGRATED CIRCUITS; INFRARED RADIATION DETECTION
02
Section Class Codes: B2522, B4147, B4240
Unified Class Codes: SMCCAX, BKEMAA, BECKAP
Language: POLISH

B43715 B7601027
SCREENPRINTING THICK-FILM
BIELER, J.
CIRCUITS MANUF. (USA) VOL.15, NO.5 32-3 MAY 1975
Coden: CMFGAF
DISCUSSES COMMON PROBLEMS ENCOUNTERED IN SCREENPRINTING, E.G. SCREEN FATIGUE, EFFECTS OF HANDLING DURING CLEANING, SCREEN POSITIONING, SETTING SQUEEGEE BLADE PRESSURE ETC. SUGGESTS THAT IMPROVEMENTS IN INKS PLAY AN IMPORTANT ROLE IN THICK-FILM PRINTING ADVANCES AND FORECASTS THE DEVELOPMENT OF METALLIC SOLUTIONS AS POTENTIAL SUCCESSORS OF THE METALLIC PARTICLE SUSPENSION (4 Refs)
Descriptors: PHOTOLITHOGRAPHY; INTEGRATED CIRCUIT PRODUCTION; THICK FILM CIRCUITS
Identifiers: SCREENPRINTING; SCREEN FATIGUE; CLEANING; SCREEN POSITIONING; SQUEEGEE BLADE PRESSURE; METALLIC SOLUTIONS; METALLIC PARTICLE SUSPENSION; INTEGRATED CIRCUIT PRODUCTION; PHOTOLITHOGRAPHY
02
Section Class Codes: B2522
Unified Class Codes: SMCCAX

B43309 B7600566
THIN FILM NETWORKS IN FREQUENCY AND TIME DOMAIN
KULLA, K.
KDT, BERLIN, GERMANY
NACHRICHTENTECH. ELEKTRON. (GERMANY) VOL.25, NO.9 328-9 336 1975 Coden: NTELAP
THE USE OF VARIOUS INTEGRATION METHODS FOR FILTER NETWORKS IS OUTLINED. PROBLEMS OF INTEGRATION IN THE REALIZATION OF SELECTIVE NETWORKS AND DELAY CHAINS ARE DISCUSSED DEALING WITH THE REQUIREMENTS FOR ACTIVE RC STRUCTURES WHICH ARE SUITABLE FOR HYBRID CONSTRUCTION (2 Refs)
Descriptors: ACTIVE FILTERS; THIN FILM CIRCUITS
Identifiers: INTEGRATION METHODS; FILTER NETWORKS; ACTIVE RC STRUCTURES; HYBRID CONSTRUCTION; THIN,FILM NETWORK; FREQUENCY DOMAIN; TIME DOMAIN
02
Section Class Codes: B1880, B2524
Unified Class Codes: ETRAAM, SMCEAH
Language: GERMAN

835886 B7541809, C7528895
MANUFACTURE OF MAGNETIC HEAD
Patent No.: UK 1395017 Assignees: IBM CORP Filed: 1 DEC. 1972
Original Patent Appl. No.: US 211554
Priority Date: 23 DEC 1971
21 MAY 1975
A MAGNETIC UNDERLAYER IS DEPOSITED ON A NON-MAGNETIC SUBSTRATE, AND ON IT TWO LATERALLY SPACED ELECTRICALLY CONDUCTIVE WINDINGS ARE DEPOSITED, AND OVER THESE A MAGNETIC OVERLAYER IS SPACED FROM THE UNDERLAYER EXCEPT AT ITS ENDS, TO FORM A CLOSED MAGNETIC PATH LINKING THE TWO WINDINGS TO FORM A TRANSFORMER. THE ELECTRICAL PROPERTIES OF THE TRANSFORMER ARE THEN TESTED AND IT IS THEN SEVERED BETWEEN THE TWO WINDINGS, SO THAT THE SEVERED PART INCLUDING THE FIRST WINDING FORMS THE MAGNETIC HEAD. THE TRANSFORMER IS TESTED BY APPLYING A CURRENT TO ONE WINDING AND MEASURING THE INDUCED CURRENT IN THE OTHER
Descriptors: MAGNETIC HEADS; TRANSFORMER TESTING; TRANSFORMER WINDINGS; THIN FILM CIRCUITS
Identifiers: MAGNETIC HEAD; MAGNETIC UNDERLAYER; CONDUCTIVE WINDINGS; MAGNETIC OVERLAYER; THIN FILM TRANSFORMER
08
Section Class Codes: B2760, B2220, C9680
Unified Class Codes: STKAAL, SEKAAF, XMRAAR

835681 B7541655, C7528678
A TECHNOLOGY FOR HIGH SPEED COMPUTER SYSTEMS
HOLLOCK, S.; KINNIMENT, D.J.; MARTON, N.V.
PLESSEY CO. LTD., ALLEN CLARK RES. CENTRE, CASWELL, ENGLAND
IERE, INTERNAT. SOC. HYBRID MICROELECTRONICS, IEE, INST. PHYS., IEEE
SBN 0 903748 25 8
CONFERENCE ON HYBRID MICROELECTRONICS 143-57 1975
9-11 SEPT. 1975 LOUGHBOROUGH, LEICS., ENGLAND
IERE LONDON, ENGLAND
THIS PAPER DESCRIBES A TECHNOLOGY DEVELOPED TO REDUCE THE AVERAGE INTERCONNECTION DELAY IN LARGE HIGH SPEED COMPUTER SYSTEMS. MULTILAYER THICK FILM CIRCUITS ARE USED TO ACHIEVE A SUBSTANTIAL PACKING DENSITY IMPROVEMENT OVER EXISTING SYSTEMS. THE TYPICAL INTERCONNECTION LENGTH OBTAINED IS 1 CM AND THE DELAY DUE TO THIS IS OF THE ORDER OF 0.15 NSECS. POWER DISSIPATIONS OF UP TO 20 WATTS MAY BE DISSIPATED BY UP TO 24 CHIPS ON A SINGLE 2.5 CM-5 CM CERAMIC SUBSTRATE AND 54 SUCH SUBSTRATES FORM A SINGLE 'THREE DIMENSIONAL' MODULE (11 Refs)
Descriptors: THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; COMPUTER ARCHITECTURE
Identifiers: HIGH SPEED COMPUTER SYSTEMS; INTERCONNECTION DELAY; PACKING DENSITY; CERAMIC SUBSTRATE; MULTILAYER THICK FILM CIRCUITS; POWER DISSIPATION
06
Section Class Codes: B2522, B2540, C9460
Unified Class Codes: SMCCAX, SMEAAB, XGGAAN

835381 B7541725, C7528351
MICROCIRCUIT THERMAL DESIGN TABLES AND COMPUTER PROGRAM FOR TWO-DIMENSIONAL LAYOUTS
HAMBLING, P.G.; DEAN, D.J.
METALL. DIV. AWRE, ALDERMASTON, ENGLAND
IERE, INTERNAT. SOC. HYBRID MICROELECTRONICS, IEE, INST. PHYS., IEEE
SBN 0 903748 25 8
CONFERENCE ON HYBRID MICROELECTRONICS 191-204 1975
9-11 SEPT. 1975 LOUGHBOROUGH, LEICS., ENGLAND
IERE LONDON, ENGLAND
TWO THERMAL DESIGN AIDS ARE DESCRIBED FOR THE EVALUATION OF TEMPERATURE DISTRIBUTIONS ON HYBRID MICROCIRCUITS. THE FIRST IS A COMPUTER PROGRAM EMPLOYING A SIMPLE CO-ORDINATE SYSTEM, IN WHICH THE FOLLOWING VARIABLES ARE ENTERED AS DATA' SUBSTRATE DIMENSIONS AND THERMAL CONDUCTIVITY, POSITIONS OF HEAT SINKING EDGES, HEAT TRANSFER COEFFICIENT FOR CONVECTION COOLING, AND POWER SOURCE STRENGTHS AND LOCATIONS. THIS PROGRAM HAS BEEN USED TO PRODUCE THERMAL DESIGN TABLES WHICH EMPLOY THE SUPERPOSITION THEORY AS PROPOSED AT THE 1973 CANTERBURY CONFERENCE. THESE TABLES ALLOW RAPID DETERMINATION OF SUBSTRATE TEMPERATURES WITHOUT RECOURSE TO A COMPUTER. THE LAYOUT OF THE TABLES IS DESCRIBED AND THE DETAILS OF THEIR USE EXPLAINED. POSSIBLE FUTURE APPLICATIONS OF DESIGN TABLES ARE ALSO DISCUSSED (5 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; COMPUTER-AIDED DESIGN; ELECTRONICS APPLICATIONS OF COMPUTERS
Identifiers: TEMPERATURE DISTRIBUTIONS; HYBRID MICROCIRCUITS; COMPUTER PROGRAM; SUBSTRATE TEMPERATURES; MICROCIRCUIT THERMAL DESIGN TABLES; TWO DIMENSIONAL LAYOUTS
06
Section Class Codes: B2540, C8842
Unified Class Codes: SMEAAB, WMEEAQ

835325 B7541708, C7528284
LASER TRIMMING AUTOMATION FOR HYBRID CIRCUITS
LIMANN, O.
ELEKTRONIK (GERMANY) VOL.24, NO.9 89 SEPT. 1975
Coden: EKRKAR
BRIEFLY DESCRIBES TERADYNE'S COMPUTER-CONTROLLED W 233 TRIMMING-MACHINE EMPLOYING A LASER TO ADJUST RESISTANCE ELEMENTS IN THIN AND THICK FILM CIRCUITS. THE COMPUTER ENABLES TRIMMED RESISTANCE VALUES TO BE INTERPRETED IN TERMS OF FREQUENCY AND THUS SPEEDS THE ADJUSTMENT OF FILTERS ETC
Descriptors: HYBRID INTEGRATED CIRCUITS; LASER BEAM APPLICATIONS; ELECTRONICS APPLICATIONS OF COMPUTERS; THIN FILM CIRCUITS; THICK FILM CIRCUITS
Identifiers: HYBRID CIRCUITS; THICK FILM CIRCUITS; LASER BEAM TRIMMING; RESISTOR TRIMMING; W233 TRIMMING MACHINE; AUTOMATED TRIMMING; THIN FILM CIRCUITS; FILTER ADJUSTMENT; FREQUENCY ADJUSTMENT
02
Section Class Codes: B2540, B2522, B2524, B2980, C8842
Unified Class Codes: SMEAAB, SMCCAX, SMCEAH, EGMAAA, WMEEAQ
Language: GERMAN

832459 A7582162, B7541666
STRENGTH OF GOLD-PLATED COPPER LEADS ON THIN FILM CIRCUITS UNDER ACCELERATED AGING
HALL, P.M.; PANOUSIS, N.T.; MENZEL, P.R.
BELL LABS., ALLENTOWN, PA, USA
IEEE TRANS. PARTS, HYBRIDS AND PACKAG. (USA) VOL.PHP-11, NO.3 202-5 SEPT. 1975 Coden: IEPHAA
THE STRENGTHS OF THERMOCOMPRESSION BONDS MADE BETWEEN GOLD PLATED COPPER LEAD FRAMES AND GOLD METALLIZED THIN FILM CIRCUITS DECREASE IN TIME WHEN AGED AT 200-300 DEGREESC IN AIR OR VACUUM UNLESS THERE IS A DIFFISION BARRIER (SUCH AS NICKEL) BETWEEN THE COPPER AND GOLD. AFTER PULLING BONDS TO DESTRUCTION, FAILURE MODES AND FAILED SURFACES WERE CHARACTERIZED BY SCANNING ELECTRON MICROSCOPY, AUGER SPECTROSCOPY, ELECTRON MICROPROBE, STYLUS PROBE, AND X-RAY DIFFRACTION. OXIDATION, PURE FORMATION (KIRKENDALL EFFECT), AND ORDERED PHASE FORMATION WERE CONSIDERED AS POSSIBLE MECHANISMS FOR THE DEGRADATION (9 Refs)
Descriptors: THIN FILM CIRCUITS; ADHESION; WELDING; AGEING
Identifiers: STRENGTHS; THERMOCOMPRESSION BONDS; GOLD PLATED COPPER LEAD FRAMES; GOLD METALLIZED THIN FILM CIRCUITS; FAILURE MODES; FAILED SURFACES; ORDERED PHASE FORMATION; ACCELERATED AGEING; MECHANISM OF FAILURES; EXTRAPOLATION TO LOWER FAILURES; 200 TO 300 DEGREES C AGEING
02
Section Class Codes: B2524, B1267, A9128
Unified Class Codes: SMCEAH, ADGKAT, ZGEKAA

ZABKAR, T.; NAVINSEK, B.
ELEKTROTEH. VESTN. (YUGOSLAVIA) VOL.41, NO.9-10 227-31 SEPT.-OCT. 1974 Coden: ELVEA2
DESCRIBES A DC SPUTTERING DEVICE. OPTIMAL WORKING CONDITIONS FOR THE DIODE SYSTEM ARE DETERMINED AND ANALYSIS OF DEPOSITION PARAMETERS IS GIVEN. ION CURRENT DENSITY, VOLTAGE, AND GAS PRESSURE, AND THE INFLUENCE OF CATHODE/SUBSTRATE SPACING ON THE DEPOSITION RATE ARE INVESTIGATED. IT WAS FOUND THAT ABOUT 2 CM BETWEEN ANODE AND CATHODE IS OPTIMAL. UNDER OPTIMAL WORKING CONDITIONS DEPOSITION RATE OF 1000 AA/MIN (FOR GOLD) WAS OBTAINED. PRECISE CONTROL OF ELECTRICAL PARAMETERS PROVIDES VERY GOOD REPRODUCIBILITY OF SPUTTERED FILMS (9 Refs)
Descriptors: SPUTTERING; VAPOUR DEPOSITION; THIN FILM CIRCUITS; VACUUM TECHNIQUES
Identifiers: DC CATHODE SPUTTERING; DEPOSITION PARAMETERS; VOLTAGE; GAS PRESSURE; CATHODE/SUBSTRATE SPACING; DEPOSITION RATE; OPTIMAL WORKING CONDITIONS; REPRODUCIBILITY; THIN FILM SPUTTERING; ION CURRENT; ION CURRENT DENSITY
02
Section Class Codes: B2524, B1267, A9112, A0634
Unified Class Codes: SMCEAH, ADGKAT, ZGCCAX, BGGEAR
Language: SLOVENE

829888 A7579544, B7543380
A HYBRID THIN-FILM MULTICHANNEL BIOTELEMETRY TRANSMITTER
FILSHIE, J.H.; MCGEE, I.J.
AGRICULTURAL RES. COUNCIL'S POULTRY RES. CENTRE, EDINBURGH, SCOTLAND
IERE, INTERNAT. SOC. HYBRID MICROELECTRONICS, IEE, INST. PHYS., IEEE
SBN 0 903748 25 8
CONFERENCE ON HYBRID MICROELECTRONICS 49-56 1975
9-11 SEPT. 1975 LOUGHBOROUGH, LEICS., ENGLAND
IERE LONDON, ENGLAND
THE REQUIREMENTS OF A MODERN BIOTELEMETRY SYSTEM ARE DISCUSSED TOGETHER WITH THE PROBLEMS OF MEASURING BIOLOGICAL PARAMETERS. HYBRID THIN-FILM METHODS PROVIDE A GOOD SOLUTION TO THE PROBLEM. MULTI-CHANNEL FM/FM VHF RADIO-TRANSMITTERS FOR MEASURING TEMPERATURE AND BIOPOTENTIALS HAVE BEEN DESIGNED AND CONSTRUCTED. A RADIO-FREQUENCY-OPERATED SWITCH IS ALSO DESCRIBED WHICH ALLOWS IMPLANTED TRANSMITTERS TO BE SWITCHED REMOTELY (9 Refs)
Descriptors: TELEMETERING EQUIPMENT; BIOLOGICAL TECHNIQUES AND INSTRUMENTS; THIN FILM CIRCUITS; RADIO TRANSMITTERS; HYBRID INTEGRATED CIRCUITS
Identifiers: HYBRID THIN FILM MULTICHANNEL BIOTELEMETRY TRANSMITTER; TEMPERATURE MEASUREMENTS; BIOPOTENTIAL MEASUREMENTS; RADIO FREQUENCY OPERATED SWITCH
06
Section Class Codes: B4260, B3518, A0694, B2540, B2524
Unified Class Codes: BECNAF, FECKAW, BGZKAQ, SMEAAB, SMCEAH

829884 A7579535, B7543379
RADIOTELEMETRY OF AVIAN SHANK TEMPERATURE USING A THIN-FILM MICROCIRCUIT
DUNCAN, I.J.H.; FILSHIE, J.H.; MCGEE, I.J.
AGRICULTURAL RES. COUNCIL'S POULTRY RES. CENTRE, EDINBURGH, SCOTLAND
MED. AND BIOL. ENG. (GB) VOL.13, NO.4 544-50 JULY 1975
Coden: MDENAU
THE SHANK TEMPERATURE OF A BIRD IS ONE INDICATOR OF ITS BEHAVIOURAL STATE. A RADIOTELEMETRY SYSTEM HAS BEEN DEVELOPED CONSISTING OF A THIN-FILM RADIOTRANSMITTER AND A DECODING CIRCUIT USING PULSE-RATIO MODULATION OF A SUBCARRIER OSCILLATOR LINEARISED FOR USE WITH A THERMISTOR. THE SUBCARRIER FREQUENCY MODULATES A 25-30 MHZ CARRIER OPERATING IN NEAR-FIELD CONDITIONS. THE TRANSMITTER CAN BE USED EXTERNALLY OR MAY BE IMPLANTED. UNDER EXPERIMENTAL CONDITIONS TEMPERATURE DRIFT DOES NOT EXCEED 0.1 DEG. C. TEMPERATURE CHANGES IN RESPONSE TO STRESS SITUATIONS ARE REPORTED AND DISCUSSED (8 Refs)
Descriptors: TELEMETERING; TEMPERATURE MEASUREMENT; HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS; TELEMETERING EQUIPMENT; BIOLOGICAL TECHNIQUES AND INSTRUMENTS
Identifiers: AVIAN SHANK TEMPERATURE; BIRD; BEHAVIOURAL STATE; RADIOTELEMETRY; RADIOTRANSMITTER; DECODING CIRCUIT; THIN FILM HYBRID IC
02
Section Class Codes: B4260, B3518, B2524, B2540, A0694
Unified Class Codes: BECNAF, FECKAW, SMCEAH, SMEAAB, BGZKAQ

828753 B7543830
A HYBRID MICROCIRCUIT APPROACH TO TELEMETRIC SWALLOWABLE CAPSULES
LONG, F.M.
ELECTRICAL ENGNG. DEPT., UNIV. OF WYOMING, LARAMIE, WY, USA
ROCK, H.C.;
PROCEEDINGS OF THE 12TH ANNUAL ROCKY MOUNTAIN BIOENGINEERING SYMPOSIUM AND THE 12TH INTERNATIONAL ISA BIOMEDICAL SCIENCES INSTRUMENTATION SYMPOSIUM 61-4 1975
28-30 APRIL 1975 DENVER, COLO., USA
ISA PITTSBURGH, PA., USA
THE DEVELOPMENT OF CHIP COMPONENTS HAS MADE POSSIBLE A REDUCTION IN THE SIZE OF DISCRETE COMPONENT CIRCUITS WITH ONLY A MODERATE INCREASE IN THE COMPLEXITY OF FABRICATION. THE SIMPLEST TECHNIQUE IS TO MOUNT THICK FILM RESISTORS AND CAPACITORS TOGETHER WITH SEMICONDUCTOR DEVICES IN THE LID (LEADLESS INVERTED DEVICE) PACKAGE AND TO INTERCONNECT THEM USING A MICROPRINTED CIRCUIT SUBSTRATE. A FURTHER DECREASE IN SIZE CAN BE REALIZED IF WIRE BONDING IS USED, WITH THE ADDED ADVANTAGE THAT A WIDER RANGE OF SEMICONDUCTOR DISCRETE DEVICES AND [illegible] CIRCUITS ARE AVAILABLE. THIN FILM RESISTORS CAN [illegible] A FURTHER REDUCTION IN SIZE OVER THE
Identifiers: HYBRID MICROCIRCUIT APPROACH; TELEMETRIC SWALLOWABLE CAPSULES; CHIP COMPONENTS; DISCRETE COMPONENT CIRCUITS; THICK FILM RESISTORS; SEMICONDUCTOR DEVICES; MICROPRINTED CIRCUIT SUBSTRATE; WIRE BONDING; THICK FILM CAPACITORS; LEADLESS INVERTED DEVICE PACKAGE; THIN FILM RESISTORS
06
Section Class Codes: B4640, B3518, B4260
Unified Class Codes: ZRWGAF, FECKAW, BECNAF

827892 B7542567
THICK FILM DIRECTIONAL COUPLER DESIGN, A COMPARISON OF THEORIES
BAINBRIDGE, P.L.; ROBERTSON, R.J.
DUNDEE COLL. OF TECHNOL., DEPT. OF ELECTRICAL AND ELECTRONIC ENGNG., DUNDEE, SCOTLAND
IERE, INTERNAT. SOC. HYBRID MICROELECTRONICS, IEE, INST. PHYS., IEEE
SBN 0 903748 25 8
CONFERENCE ON HYBRID MICROELECTRONICS 83-94 1975
9-11 SEPT. 1975 LOUGHBOROUGH, LEICS., ENGLAND
IERE LONDON, ENGLAND
THE PAPER DESCRIBES THE DESIGN OF 10 DB AND 20 DB DIRECTIONAL COUPLERS USING TWO DIFFERENT THEORIES, ONE METHOD USED COMPUTER PROGRAMS TO DETERMINE THE DIMENSIONS AND THE OTHER USED DESIGN DATA CURVES. THE PERFORMANCE OF THE THICK FILM COUPLERS IN THE FREQUENCY RANGE 1-2 GHZ IS COMPARED AND VARIOUS IMPROVEMENTS ARE SUGGESTED (12 Refs)
Descriptors: DIRECTIONAL COUPLERS; MICROWAVE INTEGRATED CIRCUITS; HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS; MICROWAVE AMPLIFIERS
Identifiers: THICK FILM DIRECTIONAL COUPLER; 1 TO 2 GHZ
06
Section Class Codes: B3290, B1820, B2540, B2522
Unified Class Codes: EMWAAW, ETEAAD, SMEAAB, SMCCAX

827560 B7542035
A LINEAR OPTO-ISOLATOR
MORRISON, J.M.; LAW, H.T.
FERRANTI LTD., EDINBURGH, SCOTLAND
IERE, INTERNAT. SOC. HYBRID MICROELECTRONICS, IEE, INST. PHYS., IEEE
SBN 0 903748 25 8
CONFERENCE ON HYBRID MICROELECTRONICS 117-26 1975
9-11 SEPT. 1975 LOUGHBOROUGH, LEICS., ENGLAND
IERE LONDON, ENGLAND
THE FABRICATION OF A VERSATILE GENERAL PURPOSE AND LINEAR OPTO-ISOLATOR IN THIN-FILM HYBRID FORM IS DESCRIBED. IN A L.E.D.-PHOTOTRANSISTOR COMBINATION IT IS POSSIBLE TO ARRANGE A LINEAR INPUT-OUTPUT RELATIONSHIP ONLY OVER A NARROW PORTION OF THE OPERATING RANGE. WITH FEEDBACK TECHNIQUES WHICH ARE MADE POSSIBLE BY HYBRID MICROCIRCUIT CONSTRUCTION THE INFLUENCE OF COMPONENT PARAMETER SPREADS, TEMPERATURE DEPENDENCE AND INHERENT DEVICE VARIATIONS IN TRANSFER CHARACTERISTICS CAN BE MINIMISED. APPLICATIONS FOR SUCH A DEVICE ARE GIVEN
Descriptors: THIN FILM DEVICES; OPTOELECTRONIC DEVICES; PHOTOTRANSISTORS; LIGHT EMITTING DIODES; HYBRID INTEGRATED CIRCUITS
Identifiers: HYBRID MICROCIRCUIT; LINEAR OPTOISOLATOR; THIN FILM HYBRID FORM; LED PHOTOTRANSISTOR COMBINATION
06
Section Class Codes: B2897, B2895, B2892, B2540, B2524
Unified Class Codes: SRKAAM, SRGAAP, SRCAAJ, SMEAAB, SMCEAH

827332 B7541728
DEGRADATION UNDER THERMAL SOAK OF THE STRENGTH OF ALUMINIUM WIRE ULTRASONICALLY BONDED TO THICK FILM GOLD (HYBRID IC'S)
LINFORD, P.F.T.; DOBSON, M.
METALL. DIV., AWRE, ALDERMASTON, ENGLAND
IERE, INTERNAT. SOC. HYBRID MICROELECTRONICS, IEE, INST. PHYS., IEEE
SBN 0 903748 25 8
CONFERENCE ON HYBRID MICROELECTRONICS 247-50 1975
9-11 SEPT. 1975 LOUGHBOROUGH, LEICS., ENGLAND
IERE LONDON, ENGLAND
THE EFFECT OF THERMAL SOAK AT TEMPERATURES BETWEEN 25 DEGREESC AND 250 DEGREESC FOR 1200 HOURS ON THE BOND STRENGTH OF 25 MICRON AL/1PERCENT SI WIRE TO A FRITTED GOLD (ENGELHARD 9177), AND A REACTIVELY BONDED GOLD (EMCA 3264) HAS BEEN INVESTIGATED. BOND STRENGTHS IN BOTH CASES DECREASED AT 150 DEGREESC FOR 100 HOURS THEN MORE OR LESS LEVELLED TO 43PERCENT OF INITIAL STRENGTH FOR 9177, AND 55PERCENT FOR 3264. AT 250 DEGREESC THERE WAS SOME INCREASE IN STRENGTH PARTICULARLY FOR 9177, AND SOME FLUCTUATION. AT THE INTERMEDIATE TEMPERATURES BEHAVIOUR WAS BROADLY INTERMEDIATE. AN EXPLANATION OF THE RESULTS IN TERMS OF DIFFERENTIAL DIFFUSION RATES (KIRKENDALL EFFECT) AND INTERMETALLIC COMPOUND FORMATION IS PROPOSED (4 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS; [illegible] OF THERMAL SOAK; BOND STRENGTH; DIFFERENTIAL DIFFUSION RATES; KIRKENDALL EFFECT; INTERMETALLIC COMPOUND FORMATION; AL WIRE CONNECTIONS; THICK FILM AU CONDUCTORS
06
Section Class Codes: B2540, B2522
Unified Class Codes: SMEAAB, SMCCAX

827331 B7541727
A RANGE OF AUTOMATIC FINISHING MACHINES FOR THIN FILM HYBRID CIRCUITS
YOUNG, G.H.
CIT-ALCATEL, MICROELECTRONICS DIV., MONTROUGE, FRANCE
IERE, INTERNAT. SOC. HYBRID MICROELECTRONICS, IEE, INST. PHYS., IEEE
SBN 0 903748 25 8
CONFERENCE ON HYBRID MICROELECTRONICS 241-6 1975
9-11 SEPT. 1975 LOUGHBOROUGH, LEICS., ENGLAND
IERE LONDON, ENGLAND
DEALS WITH A LINE OF MACHINES SPECIFICALLY DESIGNED TO AUTOMATE AS FAR AS IS PRACTICAL A LARGE IN-HOUSE REQUIREMENT FOR THIN FILM HYBRID CIRCUITS USED IN THE TELEPHONE INDUSTRY. HANDLING INNOVATIONS ARE DESCRIBED, AND INDICATIONS ARE GIVEN OF PRODUCTION RATES AND YIELDS. SOME PROBLEMS ARE DISCUSSED, AND MENTION IS ALSO MADE OF POSSIBLE FUTURE DEVELOPMENTS TO EXTEND THE USE OF THE SYSTEM
Descriptors: HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION
Identifiers: AUTOMATIC FINISHING MACHINES; THIN FILM HYBRID CIRCUITS; TELEPHONE INDUSTRY; PRODUCTION RATES
06
Section Class Codes: B2540, B2524
Unified Class Codes: SMEAAB, SMCEAH

827329 B7541724
STABILITY AND FORWARD DIODE VOLTAGE CHARACTERISTICS OF CONDUCTIVE EPOXY RESIN BONDED DEVICES
GENNER, I.
NEWMARKET TRANSISTORS LTD., NEWMARKET, ENGLAND
IERE, INTERNAT. SOC. HYBRID MICROELECTRONICS, IEE, INST. PHYS., IEEE
SBN 0 903748 25 8
CONFERENCE ON HYBRID MICROELECTRONICS 169-79 1975
9-11 SEPT. 1975 LOUGHBOROUGH, LEICS., ENGLAND
IERE LONDON, ENGLAND
DESCRIBES IN TWO SEPARATE SECTIONS THE VARIATIONS IN FORWARD DIODE VOLTAGE AND CURRENT CARRYING CAPABILITIES OCCURRING WHEN CONDUCTIVE EPOXY RESINS ARE USED TO BOND TRANSISTOR CHIPS TO THICK FILM CIRCUITS. IT DEALS MAINLY WITH BACKING MATERIALS AND EPOXY CURING CYCLES, AND TOUCHES UPON STORAGE PROBLEMS
Descriptors: HYBRID INTEGRATED CIRCUITS; STABILITY
Identifiers: FORWARD DIODE VOLTAGE CHARACTERISTICS; CONDUCTIVE EPOXY RESIN BONDED DEVICES; CURRENT CARRYING CAPABILITIES; TRANSISTOR CHIPS; THICK FILM CIRCUITS; STABILITY
06
Section Class Codes: B2540
Unified Class Codes: SMEAAB

827328 B7541722
TECHNOLOGICAL TEACHING OF HYBRID MICROELECTRONICS (THICK FILM)
LEROY, Y.; DESCAMPS, M.; VERNET, M.
INST. UNIV. DE TECHNOL., UNIV. DES SCI. ET TECH. DE LILLE, VILLENEUVE D'ASCQ, FRANCE
IERE, INTERNAT. SOC. HYBRID MICROELECTRONICS, IEE, INST. PHYS., IEEE
SBN 0 903748 25 8
CONFERENCE ON HYBRID MICROELECTRONICS 131-3 1975
9-11 SEPT. 1975 LOUGHBOROUGH, LEICS., ENGLAND
IERE LONDON, ENGLAND
PRINCIPLES AND FABRICATION OF HYBRID CIRCUITS (THICK FILM) HAVE BEEN TAUGHT IN THE DEPARTMENT GENIE ELECTRIQUE (I.U.T. LILLE) SINCE 1973. THE PURPOSE OF THIS PAPER IS TO REPORT EXPERIENCE WITH THIS TEACHING AND TO GIVE A FEW DETAILS ABOUT THE DEVICES WHICH WERE STUDIED AND ACHIEVED BY THE STUDENTS
Descriptors: HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS; TEACHING
Identifiers: HYBRID MICROELECTRONICS; THICK FILM CIRCUITS
06
Section Class Codes: B2540, B2522, B1220
Unified Class Codes: SMEAAB, SMCCAX, ADCAAP

827327 B7541721
THE HYBRID MICROELECTRONICS EXPLOSION IN FINLAND
JARVINEN, E.
UNIV. OF OULU, OULU, FINLAND
IERE, INTERNAT. SOC. HYBRID MICROELECTRONICS, IEE, INST. PHYS., IEEE
SBN 0 903748 25 8
CONFERENCE ON HYBRID MICROELECTRONICS 127-30 1975
9-11 SEPT. 1975 LOUGHBOROUGH, LEICS., ENGLAND
IERE LONDON, ENGLAND
THE PRESENT PAPER DESCRIBES THE SUCCESS WITH WHICH THICK FILM HYBRID TECHNOLOGY HAS BEEN DEVELOPED IN FINLAND AS A RESULT OF CLOSE CO-OPERATION BETWEEN THE RESEARCH ESTABLISHMENT AND INDUSTRY. IN PARTICULAR IT DESCRIBES THE ACTIVE ROLE OF THE UNIVERSITY IN ENCOURAGING INDUSTRY TO MAKE USE OF THIS TECHNOLOGY IN ITS PRODUCTION (4 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION
Identifiers: HYBRID MICROELECTRONICS; FINLAND; THICK FILM HYBRID TECHNOLOGY
06
Section Class Codes: B2540, B2522
Unified Class Codes: SMEAAB, SMCCAX

827326 B7541720
COMPARATIVE INVESTIGATION OF THICK FILM AND THIN FILM COMPONENTS AND MIC'S UP TO 16 GHZ
FUNK, W.; SCHILZ, W.
PHILIPS FORSCHUNGSLAB. HAMBURG GMBH, HAMBURG, GERMANY
IERE, INTERNAT. SOC. HYBRID MICROELECTRONICS, IEE, INST. PHYS., IEEE
SBN 0 903748 25 8
CONFERENCE ON HYBRID MICROELECTRONICS 95-100 1975
9-11 SEPT. 1975 LOUGHBOROUGH, LEICS., ENGLAND
IERE LONDON, ENGLAND
TWO TECHNOLOGIES CAN BE APPLIED FOR THE FABRICATION OF MICROWAVE INTEGRATED CIRCUITS' THICK FILM AND THIN FILM TECHNIQUE. WHILE THIN FILM HAS THE ADVANTAGE OF EXCELLENT ACCURACY OF THE TRANSMISSION LINE WIDTH AND EDGE DEFINITION, THICK FILM TECHNIQUE OPENS THE POSSIBILITY OF DIRECT INTEGRATION OF RESISTORS AND CAPACITORS IN THE SAME FABRICATION PROCESS. THIS CAN BE A COST REDUCTION FACTOR IN MASS PRODUCTION. HOWEVER, THE LIMITED ACCURACY OF THICK FILM LIMITS THE UPPER FREQUENCY OF THE CIRCUIT. THE PURPOSE OF THE INVESTIGATION REPORTED HERE WAS TO COMPARE THE ELECTRICAL BEHAVIOUR OF' 1. LUMPED ELEMENTS, RESISTORS AND CAPACITORS; 2. A PASSIVE CIRCUIT' A POWER SPLITTER, BOTH IN THICK FILM AND THIN FILM, AND 3. TO TEST A MORE COMPLEX THICK FILM DEVICE, A MW DETECTOR, WHICH INCLUDES PRINTED RESISTORS AND CAPACITORS (1 Refs)
Descriptors: THIN FILM RESISTORS; THIN FILM CAPACITORS; THICK FILM RESISTORS; THIN FILM CIRCUITS; THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; MICROWAVE INTEGRATED CIRCUITS
Identifiers: THIN FILM COMPONENTS; MIC; 16 GHZ; MICROWAVE INTEGRATED CIRCUITS; RESISTORS; CAPACITORS; LUMPED ELEMENTS; PASSIVE CIRCUIT; POWER SPLITTER; MW DETECTOR; THICK FILM COMPONENTS
06
Section Class Codes: B2540, B2522, B2210, B2670, B2524
Unified Class Codes: SMEAAB, SMCCAX, SEEAAS, SNMAAR, SMCEAH

827325 B7541719
CONFERENCE ON HYBRID MICROELECTRONICS
IERE, INTERNAT. SOC. HYBRID MICROELECTRONICS, IEE, INST. PHYS., IEEE
SBN 0 903748 25 8
1975
9-11 SEPT. 1975 LOUGHBOROUGH, LEICS., ENGLAND
IERE LONDON, ENGLAND
THE FOLLOWING TOPICS WERE DEALT WITH' NEW MATERIALS AND TECHNIQUES; EDUCATION AND TRAINING; MANUFACTURING TECHNOLOGY; RELIABILITY AND TESTING, APPLICATIONS. 30 PAPERS WERE PRESENTED, OF WHICH 30 ARE PUBLISHED IN FULL IN THE PRESENT PROCEEDINGS
Descriptors: HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS; THIN FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION
05
Section Class Codes: B2540, B2522, B2524
Unified Class Codes: SMEAAB, SMCCAX, SMCEAH

827323 B7541717
EVALUATION OF CONDUCTIVE VIAS FOR HYBRID MICROCIRCUITS
HAMPY, R.E.; NORWOOD, D.P.
Report No.: SAND-74-0047; Issued by: SANDIA CORP., ALBUQUERQUE, N.MEX., USA;
Contract No.: AT(29-1)-789
SEPT. 1974
TECHNIQUES AND PROCEDURES WERE DEVELOPED TO PROVIDE CONDUCTIVE VIAS (OR FEED-THROUGH HOLES) THROUGH THE SUBSTRATE. TEST SUBSTRATES WERE MADE USING SPUTTERED TANTALUM NITRIDE RESISTOR FILM ON ONE SIDE AND VACUUM EVAPORATED CR-AU FOR THE METALLIZATION ON BOTH SIDES AND IN THE HOLES. PHOTOLITHOGRAPHIC TECHNIQUES WERE DEVELOPED TO PROVIDE PROJECTION OF THE GOLD IN THE HOLES DURING THE ETCHING PROCEDURES. INFORMATION IS PRESENTED ON MEASURED VIA RESISTANCE, TEMPERATURE CYCLING (-55 TO 125C), HIGH TEMPERATURE AGING (150C), CURRENT CARRYING CAPABILITY, THE EFFECTS OF THE TANTALUM ETCHING ON THE GOLD AS WELL AS FILM MORPHOLOGY STUDIES. THE RESULTS INDICATE THAT THE TECHNIQUES AND PROCEDURES PROVIDE CONDUCTIVE VIAS THAT WILL MEET THE ELECTRICAL AND TEMPERATURE REQUIREMENTS
Descriptors: HYBRID INTEGRATED CIRCUITS; INTEGRATED CIRCUIT PRODUCTION
Identifiers: CONDUCTIVE VIAS; HYBRID MICROCIRCUITS; SUBSTRATE; VACUUM EVAPORATED CR-AU; METALLIZATION; ETCHING; VIA RESISTANCE; TEMPERATURE CYCLING; HIGH TEMPERATURE AGING; CURRENT CARRYING CAPABILITY; FEED THROUGH HOLES; SPUTTERED TAN RESISTOR FILM; PHOTOLITHOGRAPHY
11
Section Class Codes: B2540
Unified Class Codes: SMEAAB
Availability: NTIS, SPRINGFIELD, VA. 22161, USA

827322 B7541716
RF HYBRID MICROCIRCUIT SOLDERING TECHNIQUES
OLSON, H.C.; KNAUSS, G.L.
Report No.: SLA-73-1073; Issued by: SANDIA LABS., ALBUQUERQUE, N.MEX., USA;
Contract No.: AT(29-1)-789
AUG. 1974
TO MINIMIZE THE INDUCTANCE CAUSED BY FLYING WIRES IT WAS DESIRABLE TO ATTACH MOST APPLIQUE PARTS TO THE HYBRID CIRCUITS USING A SOLDER ALLOY. THE HYBRID CIRCUITS HAVE GOLD METALLIZATION TO WHICH THE APPLIQUE PARTS ARE ATTACHED. THE SOLDER DEVELOPMENT ACTIVITIES, EQUIPMENT, AND ASSEMBLY TECHNIQUES USING A 50 WT.PERCENT LEAD-INDIUM SOLDER ALLOY ARE DESCRIBED
Descriptors: HYBRID INTEGRATED CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; SOLDERING; LEAD ALLOYS; INDIUM ALLOYS
Identifiers: HYBRID MICROCIRCUIT SOLDERING; METALLIZATION; ASSEMBLY TECHNIQUES; PB-IN SOLDER ALLOY; APPLIQUE PARTS
11
Section Class Codes: B2540, B2560
Unified Class Codes: SMEAAB, SMGAAR
Availability: NTIS, SPRINGFIELD, VA. 22161, USA

827321 B7541715
NEW APPLICATIONS FOR THICK LAYER HYBRID TECHNIQUES
HETHERINGTON, D.R.
NEWMARKET TRANSISTORS LTD., NEWMARKET, ENGLAND
RADIO ELEKTRON. SCHAU (AUSTRIA) VOL.51, NO.9 474-6 1975 Coden: RELSAK
BEFORE DISCUSSING RESISTANCE PASTES, HYBRID CIRCUIT CAPACITORS, ACTIVE COMPONENTS, ENCAPSULATION AND THE APPLICATION OF SUCH CIRCUITS, THE ARTICLE MENTIONS HOW ITS TECHNIQUE FACILITATES REDUCTIONS IN DIMENSIONS, LOWER INDUCTANCES AND CAPACITANCES BETWEEN CIRCUIT COMPONENTS AND A REDUCED FAILURE RATE THROUGH USING FEWER SOLDERED JOINTS; AND SHOWS THAT A WIDE BAND AMPLIFIER, PRODUCED BY THIS TECHNIQUE, WITH A GAIN OF 15 DB OVER A RANGE FROM 40 TO 860 MHZ IS FOUR TIMES SMALLER AND MUCH LESS COSTLY THAN A SIMILAR UNIT USING PRINTED CIRCUITS AND DISCRETE COMPONENTS
Descriptors: THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; WIDEBAND AMPLIFIERS
Identifiers: APPLICATIONS; RESISTANCE PASTES; CAPACITORS; ACTIVE COMPONENTS; ENCAPSULATION; WIDE BAND AMPLIFIER; THICK FILM HYBRID TECHNIQUE
02
Section Class Codes: B2540, B2522, B1840
Unified Class Codes: SMEAAB, SMCCAX, ETHAAB
Language: GERMAN

827320 B7541713
A VACUUM CENTRIFUGE FOR VOID-FREE POTTING OF IMPLANTABLE HYBRID MICROCIRCUITS IN SILICONE
DONALDSON, P.E.K.; SAYER, E.
INST. OF PSYCHIATRY, NEUROLOGICAL PROSTHESIS UNIT, MEDICAL RES. COUNCIL, LONDON, ENGLAND
MED. AND BIOL. ENG. (GB) VOL.13, NO.4 595-6 JULY 1975 Coden: MBENAU
THE VACUUM CENTRIFUGE HAS BEEN USED FOR POTTING TO A DEPTH OF 2.5 MM HYBRID THICK-FILM CIRCUITS ON 25 MM*6 MM SUBSTRATES HAVING PRINTED CONDUCTORS, RESISTORS AND CROSSOVER INSULATION AND WITH 39 ATTACHED BEAM-LEAD SEALED-JUNCTION TRANSISTORS (3 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; ENCAPSULATION; INTEGRATED CIRCUIT PRODUCTION; CENTRIFUGES
Identifiers: VACUUM CENTRIFUGE; HYBRID MICROCIRCUITS; SILICONE RUBBER; VOID-FREE POTTING
02
Section Class Codes: B2540
Unified Class Codes: SMEAAB

827287 B7541670
TRIMMING OF THIN FILM RESISTORS BY SPARK MACHINING
LAW, H.T.
FERRANTI LTD., EDINBURGH, SCOTLAND
IERE, INTERNAT. SOC. HYBRID MICROELECTRONICS, IEE, INST. PHYS., IEEE
SBN 0 903748 25 8
CONFERENCE ON HYBRID MICROELECTRONICS 181-90 1975
9-11 SEPT. 1975 LOUGHBOROUGH, LEICS., ENGLAND
IERE LONDON, ENGLAND
SPARK DISCHARGE MACHINING MAY BE USED AS A METHOD OF ADJUSTING THIN FILM RESISTORS. THE CAPITAL COST OF THE APPARATUS IS LOW, AND THE METHOD IS FULLY COMPATIBLE WITH THOSE AUTOMATIC CONTROL PROCEDURES WHICH HAVE COME TO BE ASSOCIATED WITH RESISTOR TRIMMING IN THE MANUFACTURE OF THIN-FILM HYBRID MICROCIRCUITS. UNSATISFACTORY RESULTS ARE OBTAINED WHEN THE SPARK DISCHARGE CIRCUIT SIMILAR TO THAT USED FOR MANY YEARS IN MACHINING BULK MATERIALS IS APPLIED TO THIN FILMS. THE CUT LINE IS VARIABLE IN WIDTH AND MAY SHOW EXTENSIVE MARGINAL DAMAGE. FURTHER DEVELOPMENT OF THE PROCESS HAS LED TO APPARATUS WHICH ALLOWS TRIMMING OF HIGH VALUE RESISTORS TO BE READILY ACCOMPLISHED, MAINTAINING CONSISTENT QUALITY OF THE CUT LINE, AND MINIMUM DAMAGE TO THE IMMEDIATELY ADJACENT FILM
Descriptors: THIN FILM RESISTORS; INTEGRATED CIRCUIT PRODUCTION
Identifiers: THIN FILM RESISTORS; RESISTOR TRIMMING; HYBRID MICROCIRCUITS; SPARK DISCHARGE MACHINING
06
Section Class Codes: B2524, B2210
Unified Class Codes: SMCEAH, SEEAAS

B7541669
HIGH FREQUENCY CHARACTERISTICS OF MEANDERING LINE-RESISTORS WITH REGARD TO THE DESIGN OF THIN-FILM CIRCUITS
GRUNDNER, H.; FECHNER, H.
INST. FUR NETZWERKTHEORIE UND SCHALTUNGSTECH., TECH. UNIV. MUNCHEN, MUNCHEN, GERMANY
IERE, INTERNAT. SOC. HYBRID MICROELECTRONICS, IEE, INST. PHYS., IEEE
SBN 0 903748 25 8
CONFERENCE ON HYBRID MICROELECTRONICS 63-7 1975
9-11 SEPT. 1975 LOUGHBOROUGH, LEICS., ENGLAND
IERE LONDON, ENGLAND
THE PAPER DESCRIBES THE HIGH FREQUENCY BEHAVIOUR OF MEANDERING LINE-RESISTORS MANUFACTURED IN THIN-FILM TECHNOLOGY. BY MEANS OF A DEVELOPED LUMPED-DISTRIBUTED MODEL THE FREQUENCY CHARACTERISTIC OF SUCH RESISTORS IN AN ARBITRARY RECTANGULAR AREA IS COMPUTED. THE RESULTS, WHICH ARE IN GOOD AGREEMENT WITH THE OUTCOME OF MEASUREMENTS ARE PLOTTED IN DIAGRAMS. FOR A GIVEN POWER REQUIREMENT, RESISTOR AREA, RESISTANCE VALUE AND A REQUIRED LIMITING FREQUENCY ONE CAN GET QUICKLY THE SHAPE OF THE MEANDERING LINES, THE RESISTOR-LINE WIDTH AND THE NUMBER OF SQUARES FOR A RESISTOR, FULFILLING THE REQUIRED FREQUENCY-SPECIFICATION (4 Refs)
Descriptors: THIN FILM RESISTORS; THIN FILM CIRCUITS
Identifiers: HIGH FREQUENCY BEHAVIOUR; MEANDERING LINE RESISTORS; THIN FILM CIRCUITS; LUMPED DISTRIBUTED NETWORK MODEL; RESISTOR LINE WIDTH
06
Section Class Codes: B2524, B2210
Unified Class Codes: SMCEAH, SEEAAS

B7541665
REACTIVELY BONDED THIN-FILM CONDUCTORS, A NEW COMPONENT FOR COMBINATION THIN- AND THICK-FILM TECHNOLOGY
REISS, S.
GTE SYLVANIA INC., EASTERN DIV., NEEDHAM, MA, USA
IEEE TRANS. PARTS, HYBRIDS AND PACKAG. (USA) VOL.PHP-11, NO.3 190-4 SEPT. 1975 Coden: IEPHAA
A THIN FILM REACTIVELY BONDED GOLD ALLOY HAS BEEN DEVELOPED. THIS MATERIAL IS SIMILAR IN COMPOSITION AND PHYSICAL PROPERTIES TO THICK-FILM REACTIVELY BONDED GOLDS. IT IS A VACUUM-DEPOSITED MATERIAL THAT IS FIRED IN AIR AT HIGH TEMPERATURES (1000 DEGREESC) TO FORM A STRONG BOND WITH CERAMIC SUBSTRATES. THIN-FILM REACTIVELY BONDED GOLD IS A DENSE, SMOOTH MATERIAL WITH HIGH ELECTRICAL CONDUCTIVITY. THIS ALLOY CAN WITHSTAND REPEATED FIRINGS IN THE 850 TO 1000 DEGRLESC TEMPERATURE RANGE AND IS COMPATIBLE WITH MOST THICK-FILM MATERIALS INCLUDING DIELECTRICS, RESISTORS AND CONDUCTORS. IT CAN BE EASILY ETCHED INTO FINE GEOMETRICS (3 Refs)
Descriptors: THIN FILM CIRCUITS; THICK FILM CIRCUITS; SUBSTRATES
Identifiers: REACTIVELY BONDED GOLD ALLOY; HIGH TEMPERATURES ; CERAMIC SUBSTRATES; HIGH ELECTRICAL CONDUCTIVITY; EASILY ETCHED; FINE GEOMETRICS; VACUUM DEPOSITED; THIN FILM CONDUCTORS
02
Section Class Codes: B2524
Unified Class Codes: SMCEAH

B7541662
STATE OF THE ART OF THIN FILM COMPONENTS
HEYWANG, H.; SCHAUER, A.
SIEMENS AG, UNTERNEHMENSBEREICH BAUELEMENTE, MUNCHEN, GERMANY
ELECTROCOMPON. SCI. AND TECHNOL. (GB) VOL.2, NO.1 67-6 JUNE 1975 Coden: ECSTC5
THE MAIN REASONS FOR THE DEVELOPMENT OF THIN FILM TECHNOLOGY ARE MINIATURISATION, RELIABILITY AND HIGH FREQUENCY APPLICATIONS. A COMPARISON WITH CONVENTIONAL COMPONENTS, AND WITH THE DEMANDS OF SYSTEM ENGINEERS SHOWS THAT THE THIN FILM RESISTOR PROBLEM IS SOLVED AND THAT THERE ARE THIN FILM CAPACITORS FOR MANY APPLICATIONS, WHEREAS COILS OF ONLY SMALL VALUES AND LOW Q CAN BE MADE. AS THE DISTANCES BETWEEN THIN FILM CIRCUIT ELEMENTS CAN BE EXTREMELY SMALL, LOW CONDUCTOR RESISTANCE BETWEEN COMPONENTS IS POSSIBLE. THE INHERENT ADVANTAGES OF THIN FILM TECHNOLOGY ARE GOOD RELIABILITY BECAUSE OF FEWER CONNECTIONS, THE POSSIBILITY OF FUNCTIONAL TRIMMING, SMALL TCR AND TCC VARIATION IN A CIRCUIT, AND TCR-TCC BALANCING. FURTHERMORE PARASITIC EFFECTS CAN BE WELL CONTROLLED, DISTRIBUTED ELEMENTS REALIZED AND LARGE SCALE INTEGRATION CARRIED OUT
Descriptors: THIN FILM CIRCUITS; THIN FILM RESISTORS; THIN FILM CAPACITORS
Identifiers: THIN FILM COMPONENTS; THIN FILM RESISTOR; THIN FILM CAPACITORS; THIN FILM CIRCUIT ELEMENTS; TCR; TCC; LARGE SCALE INTEGRATION
02
Section Class Codes: B2524, B2670, B2210
Unified Class Codes: SMCEAH, SNMAAR, SEEAAS

B27200 B7541661
THIN-FILM TECHNOLOGY ON THE BASIS OF TANTALUM AND TANTALUM ALUMINIUM
SCHAUER, A.
ELEKTRONIK (GERMANY) VOL.24, NO.9 71-6 SEPT. 1975
Coden: EKRKAR
DISCUSSES THE MANUFACTURE AND NATURE OF TANTALUM-NITRIDE AND TANTALUM-OXYNITRIDE RESISTORS, BETA-TANTALUM CAPACITORS AND THIN-FILM WIRING. THE ADVANTAGES OF THIN-FILM CIRCUITS ARE POINTED OUT AND TYPICAL APPLICATIONS, SUCH AS 60-MHZ AMPLIFIER, ACTIVE FILTERS AND TOUCH TONE OSCILLATORS, ARE BRIEFLY DESCRIBED. FINALLY, THERE IS A REPORT ON THE NATURE OF THE TANTALUM-ALUMINIUM ALLOYS WITH HIGH ALUMINIUM CONTENT DISCOVERED IN THE SIEMENS LABORATORIES AND THEIR IMPORTANCE FOR RC NETWORKS (23 Refs)
Descriptors: THIN FILM CIRCUITS; THIN FILM CAPACITORS; THIN FILM RESISTORS
Identifiers: MANUFACTURE; RC NETWORKS; THIN FILM CIRCUITS; TA THIN FILM CIRCUITS; TA-AL THIN FILM CIRCUITS; THIN FILM RESISTORS; THIN FILM CAPACITORS; TEMPERATURE COMPENSATION
02
Section Class Codes: B2524, B2670, B2210
Unified Class Codes: SMCEAH, SNMAAR, SEEAAS
Language: GERMAN

B27274 B7541653
AN AIR FIREABLE BASE METAL CONDUCTOR FOR OPTOELECTRONICS
PATTERSON, F.K.; MONES, A.H.; BACHER, R.J.
PHOTO PRODUCTS DEPT., E.I. DU PONT DE NEMOURS AND CO. INC., WILMINGTON, DE, USA
IERE, INTERNAT. SOC. HYBRID MICROELECTRONICS, IEE, INST. PHYS., IEEE
SBN 0 90374B 25 8
CONFERENCE ON HYBRID MICROELECTRONICS 33-41 1975
9-11 SEPT. 1975 LOUGHBOROUGH, LEICS., ENGLAND
IERE LONDON, ENGLAND
THIS PAPER DESCRIBES THE PHYSICAL AND ELECTRICAL PROPERTIES OF A UNIQUE SERIES OF THICK FILM NICKEL CONDUCTORS, CAPABLE OF BEING AIR FIRED WITHOUT DEGENERATIVE ELECTRICAL CHARACTERISTICS. THESE CONDUCTORS HAVE DIRECT APPLICATION AS CATHODES FOR ALL GLASS FABRICATED DC PLASMA DISPLAYS. TYPICAL FABRICATION PROCEDURES OF SUCH PLANAR DISPLAYS WITH THESE CONDUCTORS AND COMPANION DIELECTRICS WILL BE PRESENTED. OTHER POTENTIAL MICROCIRCUIT APPLICATIONS FOR THIS BASE METAL CONDUCTOR SYSTEM ARE DESCRIBED (2 Refs)
Descriptors: DISPLAY SYSTEMS; OPTOELECTRONIC DEVICES; THICK FILM CIRCUITS; CONDUCTORS (ELECTRIC)
Identifiers: OPTOELECTRONICS; CATHODES; GLASS FABRICATED DC PLASMA DISPLAYS; PLANAR DISPLAYS; MICROCIRCUIT APPLICATIONS; AIR FIREABLE BASE METAL CONDUCTOR; THICK FILM NI CONDUCTOR
06
Section Class Codes: B2522, B2697, B2809
[illegible] SMCCAX, SMMAAC

B27273 B7541652
HIGH TENSILE STRENGTH THICK-FILM SILVER-PALLADIUM METALLIZATIONS
LEMON, T.H.
RES. LABS., JOHNSON, MATTHEY AND CO. LTD., WEMBLEY, ENGLAND
IERE, INTERNAT. SOC. HYBRID MICROELECTRONICS, IEE, INST. PHYS., IEEE
SBN 0 90374B 25 8
CONFERENCE ON HYBRID MICROELECTRONICS 23-32 1975
9-11 SEPT. 1975 LOUGHBOROUGH, LEICS., ENGLAND
IERE LONDON, ENGLAND
SOLDERED JOINTS BASED UPON CONVENTIONAL AG-PD METALLIZATIONS RAPIDLY LOSE OVER-ALL TENSILE STRENGTHS WHEN THE BONDS ARE SUBJECTED TO ELEVATED TEMPERATURES. THIS DEGRADATION IN BOND STRENGTHS HAS BEEN SUBSTANTIALLY ARRESTED BY SELECTING A GLASS FOR USE IN THE METALLIZING COMPOSITION WITH A SOFTENING POINT LYING BETWEEN THE REDUCTION TEMPERATURE OF AG-PDO MIXES AND THE STANDARD PEAK FIRING TEMPERATURE. IN THIS WAY, IT IS POSSIBLE TO FORM GLASS-METAL BONDS WHICH ARE SUBJECTED TO THE MINIMUM OF PHYSICAL DISTURBANCES DURING NORMAL PROCESSING SCHEDULES. THESE MORE COHERENT LAYERS INHIBIT SURFACE DIFFUSION OF THE ACTIVE SPECIES THEREBY LIMITING THE RATE AT WHICH BRITTLE INTERMETALLICS ARE FORMED (10 Refs)
Descriptors: THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; METALLISATION
Identifiers: AG-PD METALLIZATIONS; TENSILE STRENGTHS; BOND STRENGTHS; GLASS; REDUCTION TEMPERATURE; PEAK FIRING TEMPERATURE; GLASS METAL BONDS
06
Section Class Codes: B2522, B2540
Unified Class Codes: SMCCAX, SMEAAB

B27272 B7541651
SUBSTRATE BOWING IN THICK FILM MULTILAYERED CIRCUITS
SAVAGE, J.; DAVEY, N.
METALL. DIV., AWRE, ALDERMASTON, ENGLAND
IERE, INTERNAT. SOC. HYBRID MICROELECTRONICS, IEE, INST. PHYS., IEEE
SIN 0 903748 25 8
CONFERENCE ON HYBRID MICROELECTRONICS 17-22 1975
9-11 SEPT. 1975 LOUGHBOROUGH, LEICS., ENGLAND
IERE LONDON, ENGLAND
THIS PAPER DESCRIBES THE DISTORTION OF ALUMINA SUBSTRATES WHICH OCCURS DURING THICK FILM MULTILAYERED CIRCUIT FABRICATION AND COMPARES THE EFFECT OF A RANGE OF COMMERCIAL INSULANT MATERIALS. THE DISTORTION IS SHOWN, BY DILATOMETRY AND DIRECT OBSERVATION, TO BE DUE TO THERMAL EXPANSION MISMATCH BETWEEN THE INSULANT AND THE ALUMINA. THE PROGRESS OF BOWING DURING HEATING AND COOLING CYCLES IS DEMONSTRATED. AN ESTIMATE IS MADE OF THE STRESS LEVELS IN THE INSULANTS AND THE POSSIBLE EFFECT OF THESE STRESSES ON THE RELIABILITY OF THE CIRCUIT ARRAY IS CONSIDERED
Descriptors: THICK FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; SUBSTRATES
Identifiers: BOWING; THICK FILM MULTILAYERED CIRCUITS; DISTORTION; ALUMINA SUBSTRATES; THERMAL EXPANSION MISMATCH; STRESS LEVELS; INSULANTS; RELIABILITY
06
Section Class Codes: B2522
Unified Class Codes: SMCCAX

B27271 B7541650
SURFACE AREA, STRUCTURE AND COMPOSITION OF DEBASED ALUMINA SUBSTRATES
COLEMAN, M.V.; GURNETT, G.E.
STANDARD TELECOMMUNICATION LABS. LTD., HARLOW, ENGLAND
IERE, INTERNAT. SOC. HYBRID MICROELECTRONICS, IEE, INST. PHYS., IEEE
SIN 0 903748 25 8
CONFERENCE ON HYBRID MICROELECTRONICS 1-16 1975
9-11 SEPT. 1975 LOUGHBOROUGH, LEICS., ENGLAND
IERE LONDON, ENGLAND
THE SURFACE AREAS OF A NUMBER OF COMMERCIAL ALUMINA SUBSTRATES USED FOR THICK FILM MICROCIRCUITS HAVE BEEN DETERMINED USING THE BRUNAER, EMMETT AND TELLER (B.E.T.) METHOD OF GAS ADSORPTION. THE DETAILED STRUCTURE OF THE SURFACES AND OF FRACTURED CROSS-SECTIONS OF SUBSTRATES WERE EXAMINED ON A SCANNING ELECTRON MICROSCOPE (SEM), AND THEIR CHEMICAL COMPOSITION DETERMINED BY ATOMIC ABSORPTION SPECTROSCOPY. CONDUCTOR GLAZE PENETRATION AND POSSIBLE RUN-OUT IS SHOWN TO BE RELATED TO BOTH SUBSTRATE COMPOSITION AND MICROSTRUCTURE. RESISTOR CHARACTERISTICS ARE SHOWN TO DEPEND ON THE POROSITY OF THE SUBSTRATE (6 Refs)
Descriptors: SUBSTRATES; HYBRID INTEGRATED CIRCUITS; THICK FILM MICROCIRCUITS; GAS ADSORPTION; STRUCTURE; SCANNING ELECTRON MICROSCOPE; CHEMICAL COMPOSITION; ATOMIC ABSORPTION SPECTROSCOPY; CONDUCTOR GLAZE PENETRATION; HYBRID MICROCIRCUITS
06
Section Class Codes: B2522, B2540
Unified Class Codes: SMCCAX SMEAAB

B27270 B7541649
CONDUCTION MECHANISMS IN THICK FILM MICROCIRCUITS
VEST, R.W.
Report No.: UNNUMBERED; Issued by: PURDUE RES. FOUND., LAFAYETTE, IND., USA:
31 DEC. 1974
THE SINTERING KINETICS AND THE RIPENING KINETICS FOR RUO/SUB 2/ PARTICLES IN THE PRESENCE OF A GLASS PHASE WERE STUDIED BY MEASURING SURFACE AREA, X-RAY LINE BROADENING, SHRINKAGE, AND ELECTRICAL RESISTANCE. RESULTS FROM THESE FOUR TECHNIQUES ARE INTERPRETED IN TERMS OF COMPETING PROCESSES WHICH OCCUR DURING THICK FILM RESISTOR FIRING. THE SHEET RESISTANCE OF THICK FILM RESISTORS AS A FUNCTION OF RUO/SUB 2//GLASS RATIOS IS REPORTED
Descriptors: THICK FILM RESISTORS; THICK FILM CIRCUITS
Identifiers: THICK FILM MICROCIRCUITS; SINTERING KINETICS; RIPENING KINETICS; RUO/SUB 2/; X-RAY LINE BROADENING; SHRINKAGE; ELECTRICAL RESISTANCE; THICK FILM RESISTOR FIRING
11
Section Class Codes: B2522, B2210
Unified Class Codes: SMCCAX, SEEAAS
Availability: NTIS, SPRINGFIELD, VA. 22161, USA

827117 B7541392, C7525448
TOLERANCE ANALYSIS OF SUPERCONDUCTING CIRCUITS
KITSCHKE, P.
SEKTION INFORMATIONSTECHNIK UND THEORETISCHE ELEKTROTECHNIK, TH, ILMENAU, GERMANY
WISS. Z. TECH. HOCHSCH. ILMENAU (GERMANY) VOL.21, NO.1 91-100 1975 Coden: WZTHAP
DISCUSSES TECHNIQUES OF NUMERICAL TOLERANCE ANALYSIS OF THESE CIRCUITS, TAKING INTO ACCOUNT INFLUENCE ON PERFORMANCE DUE TO TOLERANCES IN MECHANICAL DIMENSIONS, DUE TO VARIATIONS OF WORKING TEMPERATURES AND DUE TO CHANGES IN DYNAMIC LOADING. SOME RESULTS ON TRANSIENT PERFORMANCE OF CRYOTRON NETWORKS ARE SHOWN (11 Refs)
Descriptors: COMPUTER-AIDED CIRCUIT ANALYSIS; SUPERCONDUCTING DEVICES; CRYOTRONS; THIN FILM CIRCUITS
Identifiers: SUPERCONDUCTING CIRCUITS; NUMERICAL TOLERANCE ANALYSIS; VARIATIONS OF WORKING TEMPERATURES; DYNAMIC LOADING; TRANSIENT PERFORMANCE; CRYOTRON NETWORKS
02
Section Class Codes: C0842, B2340, B1620
Unified Class Codes: WMEEAQ, SGAAAL, EREAAE
Language: GERMAN

826977 B7541225
A SIMPLE HYBRID THICK FILM BAND PASS FILTER
HEYWOOD, D.P.
RAE, FARNBOROUGH, ENGLAND
IERE, INTERNAT. SOC. HYBRID MICROELECTRONICS, IEE, INST. PHYS., IEEE
SBN 0 903748 25 8
CONFERENCE ON HYBRID MICROELECTRONICS 43-8 1975
9-11 SEPT. 1975 LOUGHBOROUGH, LEICS., ENGLAND
IERE LONDON, ENGLAND
IT IS SHOWN THAT INDUCTORS CAN BE REPLACED BY A VERY SIMPLE FORM OF GYRATOR FOR FILTERS DEMANDING ONLY MODERATE VALUES OF Q, GIVING A SAVING IN SPACE AND COST. A PARTICULAR FILTER IS DESCRIBED WHICH IS OVER AN ORDER OF MAGNITUDE SMALLER THAN AN LCR EQUIVALENT (8 Refs)
Descriptors: BAND-PASS FILTERS; HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS
Identifiers: HYBRID THICK FILM BAND PASS FILTER; GYRATOR
06
Section Class Codes: B1880, B2522, B2540
Unified Class Codes: ETRAAM, SMCCAX, SMEAAB

826964 B7541204
DESIGN OF ACTIVE FILTERS USING DOUBLE LAYER RC DISTRIBUTED LINES
NEELAKANTAN, M.N.
DEPT. OF ELECTRICAL ENGNG., CALICUT REGIONAL ENGNG. COLL.,
SEPT. 1975 Coden: ICTACV
APPLICATION OF DOUBLE LAYER RC DISTRIBUTED LINES IN THE DESIGN OF LOW-PASS, BAND-PASS AND HIGH-PASS FILTERS IS CONSIDERED IN THIS COMMUNICATION. REALIZATION OF THESE FILTERS EMPLOYING TWO DOUBLE LAYER LINES AND A DIFFERENCE AMPLIFIER USING DOMINANT ROOT APPROACH IS ALSO PRESENTED (5 Refs)
Descriptors: ACTIVE FILTERS; DISTRIBUTED PARAMETER NETWORKS; LINEAR NETWORK SYNTHESIS; THIN FILM CIRCUITS
Identifiers: ACTIVE FILTERS; DOUBLE LAYER; RC DISTRIBUTED LINES; DIFFERENCE AMPLIFIER; DOMINANT ROOT; LOW PASS; BAND PASS; HIGH PASS; INTEGRATED CIRCUIT; THIN FILM CIRCUIT; RESISTIVE SHEETS; DIELECTRIC SHEETS
02
Section Class Codes: B1880, B1650, B1620, B2524
Unified Class Codes: ETRAAM, ERMAAH, EREAAE, SMCEAH

826892 B7541093
A FAST THICK FILM AMPLIFIER
ROBERTSON, J.; ANDERSON, B.
ELECTRICAL ENGNG. DEPT., EDINBURGH UNIV., EDINBURGH, SCOTLAND
IERE, INTERNAT. SOC. HYBRID MICROELECTRONICS, IEE, INST. PHYS., IEEE
SBN 0 903748 25 8
CONFERENCE ON HYBRID MICROELECTRONICS 77-82 1975
9-11 SEPT. 1975 LOUGHBOROUGH, LEICS., ENGLAND
IERE LONDON, ENGLAND
DESCRIBES A THICK FILM HYBRID PREAMPLIFIER. THE PREAMPLIFIER FUNCTIONED AS AN AMPLIFIER WITH A 50 OMEGA INPUT IMPEDANCE BETWEEN A PHOTOMULTIPLIER TUBE AND A DISCRIMINATOR STAGE. IT WAS DESIGNED TO PROVIDE A GAIN OF 4 WITH A RISETIME <1 NS. SMALL SIZE WAS DICTATED BY TRANSIT TIME AND CAPACITANCE CONSIDERATIONS BUT ALSO BY THE REQUIREMENT TO STACK 8 PREAMPLIFIER CIRCUITS VERTICALLY WITHIN A 1.35SECONDS (34.3 MM) WIDE NIMS MODULE
Descriptors: HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS; PREAMPLIFIERS
Identifiers: FAST THICK FILM AMPLIFIER; HYBRID PREAMPLIFIER; INPUT IMPEDANCE; PHOTOMULTIPLIER TUBE; DISCRIMINATOR STAGE; GAIN; RISETIME; CAPACITANCE CONSIDERATIONS; TRANSIT TIME CONSIDERATIONS
06
Section Class Codes: B1840, B2522, B2540
Unified Class Codes: ETHAAB, SMCCAX, SMEAAB

826891 B7541092
A THICK FILM WIDE BAND AMPLIFIER
HETHERINGTON, D.R.
NEWMARKET TRANSISTORS LTD., NEWMARKET, ENGLAND
IERE. INTERNAT. SOC. HYBRID MICROELECTRONICS, IEE, INST. PHYS., IEEE
SBN 0 903748 25 8
CONFERENCE ON HYBRID MICROELECTRONICS 69-76 1975
9-11 SEPT. 1975 LOUGHBOROUGH, LEICS., ENGLAND
IERE LONDON, ENGLAND
THE PAPER DESCRIBES THE CONVERSION FROM PRINTED CIRCUIT TO THICK FILM HYBRID CIRCUIT TECHNOLOGY OF A WIDE BAND AMPLIFIER USED IN THE INPUT OF A VIDEO TAPE RECORDER. THE AMPLIFIER SPECIFICATION IS 14 DB GAIN FROM 40 TO 860 MHZ. THE THICK FILM LAYOUT IS DESCRIBED IN DETAIL AND THE PERFORMANCE DIFFERENCES BETWEEN PLASTIC 'T' PACK ACTIVE DEVICES AND NAKED CHIP EPOXY BONDED DEVICES ARE SHOWN
Descriptors: WIDEBAND AMPLIFIERS; THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS
Identifiers: THICK FILM WIDE BAND AMPLIFIER; THICK FILM HYBRID CIRCUIT TECHNOLOGY; VIDEO TAPE RECORDER; 14 DB GAIN; 40 TO 860 MHZ; PLASTIC 'T' PACK ACTIVE DEVICES; NAKED CHIP EPOXY BONDED DEVICES
06
Section Class Codes: B1840, B2522, B2540
Unified Class Codes: ETHAAB, SMCCAX, SMEAAB

826811 B7540994
1 MHZ TO 1.5 GHZ THIN-FILM AMPLIFIER FEATURES THREE STAGES IN A TO-3 CAN
HOBBS, G.
AVANTEK INC., SANTA CLARA, CA, USA
MICROWAVE SYST. NEWS (USA) VOL.5, NO.3 46-7 JUNE-JULY 1975 Coden: MWSNA9
BY EXTENDING THE CONCEPT OF THIN-FILM WIDEBAND AMPLIFIERS TO INCLUDE MULTIPLE STAGES, THIS NEW UNIT OFFERS GAIN, PERFORMANCE AND COST BENEFITS
Descriptors: MICROWAVE AMPLIFIERS; THIN FILM CIRCUITS; SOLID-STATE MICROWAVE CIRCUITS; MICROWAVE INTEGRATED CIRCUITS; HYBRID INTEGRATED CIRCUITS
Identifiers: AMPLIFIER 1 MHZ TO 1.5 GHZ; THIN FILM; THREE STAGE; SINGLE SUBSTRATE; MODULAR; STABILITY; COST BENEFIT
02
Section Class Codes: B1820, B2540, B2524, B1840
Unified Class Codes: ETEAAD, SMEAAB, SMCEAH, ETHAAB

818972 B7539001
THICK-FILM TECHNOLOGY APPLIED IN POWER CIRCUITS-13 W AMPLIFIER
[illegible]
DESCRIBES ACOUSTIC 13 W POWER AMPLIFIER BASED ON THICK-FILM TECHNOLOGY USING NON-ENCAPSULATED MEDIUM AND HIGH POWER SEMICONDUCTORS. THE AMPLIFIER MAY BE USED IN CONSUMER PRODUCTS (HIGH STANDARD RADIO EQUIPMENT, ELECTROACOUSTIC DEVICES, ETC.)
Descriptors: THICK FILM CIRCUITS; POWER AMPLIFIERS; RADIO RECEIVERS; AUDIO-FREQUENCY AMPLIFIERS
Identifiers: HIGH POWER SEMICONDUCTORS; HIGH STANDARD RADIO EQUIPMENT; THICK FILM TECHNOLOGY; ACOUSTIC 13 W POWER AMPLIFIER; NON ENCAPSULATED MEDIUM; ELECTROACOUSTIC DEVICES
02
Section Class Codes: B3780, B1840, B3740, B2522
Unified Class Codes: FKRAAF, ETHAAB, FKGAAM, SMCCAX
Language: POLISH

817786 B7537697
EARLY PRODUCTION HISTORY ON HYBRID MICROCIRCUITS CONTAINING BEAM-LEAD SEMICONDUCTORS
WILEY, T.A.
Report No.: BDX-613-1116-REV; Issued by: BENDIX CORP., KANSAS CITY, MO., USA;
Contract No.: AT(29-1)-613
AUG. 1974
DATA FROM HYBRID MICROCIRCUIT PROTOTYPE DEVELOPMENT AND EARLY CODED ELECTRONIC-SWITCH PRODUCTION REVEALED THAT THE BEAM-LEAD DEVICES ARE MORE RELIABLE THAN THE CHIP-AND-WIRE ACTIVE DEVICES USED IN PREVIOUS APPLICATIONS. YIELDS AT THE VARIOUS PROCESSING LEVELS WERE BETTER THAN EXPECTED, AND THE OVERALL MICROCIRCUIT YIELD WAS MORE THAN 50 PERCENT, BECAUSE OF STRINGENT QUALITY REQUIREMENTS THIS YIELD IS CONSIDERED ACCEPTABLE, BUT IS IMPROVING WITH CUMULATIVE PRODUCTION EXPERIENCE. SEVEN TYPES OF MICROCIRCUITS FOR THE CODED SWITCH ARE NOW MANUFACTURED ON A SCHEDULED BASIS, AND CURRENT PROBLEMS ARE NOT SUFFICIENT TO AFFECT PRODUCTION SCHEDULES
Descriptors: INTEGRATED CIRCUIT PRODUCTION; CIRCUIT RELIABILITY; BEAM-LEAD DEVICES; HYBRID INTEGRATED CIRCUITS; SEMICONDUCTOR SWITCHES
Identifiers: HYBRID MICROCIRCUIT; MICROCIRCUIT YIELD; QUALITY REQUIREMENTS; PRODUCTION EXPERIENCE; CODED SWITCH; BEAM LEAD DEVICES; RELIABILITY
11
Section Class Codes: B2540, B1263
Unified Class Codes: SMEAAB, ADGDAL
Availability: NTIS, SPRINGFIELD, VA. 22161, USA

B17782 B7537693
A PHOTORESIST-CHARACTERIZATION APPROACH TO HYBRID-MICROCIRCUIT DIMENSIONAL CONTROL
SCHANTZ, L.E.
BENDIX CORP., KANZAS CITY, MO, USA
MICROELECTRONICS (GB) VOL.5, NO.4 25-31 1974 Coden: MICEB9
TO KEEP THE CRITICAL ELECTRICAL PARAMETERS OF UNTRIMMED HYBRID MICROCIRCUIT NETWORKS WITHIN REQUIRED TOLERANCES, THE DIMENSIONAL INTEGRITY OF THE CIRCUIT PATTERN MUST BE CAREFULLY MAINTAINED DURING PROCESSING. THIS CAN BE ACCOMPLISHED BY MANIPULATING FIVE PHOTOLITHOGRAPHIC PROCESSING PARAMETERS' EXPOSURE, ENERGY, PHOTORESIST DEVELOPMENT TIME AND SOLUTION CONCENTRATION, PHOTORESIST THICKNESS UNIFORMITY, DEGREE OF ETCHANT UNDERCUTTING, AND THE PREBAKE TIME-TEMPERATURE PRODUCT. BY ADJUSTING THE RELATIVE DOMINANCE OF THESE PARAMETERS AND BY OPTIMIZING THE VALUE OF EACH, IT IS POSSIBLE TO RENDER OVERALL PATTERN DIMENSIONS RELATIVELY INSENSITIVE TO NORMAL PROCESS VARIATIONS. THIS ARTICLE DESCRIBES PROCESS CHARACTERIZATION AND CONTROL TECHNIQUES BY WHICH THE DIMENSIONAL INTEGRITY OF LINE WIDTHS AS NARROW AS 5.0 MILS (127 MICROMETRES) CAN BE MAINTAINED TO WITHIN +OR- 1 PER CENT (6 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS; PHOTORESISTS; PHOTOLITHOGRAPHY
Identifiers: HYBRID MICROCIRCUIT; PHOTOLITHOGRAPHIC; EXPOSURE; ENERGY; PHOTORESIST DEVELOPMENT TIME; SOLUTION CONCENTRATION; ETCHANT; PROCESS CHARACTERIZATION
02
Section Class Codes: B2540, B2524
Unified Class Codes: SMEAAB, SMCEAH

B17781 B7537692
FINE LINE SCREEN PRINTING YIELDS AS A FUNCTION OF PHYSICAL DESIGN PARAMETERS
WEBSTER, R.
HONEYWELL INFORMATION SYSTEMS, BILLERICA, MA, USA
IEEE TRANS. MANUF. TECHNOL. (USA) VOL. MFT-4, NO.1 14-20 SEPT. 1975 Coden: IETMBC
THE CURRENT DESIGN TREND IN THICK FILM HYBRIDS IS TOWARD LARGER SUBSTRATE SIZE AND NARROWER CONDUCTOR LINES. THIS PAPER DOCUMENTS THE RESULTS OF A STUDY UNDERTAKEN TO DETERMINE THE EFFECT OF LINE WIDTH AND SPACING, SUBSTRATE SIZE, AND CONDUCTOR LENGTH ON THE OCCURRENCE OF COMMON SCREEN PRINTING DEFECTS. DEVELOPMENT OF A SCREEN PRINTING TEST PATTERN AND A DATA REDUCTION SOFTWARE ROUTINE IS ALSO DESCRIBED. RECOMMENDATIONS FOR SELECTION OF LINE WIDTH/SPACING AND SUBSTRATE SIZE ARE PRESENTED
Descriptors: INTEGRATED CIRCUIT PRODUCTION; THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS
Identifiers: DESIGN; LINE WIDTH; SPACING; SUBSTRATE SIZE; [illegible] TEST PATTERN; DATA REDUCTION
02
Section Class Codes: B2540, B2522
Unified Class Codes: SMEAAB, SMCCAX

B17780 B7537691
SEMICONDUCTOR CHIP ATTACHMENT WITH SMALL BUMP FLIP CHIPS
WAITE, G.C.
HONEYWELL INFORMATION SYSTEMS, BILLERICA, MA, USA
IEEE TRANS. MANUF. TECHNOL. (USA) VOL. MFT-4, NO.1 8-13 SEPT. 1975 Coden: IETMBC
IT HAS BEEN REPORTED ELSEWHERE THAT THE RATIO OF THE DIAMETER TO THE HEIGHT OF A REFLOW SOLDERED FLIP-CHIP PAD SHOULD BE LESS THAN 2'1. ,THIS GEOMETRY PERMITS A DUCTILE MATERIAL TO ACCEPT THE STRAIN CAUSED BY DIFFERENCES IN THERMAL EXPANSION COEFFICIENTS OF SILICON AND ALUMINA. HOWEVER, TO DEPOSIT SUFFICIENT MATERIAL ON A SEMICONDUCTOR CHIP TO ACHIEVE THIS GEOMETRY HAS USUALLY MEANT CHIP PAD REDESIGN AND THE RESULTING COSTLY MASK CHANGES. THIS PAPER DESCRIBES METHODS OF DEPOSITING SUFFICIENT MATERIAL ON A THICK FILM SUBSTRATE TO PERMIT USE OF CHIPS WITH REDUCED BUMP VOLUME. DETAILS IN THE PAPER DESCRIBE THE VOLUME CALCULATIONS AND ARTWORK DESIGN FOR DEPOSITION OF SOLDER CREME BY SCREEN PRINTING. SELECTION AND DEPOSITION OF A DIELECTRIC GLAZE MATERIAL TO LIMIT THE AREA OF SOLDER WETTING ON THE SUBSTRATE PADS IS ALSO DESCRIBED. THE TEST VEHICLE USED IN THE STUDY IS A SIMPLE 2-BIT COUNTER UTILIZING MMECL GATES. IT WAS FABRICATED IN MULTILAYER FORMAT FOR COMPARISON OF OPERATING PARAMETERS BETWEEN EUTECTIC BACK BONDED AND SOLDER REFLOW FACE BONDED CHIPS (5 Refs)
Descriptors: INTEGRATED CIRCUIT PRODUCTION; THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS
Identifiers: SMALL BUMP FLIP CHIPS; THICK FILM SUBSTRATE; VOLUME CALCULATIONS; ARTWORK DESIGN; DEPOSITION; SOLDER CREME; SCREEN PRINTING; DIELECTRIC GLAZE MATERIAL; SEMICONDUCTOR CHIP ATTACHMENT; HYBRID INTEGRATED CIRCUIT MANUFACTURE
02
Section Class Codes: B2540, B2522
Unified Class Codes: SMEAAB, SMCCAX

B17718 B7537604
DESTRUCTABLE MICROELECTRIC CIRCUIT ELEMENT
KAPP, E.J.
Patent No.: USA 3875431 Assignees: US NAVY Filed: 16 OCT. 1970
1 APRIL 1975
THE DISCLOSURE COMPRISES A THIN FILM CIRCUIT SUBSTRATE OF CERAMIC MATERIAL; A FILM CONDUCTOR OF AN EXOTHERMIC MIXTURE OF ALUMINIUM-PALLADIUM EVAPORATED ON THE SUBSTRATE TO UNDERLIE A THIN FILM CIRCUIT AT STRATEGIC PLACES OF DESTRUCTION; A THIN FILM OF SILICON MONOXIDE OVERLYING THE FILM CONDUCTOR; A THIN FILM CIRCUIT DEPOSITED OVER THE SILICON MONOXIDE FILM WITH STRATEGIC PORTIONS OVERLYING THE CONDUCTING FILM, AND A SWITCHED PULSING CIRCUIT WHEREBY THE PULSES ENERGIZE THE CONDUCTING FILM TO PRODUCE EXOTHERMIC REACTION TO DESTROY THE THIN FILM CIRCUIT AT STRATEGIC PLACES
Descriptors: THIN FILM CIRCUITS
Identifiers: THIN FILM CIRCUIT SUBSTRATE; FILM CONDUCTOR; SILICON MONOXIDE; SWITCHED PULSING CIRCUIT; EXOTHERMIC REACTION; SELFDESTRUCTIVE THIN FILM CIRCUIT
08
Section Class Codes: B2524
Unified Class Codes: SMCEAH

B17716 B7537602
PROCESS FOR MANUFACTURING A CONDUCTIVE FILM FOR A THIN FILM INTEGRATED CIRCUIT DEVICE
SAITO, A.; SAITO, S.
Patent No.: USA 3869367 Assignees: NIPPON ELECTRIC CO. LTD Filed: 3 JAN. 1973
Original Patent Appl. No.: JAPAN 47-130072
Priority Date: 27 DEC 1972
4 MARCH 1975
THE PROCESS CONSISTS IN FORMING A FILM OF A FIRST HIGH-CONDUCTIVITY METAL ON AN INSULATOR BASE PLATE; FORMING A DIFFUSION PREVENTING INSULATOR FILM ON THE METAL; AND SPUTTERING A SECOND METAL SUSCEPTIBLE TO ANODIC FILM FORMING OXIDATION ONTO THE INSULATOR FILM, WHICH IS OF SUCH THICKNESS AS TO PERMIT PARTICLES OF THE SECOND METAL TO PENETRATE AT A MULTIPLICITY OF LOCATIONS, WHILE LEAVING INTACT A SUFFICIENT INSULATING FILM SUBSTANTIALLY TO PREVENT THE FORMATION OF AN ALLOY OF THE FIRST AND SECOND METALS, WHEREBY A COMPOSITE FILM IS PRODUCED HAVING A SPECIFIC CONDUCTIVITY HIGHER THAN THAT OF EITHER METAL
Descriptors: INTEGRATED CIRCUIT PRODUCTION; THIN FILM CIRCUITS; SPUTTERING
Identifiers: CONDUCTIVE FILM; THIN FILM INTEGRATED CIRCUIT; INSULATOR BASE PLATE; DIFFUSION PREVENTING INSULATOR FILM; SPUTTERING; COMPOSITE FILM; SPECIFIC CONDUCTIVITY
08
Section Class Codes: B2524
Unified Class Codes: SMCEAH

B17715 B7537601
PROCESS OF PRODUCING A THIN FILM CIRCUIT
SUMI, N.
Patent No.: USA 3867193 Assignees: IWATSU ELECTRIC CO. LTD Filed: 5 NOV. 1971
Original Patent Appl. No.: JAPAN 45-19262
Priority Date: 28 DEC 1970
18 FEB. 1975
THE PROCESS INVOLVES APPLICATION OF AN ANTIOXIDATION MASK TO A CONDUCTIVE FILM AND ANODISING THE UPPER SURFACE OF THE UNOXIDISED FILM AS A BASE FOR DEPOSITION OF A METAL PATTERN FORMING A THIN FILM CAPACITOR
Descriptors: THIN FILM CAPACITORS; THIN FILM CIRCUITS
Identifiers: THIN FILM CIRCUIT; ANTIOXIDATION MASK; CONDUCTIVE FILM; ANODISING; METAL PATTERN; THIN FILM CAPACITOR
08
Section Class Codes: B2524, B2670
Unified Class Codes: SMCEAH, SNMAAR

B17713 A7567589, B7537599
X-RAY DIFFRACTION STRESS MEASUREMENTS IN THIN FILMS (ON SUBSTRATES)
LOUZON, T.J.; SPENCER, T.H.
WESTERN ELECTRIC CO., HAWTHORNE STATION, CHICAGO, IL, USA
SOLID STATE TECHNOL. (USA) VOL.18, NO.7 25-8 JULY 1975
Coden: SSTEAP
DESCRIBES AN ACCURATE, LABOR SAVING METHOD REQUIRING NO SPECIAL DIFFRACTION ATTACHMENTS FOR THIN FILM CIRCUITS. IMPROVED RESULTS WERE OBTAINED BY THE INTRODUCTION OF A CALIBRATION STANDARD. THROUGH THE USE OF THIS STANDARD, ANGULAR MEASUREMENTS OF +OR- 0.005 DEGREES WERE ATTAINED. THE TECHNIQUE CONSISTS OF SCANNING A THIN GOLD FILM SAMPLE AND A DIAMOND STANDARD SIMULTANEOUSLY. THIS IS ACCOMPLISHED BY APPLYING FINE DIAMOND PARTICLES ON THE SURFACE OF THE GOLD FILM PRIOR TO X-RAY SCANNING. ACCURACY HAS BEEN FURTHER AIDED IN THE SUBSEQUENT MATHEMATICAL OPERATIONS USED TO OBTAIN A STRESS VALUE. A PRECISE PARAMETER MEASUREMENT IS OBTAINED ON WHICH THE STRESS CALCULATIONS ARE MADE (8 Refs)
Descriptors: X-RAY DIFFRACTION EXAMINATION OF MATERIALS; STRESS MEASUREMENT; METALLIC THIN FILMS; THIN FILM CIRCUITS
Identifiers: DIAMOND STANDARD; FINE DIAMOND PARTICLES; X-RAY DIFFRACTION STRESS MEASUREMENT; STRESS IN THIN FILMS; AU THIN FILMS; + OR -0.005 DEGREE ACCURACY
02
Section Class Codes: A0605, A0692, B2524, A9170, B1268
Unified Class Codes: BGCAAP, BGZEAN, SMCEAH, ZGTAAA

DIALOG File13: INSPEC-ELEC & COMPUT 69-77/ISS17 (COPR. I.E.E.) (Item 282 of 388) User 674 28oct77

B17711 B7537597
RESULTS OF TWO YEARS (1973-1974) OF ACTIVITIES AT TELETTRA IN THE FIELD OF THIN-FILM INTEGRATED CIRCUITS
MODENA, G.
ALTA FREQ. (ITALY) VOL.44, NO.7 383-90 JULY 1975
Coden: ALFRAJ
A GENERAL PICTURE OF THE TELETTRA RESULTS ON THIN FILM INTEGRATED CIRCUITS IN THE PERIOD 1973-74 IS GIVEN. CERTAIN PLANT, MACHINES AND SPECIALISED EQUIPMENT USED IN THIN-FILM INTEGRATED CIRCUIT AND CERTAIN TYPES OF HYBRID CIRCUIT MANUFACTURE ARE ILLUSTRATED
Descriptors: THIN FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; INTEGRATED CIRCUIT PRODUCTION
Identifiers: THIN FILM IC; HYBRID IC; IC PRODUCTION
02
Section Class Codes: B2524, B2540
Unified Class Codes: SMCEAH, SMEAAB
Language: ITALIAN

B17710 B7537596
TECHNOLOGY AND FABRICATION SUPPORT FOR THICK FILM MICROELECTRONICS AND PRINTED WIRING BOARDS
SCHROTTKE, G.
Report No.: D1-S-1800; Issued by: IBM FEDERAL SYSTEMS DIV., HUNTSVILLE, ALA., USA;
JUNE 1974
POTENTIAL APPLICATIONS FOR HYBRID MICROELECTRONICS IN ARMY MISSILES WERE EVALUATED AND SAMPLE HARDWARE DESIGNED, FABRICATED AND TESTED. THE APPLICATION SELECTED TO BE THE PRIME DEMONSTRATION VEHICLE WAS THE THAD SIX INCH MISSILE AUTOPILOT. THE SPECIFIC OBJECTIVES WERE TO DESIGN, FABRICATE AND EVALUATE HYBRID MODULES TO PERFORM THE CIRCUIT FUNCTIONS OF THE EXISTING DISCRETE DESIGN, AND TO EVOLVE A MULTILAYER PRINTED WIRING BOARD AND THIRD LEVEL PACKAGE TO THE POINT THAT THE OVERALL IMPACT OF THE HYBRID MICROELECTRONICS PACKAGING APPROACH COULD BE COMPARED WITH THE DISCRETE DESIGN AT THE AUTOPILOT SUBASSEMBLY LEVEL
Descriptors: MISSILES; HYBRID INTEGRATED CIRCUITS; PRINTED CIRCUITS; PACKAGING; THICK FILM CIRCUITS
Identifiers: THICK FILM MICROELECTRONICS; MULTILAYER PRINTED WIRING BOARD; HYBRID MICROELECTRONICS PACKAGING; MISSILES
11
Section Class Codes: B2522, B2540, B2230
Unified Class Codes: SMCCAX, SMEAAB, SEMAAW
Availability: NTIS, SPRINGFIELD, VA. 22161, USA

B17708 B7537594
METHODS FOR MAKING ELECTRONIC CIRCUITS
MAGGS, C.; WEICK, W.W.
Patent No.: USA 3867217 Assignees: BELL TELEPHONE LABS, INC Filed: 29 OCT. 1973
18 FEB. 1975
SUCCESSIVE METAL LAYERS ARE PARTIALLY EVAPORATED BY LASER BEAM AND A STREAM OF ABRASIVE PARTICLES IS APPLIED TO CLEAN THE EXPOSED SUBSTRATE AND TO ERODE PART OF THE OUTER LAYER, WHICH IS SELECTIVELY DISSOLVED BY ETCHING
Descriptors: INTEGRATED CIRCUIT PRODUCTION; THICK FILM CIRCUITS; EVAPORATION; ABRASION; LASER BEAM MACHINING
Identifiers: METAL LAYERS; PARTIALLY EVAPORATED; LASER BEAM; ABRASIVE PARTICLES; ETCHING; IC PRODUCTION
08
Section Class Codes: B2522, B2080
Unified Class Codes: SMCCAX, EGMAAA

B17707 B7537593
GLASS LAYERS AS PROTECTION, ESPECIALLY FOR RESISTIVE ELEMENTS IN THICK FILM TECHNOLOGY
SZTABA, O.; LUSNIAK-WOJCICKA, D.
PR. PRZEM. INST. ELEKTRON. (POLAND) VOL.15, NO.2 25-34 1974 Coden: PPIEAI
DISCUSSES GLASS LAYERS AS DIRECT PROTECTION OF RESISTIVE ELEMENTS AND CAPACITIVE THICK FILM CIRCUITS AGAINST ATMOSPHERIC CONDITIONS AND MECHANICAL DAMAGES. GIVES A LIST OF GLASS TYPES FOR THIS APPLICATION, REQUIREMENTS THEY SHOULD MEET, AND METHODS OF PROTECTIVE PASTE PREPARATION (12 Refs)
Descriptors: THICK FILM CIRCUITS; THICK FILM RESISTORS; GLASS; PROTECTIVE COATINGS
Identifiers: RESISTIVE ELEMENTS; CAPACITIVE THICK FILM CIRCUITS; ATMOSPHERIC CONDITIONS; MECHANICAL DAMAGES; PROTECTIVE PASTE PREPARATION; GLASS LAYER; PROTECTIVE COATINGS ; THICK FILM RESISTORS PROTECTION
02
Section Class Codes: B2522, B2210
Unified Class Codes: SMCCAX, SEEAAS
Language: POLISH

B17705 B7537591
SCREEN PRINTING AND SCREEN TENSIONING EQUIPMENT FOR THICK FILM CIRCUITS
FARENYI, E.
FINOMMECH. AND MIKROTECH. (HUNGARY) VOL.14, NO.6 182-5 JUNE 1975 Coden: FNMKAY
DESCRIBES AN EQUIPMENT BASED ON THE 'OFF-PRINT' PRINCIPLE. THE OPERATION IS SEMI-AUTOMATIC, FEEDING AND REMOVAL OF SUBSTRATE PLATES IS MANUAL. THE KNIFE IS OIL HYDRAULICALLY OPERATED, WITH A WIDE RANGE OF VELOCITIES (3...10 CM/S) AND CAN BE OPERATED IN SINGLE STROKES, OR AUTOMATIC CYCLES WITH RATE OF 400 TO 1000/HOUR. ACCURACY NECESSARY FOR REPEATED PRINTING IS ENSURED BY A MICROMETER ADJUSTMENT. AN IMPORTANT AUXILIARY APPARATUS FOR THE PREPARATION IS THE SCREEN TENSIONING APPARATUS EMPLOYING PNEUMATIC CYLINDERS EQUIPPED WITH RAPID CLAMPS (4 Refs)
Descriptors: THICK FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION
Identifiers: PRINTING; MICROMETER ADJUSTMENT; SCREEN PRINTING; SCREEN TENSIONING EQUIPMENT; INTEGRATED CIRCUIT MANUFACTURE; THICK FILM CIRCUITS MANUFACTURE; OFF PRINT; SEMIAUTOMATIC OPERATION
02
Section Class Codes: B2522
Unified Class Codes: SMCCAX
Language: HUNGARIAN

B17704 B7537590
TECHNOLOGY OF THICK FILM CIRCUITS
CUMETTA, M.
ELETTRIFICAZIONE (ITALY) NO.6 270-6 JUNE 1975 Coden: ELT.AL
GENERAL CONSIDERATIONS HAVING BEEN DISCUSSED IN A PREVIOUS ARTICLE (SEE IBID., NO.5, P.236 (1975)), THE REQUIRED CHARACTERISTICS OF INKS USED IN MAKING CONDUCTORS, RESISTORS AND CAPACITORS, ARE EXAMINED IN DETAIL. SOME DESIGN DATA AND TOLERANCES ARE QUOTED, AND MEANS OF ADJUSTING RESISTANCE AND CAPACITANCE VALUES ARE DESCRIBED
Descriptors: THICK FILM CIRCUITS; THICK FILM RESISTORS; CAPACITORS; CONDUCTORS (ELECTRIC)
Identifiers: CONDUCTORS; RESISTORS; TOLERANCES; THICK FILM CIRCUIT TECHNOLOGY; INK CHARACTERISTICS; CAPACITOR
02
Section Class Codes: B2522
Unified Class Codes: SMCCAX
Language: ITALIAN

B17391 B7537255
LOW FIRING POLYMER THICK FILM ENABLES THE SCREEN PRINTING OF RESISTORS AND CONDUCTORS ON PC BOARDS
MARTIN, F.W.
METHODE DEV. CO., CHICAGO, IL, USA
INSUL./CIRCUITS (USA) VOL.21, NO.8 29-32 JULY 1975 Coden: ISCUBF
DISCUSSES THE USE OF POLYMER THICK FILM TECHNOLOGY TO FABRICATE RESISTORS, CONDUCTORS AND DIELECTRICS DIRECTLY ON PCBS TO REDUCE COSTS. SUBSTRATE MATERIALS INCLUDE STANDARD PCB MATERIALS. THE SHEET RESISTIVITIES ARE AVAILABLE BETWEEN 10 OHMS AND 1 M OHM PER SQUARE. TWO SCREEN PRINTABLE CONDUCTORS, ONE FOR EDGE CONNECTORS AND ONE FOR HIGH CONDUCTIVITY AND GOOD SOLDERABILITY ARE DISCUSSED. THE ADVANTAGES, CHARACTERISTICS AND APPLICATIONS ARE CONSIDERED
Descriptors: PRINTED CIRCUITS; THICK FILM CIRCUITS; THICK FILM RESISTORS
Identifiers: POLYMER THICK FILM; SCREEN PRINTING; EDGE CONNECTORS; THICK FILM RESISTORS; THICK FILM CONDUCTORS; PRINTING ON PCBS; INSULATING FILMS; 10 TO 1 M OHM PER SQUARE; HIGH CONDUCTIVITY CONDUCTIONS
02
Section Class Codes: B2230, B2522, B2210
Unified Class Codes: SEMAAW, SMCCAX, SEEAAS

B17322 B7537168
FILTER NETWORK WITH CHIP CAPACITOR AND FILM RESISTOR
Patent No.: UK 1384954 Assignees: STC LTD Filed: 16 MARCH 1972
26 FEB. 1975
A CHIP CAPACITOR HAS AT LEAST ONE FILM RESISTOR DEPOSITED INTEGRALLY ON A FACE, THE VALUE OF THE (OR EACH) RESISTOR HAVING BEEN ALTERED BY REMOVAL OF SOME OF THE FILM MATERIAL. THE ALTERATION MAY BE BY EROSION BY A LASER BEAM LEAVING TRACKS. THE RESISTOR MAY BE A THIN FILM NICR RESISTOR WITH THIN FILM AU CONNECTIONS OVERLAPPING END CONNECTORS AND ADJACENT EDGES OF THE RESISTOR. AN ADVANTAGE OF USING A THIN FILM RESISTOR IS THAT THE DEPOSITION TEMPERATURE IS BELOW THE VALUE WHICH WOULD HARM CAPACITORS. A CLOSE TOLERANCE LOW-POWER RC FILTER WITH HIGH STABILITY (1PERCENT OVER 10 YEARS) AND LOW TEMPERATURE COEFFICIENT OF RC PRODUCT (50 PPM/ DEGREESC) MAY BE PRODUCED
Descriptors: PASSIVE FILTERS; THIN FILM CIRCUITS; CAPACITORS; THIN FILM RESISTORS; HYBRID INTEGRATED CIRCUITS
Identifiers: CHIP CAPACITOR; FILM RESISTOR; DEPOSITION TEMPERATURE; STABILITY; TEMPERATURE COEFFICIENT; RC FILTER
08
Section Class Codes: B1880, B2524, B2540
Unified Class Codes: ETRAAM, SMCEAH, SMEAAB

806423 B7534249
STANDARDIZABLE LOW-PASS VOICE BAND HYBRID CIRCUIT FILTERS FOR PULSE CODE MODULATION (PCM) COMMUNICATION SYSTEMS
MIKHAEL, W.B.; KEYS, L.K.
TRANSMISSION NETWORK DEV. DEPT., BELL-NORTHERN RES., OTTAWA, ONTARIO, CANADA
IEEE J. SOLID-STATE CIRCUITS (USA) VOL. SC-10, NO.4 229-36 AUG. 1975 Coden: IJSCBC
A STANDARDIZABLE DESIGN APPROACH TO REALIZE THE VOICE BAND LOW PASS FILTERS FOR A VARIETY OF PULSE CODE MODULATION (PCM) COMMUNICATIONS SYSTEMS IS DESCRIBED. THIS DESIGN CONCEPT INCORPORATES CASCADED RC ACTIVE FILTER SECTIONS, THICK AND THIN FILM HYBRID TECHNOLOGIES, AND FUNCTIONAL TUNING TO ALLOW THE USE OF THE SAME HYBRID DESIGN FOR BOTH TRANSMIT AND RECEIVE FILTERS, FOR A RANGE OF INPUT AND OUTPUT REQUIREMENTS. TUNING, SENSITIVITY ANALYSES, AND IMPLEMENTATION TRADEOFFS ARE DESCRIBED. THICK FILM IMPLEMENTATIONS, USING NPO CHIP CAPACITORS, WITH THE NEW HIGH STABILITY RESISTOR INKS AS WELL AS THIN FILM IMPLEMENTATION, USING THE USUAL TANTALUM INTEGRATED THIN FILM TECHNOLOGY ARE PRESENTED. VERY STRINGENT REQUIREMENTS HAVE BEEN SUCCESSFULLY MET USING STATE-OF-THE-ART HYBRID TECHNOLOGIES (12 Refs)
Descriptors: PULSE-CODE MODULATION LINKS; ACTIVE FILTERS; HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS; THICK FILM CIRCUITS
Identifiers: HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS; THICK FILM CIRCUITS; LOW PASS VOICE BAND ACTIVE FILTERS; RC FILTERS; PCM LINKS; FUNCTIONAL TUNING; SENSITIVITY ANALYSES; IMPLEMENTATION TRADEOFFS; HIGH STABILITY RESISTOR INKS; NPO CHIP CAPACITORS; TANALUM INTEGRATED THIN FILM TECHNOLOGY
02
Section Class Codes: B3560, B2540, B1880, B2522, B2524
Unified Class Codes: FEKAAA, SMEAAB, ETRAAM, SMCCAX, SMCEAH

806007 B7533044
TEMPERATURE-STABILIZED 1.7-GHZ BROAD-BAND LUMPED-ELEMENT CIRCULATOR
KATOH, H.
CENTRAL RES. LABS., NIPPON ELECTRIC CO. LTD., NAKAHARA-KU, KAWASAKI, JAPAN
IEEE TRANS. MICROWAVE THEORY AND TECH. (USA) VOL.MTT-23, NO.II 889-96 AUG. 1975 Coden: IETMAR
A NEW CONSTRUCTION TECHNIQUE FOR BROAD-BANDING AND TEMPERATURE STABILIZATION OF A LUMPED-ELEMENT CIRCULATOR IS PRESENTED. TO OBTAIN A COMPACT CIRCULATOR FOR PRACTICAL USAGE, BY USING A NEW INTEGRATED WIDE-BANDING NETWORK CONSISTING OF THREE SERIES RESONANT CIRCUITS ON THE BACK OF THE JUNCTION SUBSTRATE, 1.7-GHZ DOUBLE-TUNED AND TRIPLE-TUNED BROAD-BAND CIRCULATORS HAVE BEEN SUCCESSFULLY DEVELOPED. A DESIGN THEORY FOR TEMPERATURE COMPENSATION OF A LUMPED-ELEMENT CIRCULATOR IS ALSO PRESENTED (15 Refs)
Descriptors: CIRCULATORS (MICROWAVE); MICROWAVE ISOLATORS; MICROWAVE INTEGRATED CIRCUITS; THIN FILM CIRCUITS
[illegible] TECHNIQUE; TEMPERATURE STABILIZATION; COMPACT CIRCULATOR; BROAD BAND CIRCULATOR; LUMPED ELEMENT CIRCULATOR; JUNCTION EIGENINDUCTANCES
02
Section Class Codes: B3290, B2524
Unified Class Codes: EMWAAW, SMCEAH

805560 B7533254
LOW TEMPERATURE PROCESSING IN HYBRID MANUFACTURING INCREASES SURVIVAL RATE
GILLIS, T.B.
MICROWAVE AND POWER TUBE DIV., RAYTHEON CO., QUINCY, MA, USA
INSUL./CIRCUITS (USA) VOL.21, NO.6 19-22 JUNE 1975 Coden: ISCUBF
DISCUSSES THICK-FILM, HIGH RELIABILITY MULTICHIP HYBRID IC MANUFACTURE USING THE CHIP AND WIRE ASSEMBLY. ASSEMBLY TECHNIQUES TO INCREASE THE SEMICONDUCTOR CHIP SURVIVAL RATE BY LIMITING THE CHIP TEMPERATURE EXPOSURE TO BELOW 150C ARE DESCRIBED. EPOXY DIE ATTACH, ULTRASONIC WIRE BONDING, AND PACKAGE SEAM WELDING ARE COVERED AND MEASUREMENT RESULTS SHOWN (1 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; THICK FILM CIRCUITS; ASSEMBLING
Identifiers: IC MANUFACTURE; PACKAGE SEAM WELDING; MULTICHIP ICS; HYBRID ICS; IC MANUFACTURE; LOW TEMPERATURE PROCESSING; YIELD IMPROVEMENT; US WIRE BONDING; EPOXY DIE ATTACH; ASSEMBLY TECHNIQUES
02
Section Class Codes: B2564, B2540, B2522
Unified Class Codes: SMGEAN, SMEAAB, SMCCAX

805557 B7533251
HYBRID MICROCIRCUIT DESIGN GUIDE
Report No.: SLA-74-0333; Issued by: SANDIA LABS., ALBUQUERQUE, N.MEX., USA:
JULY 1974
A DESIGN GUIDE FOR THIN-FILM HYBRID MICROCIRCUIT TECHNOLOGY IS PROVIDED. GUIDELINES AND CONSTRAINTS FOR LAYING OUT A HYBRID CIRCUIT ARE DEVELOPED. THE AVAILABILITY OF MODEL HYBRID MICROCIRCUITS FROM A PROTOTYPE FACILITY IS REPORTED
Descriptors: HYBRID INTEGRATED CIRCUITS; DESIGN AIDS; INTEGRATED CIRCUIT PRODUCTION; ENGINEERING FACILITIES; SEMICONDUCTOR DEVICE MODELS; THIN FILM CIRCUITS
Identifiers: DESIGN GUIDE; CONSTRAINTS; MODEL HYBRID MICROCIRCUITS; PROTOTYPE FACILITY; THIN FILM HYBRID IC
11
Section Class Codes: B2540, B2524, B1269
Unified Class Codes: SMEAAB, SMCEAH, ADGMAE
Availability: NTIS, SPRINGFIELD, VA. 22161, USA

805556 B7533250
COMPILATION OF SPECIFICATIONS DESCRIBING HYBRID MICROCIRCUIT TECHNOLOGY
TAPP, C.M.; SHARP, D.J.
Report No.: SLA-74-0300: Issued by: SANDIA LABS., ALBUQUERQUE, N.MEX., USA;
Contract No.: AT(29-1)789
JUNE 1974
THE SPECIFICATIONS ARE DIVIDED INTO TWO CATEGORIES OF DRAWING NUMBERS. ONE APPLIES TO SPECIAL ISSUE SPECIFICATIONS AND THE PROCESS INVOLVED IN FABRICATING HYBRIDS. THE OTHER DESCRIBES THE MATERIALS USED IN THE HYBRID PROCESS. THE QUALITY CONTROL ASPECTS OF HYBRID MICROCIRCUIT PRODUCTION ARE EXPLAINED
Descriptors: HYBRID INTEGRATED CIRCUITS; PROJECT ENGINEERING; INTEGRATED CIRCUIT PRODUCTION; QUALITY CONTROL
Identifiers: SPECIFICATIONS; DRAWING NUMBERS; MATERIALS; QUALITY CONTROL; HYBRID MICROCIRCUIT PRODUCTION
11
Section Class Codes: B2540, B1261
Unified Class Codes: SMEAAB, ADGBAA
Availability: NTIS, SPRINGFIELD, VA. 22161, USA

805553 B7533247
THICK FILM/FLIP CHIPS-A SYSTEMS APPROACH
EARLY, R.C.
MOBILE RADIO PRODUCTS DEPT., GENERAL ELECTRIC CO., LYNCHBURG, VA. USA
IEEE TRANS. MANUF. TECHNOL. (USA) VOL. MFT-4, NO.1 2-8 SEPT. 1975 Coden: IETMDC
THICK-FILM HYBRID INTEGRATED CIRCUIT PROCESS CURRENTLY BEING USED TO REALIZE COMPLEX CIRCUIT FUNCTIONS IN HYBRID FORM IS DISCUSSED. THE THICK-FILM TECHNOLOGY, ACTIVE DEVICE ATTACHMENT, AND PACKAGING ALL PLAY IMPORTANT ROLES IN THE OVERALL SYSTEMS APPROACH. A DESCRIPTION OF THE VARIOUS PROCESSES WILL BE PRESENTED STARTING WITH THE CERAMIC SUBSTRATE AND ENDING WITH THE COMPLETED PACKAGE. EXTENSIVE USE IS MADE OF COMPUTER-CONTROLLED LASER TRIMMING FOR BOTH STATIC TRIMMING OF RESISTORS AND FUNCTIONAL TRIMMING OF MODULES AFTER ASSEMBLY. WHEN PROPERLY USED, THE LASER IS A POWERFUL TOOL. ACTIVE DEVICES ARE ATTACHED USING A SOLDER-REFLOW TECHNIQUE. ALL OF THE CONNECTIONS ON THE ACTIVE DEVICES ARE TERMINATED USING SOLDER BUMPS CONSISTING OF A TIN/LEAD ALLOY. THERE ARE CORRESPONDING LAND AREAS ON THE CERAMIC SUBSTRATE THAT HAVE BEEN COATED WITH A TIN/LEAD SOLDER. THE LAND AREAS ON THE SUBSTRATE ARE DESIGNED IN SUCH A WAY AS TO RESTRICT THE SOLDER WETTING TO THE SMALL AREA AROUND THE TERMINAL SIMILAR TO THE IBM, 'CONTROLLED COLLAPSE' PROCESS. THE TECHNIQUES EMPLOYED RESULT IN THICK-FILM HYBRID INTEGRATED CIRCUITS THAT ARE ECONOMICAL, RELIABLE, HIGH IN YIELD, AND OFFER CONSIDERABLE FLEXIBILITY TO THE HYBRID MANUFACTURE (11 Refs)
Descriptors: INTEGRATED CIRCUIT PRODUCTION; THICK FILM [illegible]
THICK FILM HYBRID INTEGRATED CIRCUITS; COMPUTER CONTROLLED LASER TRIMMING; SOLDERING; FLIP CHIPS; MANUFACTURE
02
Section Class Codes: B2540, B2522
Unified Class Codes: SMEAAB, SMCCAX

805549 B7533243
EASING PROBLEMS WITH HYBRIDS
BURKITT, A.
ELECTRON. ENGINEERING (GB) VOL.47, NO.567 60-1 MAY 1975 Coden: ELCEA9
IT IS NOW GENERALLY ACCEPTED THAT THE COST OF HYBRIDS IS GREATER THAN THE TOTAL COST OF THE DISCRETE COMPONENTS THAT MAKE UP AN EQUIVALENT CIRCUIT ON A P.C.B. HOWEVER, WHEN THE COST OF PUTTING THESE COMPONENTS TOGETHER IS ADDED IN, HYBRIDS-AT LEAST WHEN PRODUCED IN LARGE QUANTITIES-ARE ECONOMIC
Descriptors: HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS; THICK FILM CIRCUITS
Identifiers: PACKAGING; RELIABILITY; DISCRETE CIRCUITS; OPTIMUM PERFORMANCE; LIBRARY CHIP; HYBRID INTEGRATED CIRCUITS
02
Section Class Codes: B2540, B2522, B2524
Unified Class Codes: SMEAAB, SMCCAX, SMCEAH

805548 B7533242
FORECAST OF 1980 HYBRID ISSUES
CIRCUITS MANUF. (USA) VOL.15, NO.3 52,4 MARCH 1975 Coden: CMFGAF
DISCUSSES HYBRID INTEGRATED CIRCUIT MANUFACTURE. FUTURE COST OF MATERIALS AND REQUIREMENTS OF ENGINEERS. A SURVEY OF HYBRID TECHNOLOGISTS IS DISCUSSED COVERING THE AREAS' THICK FILM MATERIALS, DEVICE INTERCONNECTION TECHNIQUES, DEVICE PACKAGE TECHNIQUES AND PACKAGE SEALING TECHNIQUES
Descriptors: HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS; PACKAGING; TECHNOLOGICAL FORECASTING; INTEGRATED CIRCUIT PRODUCTION
Identifiers: SURVEY; PACKAGING; TECHNOLOGICAL FORECASTING; HYBRID INTEGRATED CIRCUIT; THICK FILM MATERIALS; DEVICE INTERCONNECTION TECHNIQUES; PACKAGE SEALING
02
Section Class Codes: B2540, B2522
Unified Class Codes: SMEAAB, SMCCAX

B05511 B7533190
A NEW RESISTIVE MATERIAL FOR HIGH STABILITY RC NETWORKS. APPLICATION TO THE PRODUCTION OF ACTIVE FILTERS
MOULIN, M.
LIT. CONFLANS-SAINTE-HONORINE, FRANCE
COLLOQUE INTERNATIONAL SUR LES MATERIAUX POUR LES COMPOSANTS ELECTRONIQUES (INTERNATIONAL SYMPOSIUM ON MATERIALS FOR ELECTRONIC COMPONENTS) 251-7 1975
2-4 APRIL 1975 PARIS, FRANCE
COMM. D'ORGANISATION DU COLLOQUE DE PARIS PARIS, FRANCE
ONE OF THE TECHNIQUES USED CONSISTS OF INTEGRATING ON THE SAME SUBSTRATE, ANODISED TANTALUM THIN FILM CAPACITORS (TEMP. COEFFICIENT APPROXIMATELY +200 PPM/ DEGREESC) AND THIN FILM RESISTORS, WITH A TEMPERATURE COEFFICIENT APPROXIMATELY -200 PPM/ DEGREESC. A SUMMARY OF THE DEVELOPMENT OF A SUITABLE NEW RESISTIVE MATERIAL FOR MICROELECTRONIC APPLICATIONS IS GIVEN. THE DIFFERENT STEPS REVIEWED ARE' PREPARATION OF THIN FILMS, INFLUENCE OF THE CATHODIC SPUTTERING PARAMETERS, COMPARISON BETWEEN THE CHARACTERISTICS OF THE FILMS OBTAINED IN DIFFERENT SPUTTERING ATMOSPHERES, COMPARISON OF THE STABILITY OF NITRIDED TA, OXY-NITRIDED TA AND AL-TA ALLOY FILMS
Descriptors: ACTIVE FILTERS; THIN FILM RESISTORS; SPUTTERING ; THIN FILM CIRCUITS
Identifiers: INTEGRATED CIRCUIT APPLICATION; THIN FILM PREPARATION; NITRIDED TA FILMS; OXYNITRIDED TA FILMS; RESISTIVE MATERIAL; HIGH STABILITY RC NETWORKS; ACTIVE FILTERS ; THIN FILM RESISTORS; TEMPERATURE COEFFICIENT; CATHODIC SPUTTERING PARAMETERS; CHARACTERISTICS; SPUTTERING ATMOSPHERES ; AL-TA ALLOY FILMS
06
Section Class Codes: B2524, B1880
Unified Class Codes: SMCEAH, ETRAAM
Language: FRENCH

B05510 B7533189, C7520003
READ ONLY MEMORY WITH ANNULAR FUSE LINKS
TAYLOR, W.K.
Patent No.: USA 3863231 Assignees: NRDC Filed: 23 JULY 1973
28 JAN. 1975
APPLICATION OF A VOLTAGE OF A PREDETERMINED MAGNITUDE BETWEEN TWO CONDUCTORS CAUSES FUSING OF THE CORRESPONDING LINK OVER AN ANNULAR AREA OF FILM SURROUNDING THE FIRST CONDUCTOR, BUT APPLICATION OF A VOLTAGE OF HALF THIS MAGNITUDE DOES NOT CAUSE FUSING
Descriptors: READ-ONLY STORAGE; THIN FILM RESISTORS; THIN FILM CIRCUITS
Identifiers: READ ONLY MEMORY; THIN FILM ANNULAR FUSE LINKS
08
Section Class Codes: B2524, C0590, B2210
Unified Class Codes: SMCEAH, XAZAAW, SEEAAS

B05509 B7533188
SIO CAPACITORS FOR HIGH FREQUENCY THIN FILM CIRCUITS
MAYER, G.; HOUSKA, K.H.
SIEMENS AG, MUNICH, GERMANY
NACHRICHTENTECH. Z. (NTZ) (GERMANY) VOL.25, NO.6 207-11 JUNE 1975 Coden: NAZEAA
THE STRUCTURE OF SIO CAPACITORS IS DESCRIBED, THEY ARE MADE TO BE SELFHEALING. THEREFORE THE YIELD IN PRODUCTION IS PRACTICALLY 100PERCENT . THE DIELECTRIC PROPERTIES ARE GIVEN. WITH AN ADJUSTMENT METHOD BY TESLA DISCHARGE IT IS POSSIBLE TO TRIM THESE CAPACITORS TO AN ACCURACY OF +OR- 0.1PERCENT OR 0.05PF. THE STABILITY IS EXCELLENT, E.G. IN A LONG TERM TEST AT 150 DEGREESC THE MEAN CAPACITANCE, DEVIATION AFTER 20000 H AMOUNTED TO -0.04PERCENT . THIN FILM SIO CAPACITORS MAY BE INTEGRATED EITHER WITH CRNI- OR TA/SUB 2/N-RESISTOR NETWORKS. THEIR PROPERTIES IN DIFFERENT ARRANGEMENTS WITH TA/SUB 2/N REGISTORS ARE DISCUSSED. AN EXAMPLE OF APPLICATION-THE NEGATIVE FEEDBACK NETWORK OF THE REPEATER OF THE 60 MHZ CARRIER FREQUENCY SYSTEM-SHOWS, THAT SIO CAPACITORS FULFIL HIGH PERFORMANCE (7 Refs)
Descriptors: THIN FILM CIRCUITS; THIN FILM CAPACITORS
Identifiers: SIO CAPACITORS; HIGH FREQUENCY THIN FILM CIRCUITS; CRNI; TA/SUB 2/N RESISTOR NETWORKS; NEGATIVE FEEDBACK NETWORK; REPEATER; 60 MHZ CARRIER FREQUENCY SYSTEM
02
Section Class Codes: B2524, B2670
Unified Class Codes: SMCEAH, SNMAAR

B05508 B7533187
FABRICATION OF THIN FILM RESISTORS AND RESISTOR NETWORKS BY A SELECTIVE ETCHING PROCESS
BAWA, S.C.; RUNTHALA, D.P.; MARATHE, B.R.
CENTRAL ELECTRONICS ENGNG. RES. INST., PILANI, INDIA
J. INST. ELECTRON. AND TELECOMMUN. ENG. (INDIA) VOL.20, NO.12 602-6 DEC. 1974 Coden: JIETAU
RESULTS ON THE SELECTIVE ETCHING OF A TWO LAYER SYSTEM (RESISTIVE LAYER AND CONDUCTIVE LAYER) ON GLASS SUBSTRATES TO ACHIEVE RESISTORS/RESISTOR-NETWORKS ARE DESCRIBED. THE METHOD RESULTS IN GOOD RESOLUTION OF THIN FILM PATTERNS, SMALLER AREA FLEXIBILITY, HIGHER YIELD AND LOWER COST THAN WITH THE PREVIOUSLY USED METHODS (2 Refs)
Descriptors: THIN FILM RESISTORS; THIN FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; ETCHING
Identifiers: SELECTIVE ETCHING; TWO LAYER SYSTEM; GLASS SUBSTRATES; FLEXIBILITY; HIGHER YIELD; LOWER COST; THIN FILM RESISTORS; THIN FILM RESISTOR NETWORKS; INTEGRATED CIRCUIT PRODUCTION
02
Section Class Codes: B2524, B2210
Unified Class Codes: SMCEAH, SEEAAS

805506 B7533185
RECENT ADVANCES IN PLATINUM-SILVER THICK-FILM CONDUCTORS
STEIN, S.J.; HUANG, C.; CANG, L.; SCHULTZ, G.
ELECTRO-SCIENCE LABS. INC., PENNSAUKEN, N.J., USA
SOLID STATE TECHNOL. (USA) VOL.18, NO.5 25-33 MAY 1975 Coden: SSTEAP
A NUMBER OF NEW DEVELOPMENTS IN PLATINUM-SILVER CONDUCTOR MATERIALS AND THEIR PHYSICAL AND ELECTRICAL PROPERTIES ARE PRESENTED. THE ADVANTAGES AND DISADVANTAGES AS RELATED TO PERFORMANCE AND COST OF VARIOUS CONDUCTOR COMPOSITIONS ARE DISCUSSED. A GROUP OF FRITLESS PT-AG COMPOSITIONS INCLUDING ONE OF PURE AG ARE STUDIED AND THEIR ADHESION, ADHESION AFTER STORAGE AT 150 DEGREESC, CONDUCTIVITY, SOLDERABILITY, SOLDER LEACH RESISTANCE AND OTHER PROPERTIES ARE REPORTED. ANOTHER GROUP OF PT-AG COMPOSITIONS CONTAINING GLASS AS A BINDER IS ALSO REPORTED. THESE DATA ARE PRESENTED IN TERMS OF INCREASING PLATINUM CONTENT. THE COMPATIBILITIES AND GEOMETRY EFFECTS OF THE COMPOSITIONS WITH VARIOUS RESISTOR TYPES ARE PRESENTED. RESULTS OF SILVER MIGRATION STUDIES ILLUSTRATE ONE OF THE POTENTIAL PROBLEMS WHICH MUST BE CONSIDERED IN USING CONDUCTORS OF HIGH SILVER CONTENT. SUGGESTIONS FOR DESIGNING CIRCUIT LAYOUTS AND MINIMIZING MIGRATION DIFFICULTIES ARE GIVEN (19 Refs)
Descriptors: THICK FILM CIRCUITS; CONDUCTORS (ELECTRIC); REVIEWS
Identifiers: PT-AG THICK FILM CONDUCTORS; ADHESION; CONDUCTIVITY; SOLDERABILITY; SOLDER LEACH RESISTANCE; GLASS; CIRCUIT LAYOUTS
02
Section Class Codes: B2522
Unified Class Codes: SMCCAX

805504 B7533183
THICK LAYER TECHNOLOGY FOR HYPERFREQUENCIES
GOLOUBKOFF, M.
CNET, LANNION, FRANCE
ELECTRON. AND MICROELECTRON. IND. (FRANCE) NO.205 15-17 15 MAY 1975 Coden: EMCIAS
A GENERAL DISCUSSION OF NEW DEVELOPMENTS IS ILLUSTRATED BY A DESCRIPTION OF A THICK FILM AMPLIFIER WITH DISTRIBUTED CONSTANT COMPONENTS FOR THE L-BAND. THE COMPONENTS HAD BEEN SEPARATELY STUDIED AT FREQUENCIES UP TO 12 GHZ
Descriptors: THICK FILM CIRCUITS; MICROWAVE AMPLIFIERS; MICROWAVE INTEGRATED CIRCUITS
Identifiers: NEW DEVELOPMENTS; THICK FILM AMPLIFIER; DISTRIBUTED CONSTANT COMPONENTS; L-BAND; SHF; 12 GHZ; THICK FILM TECHNOLOGY
02
Section Class Codes: B2522, B1840, B1820
Unified Class Codes: SMCCAX, ETHAAB, ETEAAD
Language: FRENCH

805503 B7533182
THICK FILM CIRCUITS TECHNOLOGY
COMETTA, M.
ELETTRIFICAZIONE (ITALY) NO.5 236-40 MAY 1975 Coden: ELTZAL
AFTER BRIEF REVIEW OF INTEGRATED CIRCUIT TECHNOLOGY QUOTING COMPARISON TABLES OF BASIC CHARACTERISTICS, APPLICATIONS, COSTS ETC., THE AUTHOR CONCENTRATES ON THICK FILM TECHNOLOGY. TECHNICAL MATERIALS AND SUBSTRATES USED IN PRODUCTION ARE DISCUSSED QUOTING MAIN ADVANTAGES AND USAGE. DESIGN CONSIDERATION AND STAMPING METHODS
Descriptors: THICK FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION
Identifiers: INTEGRATED CIRCUIT; THICK FILM TECHNOLOGY; MATERIALS; SUBSTRATES; PRODUCTION; DESIGN; STAMPING METHODS
02
Section Class Codes: B2522, B1260
Unified Class Codes: SMCCAX, ADGMAE
Language: ITALIAN

805114 B7532733
ACTIVE RC FILTER MADE IN THICK FILM TECHNIQUE
MIJAJLOVIC, M.
LAB. ELMOS-IBK, BEOGRAD, YUGOSLAVIA
TEHNIKA (YUGOSLAVIA) VOL.30, NO.3 572-5 1975 Coden: TEHNAS
ELMOS-IBK LABORATORY HAS DEVELOPED THE ACTIVE RC FILTER USING THICK FILM TECHNIQUE WITH THE FOLLOWING FEATURES' PASS-BAND: 0 TO 4.0 KHZ; ATTENUATION IS HIGHER THAN 30 DB/OCTAVE; OPERATING TEMPERATURE RANGE' -300C TO 1000C; SUPPLY VOLTAGE +OR- 12 V; DIMENSIONS' 28*14*12 MM (3 Refs)
Descriptors: ACTIVE FILTERS; THICK FILM CIRCUITS
Identifiers: THICK FILM; ACTIVE RC FILTER; SPECIFICATIONS
02
Section Class Codes: B1880, B2522
Unified Class Codes: ETRAAM, SMCCAX
Language: CROATIAN

DIALOG File13: INSPEC-ELEC & COMPUT 69-77/ISS17 (COPR. I.E.E.) (Item 306 of 388) User 674 28oct77

805108 B7532727
FILTER SYNTHESIS USING DISTRIBUTED RESISTANCE-CAPACITY CIRCUITS. II
ONDE ELECTR. (FRANCE) VOL.55, NO.6 347-51 JUNE-JULY 1975 Coden: ONELAS
FOR PT.I SEE IBID., NO.5, P.298-303 (1975). THIS PART GIVES DETAILED CONSIDERATION TO THE CONSTRUCTIONAL ASPECTS OF THESE CIRCUITS. THE TECHNIQUES INVOLVED IN THE PRODUCTION OF THIN LAYERS ARE CONSIDERED THE SIMPLEST, PRACTICAL APPROACHES ARE DESCRIBED AND TECHNICAL DATA OF ELECTRICAL CHARACTERISTICS AND PHYSICAL DIMENSIONS IS GIVEN. IMPEDANCE SYNTHESIS AND TRANSFER FUNCTIONS OF CIRCUITS USING UNIFORMLY DISTRIBUTED RC ELEMENTS, AND EXAMPLES SHOWING DIFFERENT DIPOLE ARRANGEMENTS, ARE ILLUSTRATED BY LINE DIAGRAMS. CIRCUIT IMPEDANCE FORMULAE ARE GIVEN WITH REFERENCES TO A NUMBER OF TRANSFORM THEOREMS. THE METHODS FOLLOWED IN THE SYNTHESIS OF AN IMPEDANCE, OR ADMITTANCE, AND CIRCUITS USING LUMPED OR DISTRIBUTED ELEMENTS ARE SHOWN. THE GEOMETRICAL CONSTRUCTION OF A DISTRIBUTED ELEMENT CIRCUIT FOR IMPEDANCE SYNTHESIS IS INDICATED
Descriptors: PASSIVE FILTERS; THIN FILM CIRCUITS; DISTRIBUTED PARAMETER NETWORKS; LINEAR NETWORK SYNTHESIS; TRANSFER FUNCTIONS
Identifiers: CONSTRUCTIONAL ASPECTS; THIN LAYERS; PHYSICAL DIMENSIONS; TRANSFER FUNCTIONS; UNIFORMLY DISTRIBUTED RC ELEMENTS; IMPEDANCE SYNTHESIS; FILTER SYNTHESIS
02
Section Class Codes: B1880, B1650, B2524
Unified Class Codes: ETRAAM, ERMAAH, SMCEAH
Language: FRENCH

805044 B7532646
INTEGRATED CIRCUIT BALANCED MICROWAVE MIXER WITH SCHOTTKY DIODES
ANWAJLER, W.; BARANSKA, H.; LASOTA, M.
PR. OSRODKA BADAW.-ROZWOJOWEGO ELEKTRON. PROZNIOWEJ (POLAND) VOL.3, NO.4 65-8 1975 Coden: POBRCH
THE MANUFACTURING TECHNOLOGY OF A MICROWAVE MIXER IS DESCRIBED. VAPOUR DEPOSITION AND PHOTOLITHOGRAPHIC TECHNIQUES WERE DEPLOYED FOR PRODUCING THIN FILM CIRCUITS INCLUDING AUXILIARIES (DIVIDERS, FILTERS ETC.). A BRANCHED CONFIGURATION WAS CHOSEN FOR THE DIVIDER ON THE BASIS THAT TOLERANCES FOR OTHER SOLUTIONS (3DB, COUPLER HYBRID RING) WERE TOO DIFFICULT TO MAINTAIN (20 Refs)
Descriptors: MIXERS (CIRCUITS); SCHOTTKY-BARRIER DIODES; VAPOUR DEPOSITION; PHOTOLITHOGRAPHY; THIN FILM CIRCUITS
Identifiers: SCHOTTKY DIODES; MANUFACTURING TECHNOLOGY; PHOTOLITHOGRAPHIC TECHNIQUES; THIN FILM CIRCUITS; BRANCHED CONFIGURATION; IC BALANCED MICROWAVE MIXER; VAPOUR DEPOSITION
02
Section Class Codes: B1860, B2524, B1269
Unified Class Codes: ETMAAG, SMCEAH, ADGMAE
Language: POLISH

804925 B7532509
ON THE PROPAGATION OF VOLTAGE IMPULSES IN THIN FILM DISTRIBUTED PARAMETER NETWORKS
THIMM, R.
INST. FUR NETZWERK- UND SYSTEMTHEORIE, UNIV. STUTTGART, STUTTGART, GERMANY
FREQUENZ (GERMANY) VOL.29, NO.6 171-7 JUNE 1975 Coden: FQNZA3
VARIATIONS OF PULSE AMPLITUDE AND PULSE DURATION DURING THE PROPAGATION OF RECTANGULAR VOLTAGE IMPULSES ARE STUDIED. THE INVESTIGATION IS BASED ON THE CHARACTERISTIC THEORY OF PARTIAL DIFFERENTIAL EQUATIONS. A FEW EXAMPLES SHOW THE EFFECTIVENESS OF THE METHOD (9 Refs)
Descriptors: DISTRIBUTED PARAMETER NETWORKS; THIN FILM CIRCUITS; PARTIAL DIFFERENTIAL EQUATIONS
Identifiers: THIN FILM DISTRIBUTED PARAMETER NETWORKS; PULSE AMPLITUDE; PULSE DURATION; RECTANGULAR VOLTAGE IMPULSES; PARTIAL DIFFERENTIAL EQUATIONS
02
Section Class Codes: B1650, B2524
Unified Class Codes: ERMAAH, SMCEAH
Language: GERMAN

793773 B7528885
EVALUATION OF SOLDER BUMP FLIP CHIPS IN THICK FILM SOLDER REFLOW HYBRIDS
BROWNEWELL, D.
MOTOROLA SEMICONDUCTOR PRODUCTS DIV., PHOENIX, AZ, USA
INSUL./CIRCUITS (USA) VOL.21, NO.5 33-6 MAY 1975 Coden: ISCUDF
DISCUSSES DEVICE ASSEMBLY TECHNIQUES DEVELOPED TO REDUCE LABOUR AND MATERIAL COSTS. TYPES AND FORMATS OF AVAILABLE SEMICONDUCTOR DEVICES AND METHODS OF ATTACHMENT ARE DISCUSSED. FLIP CHIP BONDING BY REFLOW SOLDERING, DEVICE AVAILABILITY, RELIABILITY, AND ECONOMIC CONSIDERATIONS ARE DISCUSSED. A TABLE OF ASSEMBLE TECHNIQUES, BEAM LEAD, CHIP AND WIRE, AND FLIP CHIP REFLOW IS GIVEN. A TABLE OF COMPARATIVE COSTS IS ALSO SHOWN
Descriptors: ASSEMBLING; HYBRID INTEGRATED CIRCUITS; FLIP-CHIP DEVICES; SOLDERING; THICK FILM CIRCUITS
Identifiers: SOLDER BUMP FLIP CHIPS; SOLDER REFLOW HYBRIDS; ASSEMBLY TECHNIQUES; RELIABILITY; ECONOMIC CONSIDERATIONS; COMPARATIVE COSTS; THICK FILM HYBRID CIRCUITS; HYBRID INTEGRATED CIRCUITS
02
Section Class Codes: B2564, B2540, B2522
Unified Class Codes: SMGEAN, SMEAAB, SMCCAX

793771 B7520883
EFFECT OF SOLDERING FLUX ON TA/SUB 2/N RESISTORS
HOF, G.J.
Report No.: SLA-73-1045; Issued by: SANDIA CORP., ALBUQUERQUE, N.MEX., USA;
Contract No.: AT(29-1)-789
APRIL 1974
ASSEMBLY BY SOLDERING RESULTS IN THE PRESENCE OF EXCESS FLUX THAT IS NORMALLY REMOVED WITH ALCOHOL OR TRICHLOROETHYLENE. IN HYBRID MICROCIRCUITS SOLVENTS MAY BE RETAINED IN CREVICES OR VOIDS. THIS STUDY CONSIDERS THE EFFECT OF FLUX ON TA/SUB 2/N RESISTORS IN HYBRID MICROCIRCUITS ASSUMING THAT EXCESS FLUX IS NOT REMOVED TO AVOID USING SOLVENTS. THESE RESISTORS WERE TESTED FOR STABILITY DURING HEATING IN AIR AT 150 DEGREESC FOR 200 HOURS. FLUX DOES CAUSE A RESISTANCE VALUE INCREASE AND EXCESS FLUX REMOVAL IS RECOMMENDED
Descriptors: HYBRID INTEGRATED CIRCUITS; THIN FILM RESISTORS ; SOLDERING; TANTALUM COMPOUNDS; INTEGRATED CIRCUIT TESTING; THIN FILM CIRCUITS
Identifiers: TA/SUB 2/N RESISTORS; SOLDERING FLUX; HYBRID MICROCIRCUITS; STABILITY; EXCESS FLUX REMOVAL
11
Section Class Codes: B2540, B2210, B2524
Unified Class Codes: SMEAAB, SEEAAS, SMCEAH
Availability: NTIS, SPRINGFIELD, VA. 22151, USA

793769 B7520881
MATERIALS CONTROL FOR THE MANUFACTURE OF THIN-FILM HYBRID CIRCUITS
CLASS, W.; MURRAY, G.T.
CERAMIC PRODUCTS DIV., MATERIALS RES. CORP., ORANGEBURG, N.Y., USA
SOLID STATE TECHNOL. (USA) VOL.18, NO.5 34-41 MAY 1975
Coden: SSTEAP
THE MANUFACTURE OF A THIN FILM HYBRID CIRCUIT IS A COMPLEX MULTIPLE STEP OPERATION IN WHICH DIFFERENT MATERIALS INTERACT IN A COMPLEX MANNER TO YIELD THE FINAL PRODUCT. THIS ARTICLE DEALS WITH THE VARIETY OF BOTH COATING AND SUBSTRATE MATERIALS USED, THE RATIONALE BEHIND THEIR USE, AND THE MANNER IN WHICH THEY ARE BELIEVED TO INTERACT TO YIELD THE FINAL PRODUCT (6 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION
Identifiers: MATERIALS CONTROL; MANUFACTURE; THIN FILM HYBRID CIRCUIT; COATING; SUBSTRATE
02
Section Class Codes: B2540, B2524, B1269
Unified Class Codes: SMEAAB, SMCEAH, ADGMAE

793768 B7520880
DESIGN OF TEMPERATURE-CONTROLLED SUBSTRATES FOR HYBRID MICROCIRCUITS
GREENHOUSE, H.M.; MCGILL, R.L., JR.
BENDIX CORP., BALTIMORE, MD., USA
MICROELECTRONICS (GB) VOL.6, NO.1 39-50 SEPT. 1974
Coden: MICEB9
DEALS WITH THE CRITERIA THAT GOVERN THE DESIGN OF TEMPERATURE-CONTROLLED SUBSTRATES FOR HYBRID MICROCIRCUITS. PERTINENT THERMAL PARAMETERS FOR THE MORE IMPORTANT MICROCIRCUIT FABRICATION MATERIALS ARE PRESENTED IN TABULAR FORM, ALONG WITH SEVERAL USEFUL UNIT-CONVERSION FACTORS. SUBSTRATE HEAT LOSSES DUE TO CONDUCTION, CONVECTION AND RADIATION ARE THEN ANALYSED, AND EQUATIONS ARE DEVELOPED FOR DETERMINING OPTIMUM SUBSTRATE TEMPERATURE, STEADY STATE INPUT POWER AND WARM UP CHARACTERISTICS. CONTROL CIRCUIT DESIGN IS DISCUSSED, AND CONSIDERATION IS GIVEN TO POWER DISSIPATION BY CIRCUITRY OFF AS WELL AS ON THE SUBSTRATE. THE EFFECTS OF CHANGES IN AMBIENT TEMPERATURE ON TEMPERATURE-CONTROLLED-MICROCIRCUIT PERFORMANCE ARE ANALYSED. TWO APPLICATIONS OF THIS TECHNOLOGY ARE DESCRIBED
Descriptors: TEMPERATURE CONTROL; HYBRID INTEGRATED CIRCUITS ; SUBSTRATES
Identifiers: TEMPERATURE CONTROLLED SUBSTRATES; HYBRID MICROCIRCUITS; THERMAL PARAMETERS; MICROCIRCUIT FABRICATION; OPTIMUM SUBSTRATE TEMPERATURE; STEADY STATE INPUT POWER; WARM UP CHARACTERISTICS; CONTROL CIRCUIT DESIGN; POWER DISSIPATION
02
Section Class Codes: B2540
Unified Class Codes: SMEAAB

793767 B7528879
SOME TECHNOLOGICAL PROBLEMS OF HIGH COMPLEXITY THICK FILM HYBRID CIRCUITS
BONIFERT, J.; BARANY, MS.I.
HIRADSTECH. IPARI KUT. INTEZ. KOZL. (HUNGARY) VOL.15 39-64 4 APRIL 1975 Coden: HIKKAB
A SHORT REVIEW OF THE TECHNOLOGICAL COMPATIBILITY OF THE MATERIALS USED IN THE MULTI-LAYER THICK FILM TECHNOLOGY, I.E. THE EFFECTS CAUSING MIGRATION, LEACHING, SWIMMING AND FLOW-IN, IS GIVEN. THE PROBLEMS ARISING IN THE MULTILAYER TECHNOLOGY ARE SOLVED BY EVALUATION OF THE EXPERIMENTS AND BY THAT OF THE CONTROL-SERIES. A MODEL-CIRCUIT HAS BEEN DEVELOPED TO COMPARE THE RESULTS OF THE TYPE-TESTING AND THE ELECTRICAL CHARACTERISTICS OF THE MULTILAYER STRUCTURE. THE ELECTRICAL TESTING OF THE MULTILAYER STRUCTURES RELYING UPON THE MEASURED DATA OF THE CONTROL-SERIES OF THE MODEL CIRCUIT IS GIVEN. THE DATA OBTAINED AND THEIR DEVIATION HAS BEEN EVALUATED BY CONSIDERING THE TYPICAL AND MAXIMUM CATALOGUE-DATA REFERRING TO THE CONDUCTING AND INSULATING PASTES. DATA FOR THE PRACTICAL DESIGN OF MULTILAYER HYBRID CIRCUITS ARE GIVEN (10 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS
Identifiers: HIGH COMPLEXITY THICK FILM HYBRID CIRCUITS; MIGRATION; LEACHING; SWIMMING; MULTILAYER TECHNOLOGY; ELECTRICAL TESTING; MODEL CIRCUIT
02
Section Class Codes: B2540, B2522
Unified Class Codes: SMEAAB, SMCCAX
Language: HUNGARIAN

793766 B7528878
POWER TRANSISTORS IN THICK FILM CIRCUITS
HETHERINGTON, D.
NEWMARKET TRANSISTORS LTD., NEWMARKET, ENGLAND
ELEKTRON. ANZ. (GERMANY) VOL.7, NO.4 95-6 APRIL 1975 Coden: EANZAG
NEW DEVELOPMENTS IN HYBRID TECHNOLOGY MAKE IT FEASIBLE TO MOUNT POWER TRANSISTOR CHIPS AND IC CHIPS ON A SINGLE CERAMIC SUBSTRATE. THEREBY, THE LARGER PART OF THE AMPLIFIER'S COMPONENTS ALONG WITH THE IC CAN BE COMBINED IN A COMPACT MODULE HAVING ABOUT THE SIZE OF A POSTAGE-STAMP AND A THICKNESS OF SOME MILLIMETERS. THE ARTICLE DESCRIBES SUCH HYBRID AMPLIFIERS FOR OUTPUT POWERS UP TO 50 WATTS
Descriptors: THICK FILM CIRCUITS; POWER TRANSISTORS; HYBRID INTEGRATED CIRCUITS; POWER AMPLIFIERS
Identifiers: 50 W; POWER TRANSISTORS; THICK FILM CIRCUITS; HYBRID TECHNOLOGY; SINGLE CERAMIC SUBSTRATE; COMPACT MODULE; HYBRID AMPLIFIERS
02
Section Class Codes: B2540, B1840, B2470, B2522
Unified Class Codes: SMEAAB, ETHAAB, SKNAAN, SMCCAX
Language: GERMAN

793742 B7528840
ANTI-COMPROMISE MICROELECTRONIC CIRCUIT
BRYMER, B.J.; KAPP, E.J.; KEISTER, F.Z.
Patent No.: USA 3860835 Assignees: US NAVY Filed: 10 FEB. 1971
14 JAN. 1975
DISCLOSES A METHOD OF PRODUCING AN ANTI-COMPROMISE THIN FILM CIRCUIT MODULE BY VACUUM DEPOSITION
Descriptors: THIN FILM CIRCUITS; VAPOUR DEPOSITION; INTEGRATED CIRCUIT PRODUCTION; MODULES
Identifiers: ANTICOMPROMISE THIN FILM CIRCUIT MODULE; VACUUM DEPOSITION
08
Section Class Codes: B2524
Unified Class Codes: SMCEAH

793447 B7528490
SUBSTRATE HOLDING DEVICE FOR USE IN SCREEN PRINTING MACHINES
GRYL, F.J.
TECH. DIG. (USA) NO.38 15-16 APRIL 1975 Coden: TCHDAV
DESCRIBES A HOLDING DEVICE FOR SCREEN PRINTING BILEVEL SUBSTRATES AND MULTILAYER CIRCUIT BOARDS, ON ONE SURFACE AND IN THE HOLES BETWEEN OPPOSITE SURFACES OF A SUBSTRATE. A SPECIAL ADAPTATION OF CONVENTIONAL SCREEN PRINTERS AND SUITABLE INKING TECHNIQUES TO' MAINTAIN ACCURATE POSITIONING BEFORE, DURING, AND AFTER THE INKING OPERATION; DRAW INK THROUGH THE SUBSTRATE HOLE PATTERN EVENLY AND REPEATEDLY; AND ACCOMMODATE ANY SUBSTRATE HOLE PATTERN IS DESCRIBED
Descriptors: PRINTED CIRCUITS; ,THICK FILM CIRCUITS; METALLISATION
Identifiers: INKING IN HOLES; PRINTED CIRCUIT BOARDS; THICK FILM CIRCUITS; SUBSTRATE HOLDING DEVICE; SCREEN PRINTING; BILEVEL SUBSTRATES; MULTILAYER CIRCUIT BOARDS; INKING TECHNIQUES
02
Section Class Codes: B2230, B2522, B1269
Unified Class Codes: SEMAAW, SMCCAX, ADGMAE

793415 B7528457
NEW APPLICATIONS IN CERMET TECHNOLOGY
SPENCE, G.; HUMPHRIES, R.
ELECTRON. EQUIP. NEWS (GB) 24 JUNE 1975 Coden: EEQNAN
CERMET TECHNOLOGY IS WELL ESTABLISHED IN A VERY WIDE FIELD OF APPLICATION. LOW POWER RESISTORS, NETWORKS AND THICK FILM BASED HYBRID CIRCUITS ARE NOW COMMON PLACE IN AUTOMOTIVE, DOMESTIC AND MILITARY EQUIPMENT. THERE HAS NOT YET BEEN A SIMILAR GROWTH IN THE APPLICATION OF CERMET RESISTORS TO MEET HIGH POWER (5-100 WATTS) REQUIREMENTS AND THE CONVENTIONAL TYPES, SUCH AS WIREWOUND, HAVE BEEN USED. HOWEVER, MOST OF THE FACTORS LIMITING THE USE OF THICK FILM TECHNIQUES IN THIS POWER RANGE HAVE BEEN RESOLVED AND SO OPENED THE WAY TO MORE WIDE SPREAD APPLICATION OF THIS TECHNOLOGY
Descriptors: CERMETS; THICK FILM RESISTORS; THICK FILM CIRCUITS
Identifiers: CERMET TECHNOLOGY; AUTOMOTIVE EQUIPMENT; DOMESTIC EQUIPMENT; RESISTORS; NETWORKS; THICK FILM BASED HYBRID CIRCUITS; MILITARY EQUIPMENT; THICK FILM TECHNIQUES; APPLICATION
02
Section Class Codes: B2210, B2610, B2522
Unified Class Codes: SEEAAS, SNCAAY, SMCCAX

782891 B7525990
APPLICATIONS OF A ZERO-FREQUENCY SUPERCONDUCTING INDUCTANCE BRIDGE
MESERVEY, R.; TEDROW, P.M.; PARASKEVOPOULOS, D.
MIT, CAMBRIDGE, MASS., USA
AMERICAN PHYS. SOC., IEE, ARGONNE NAT. LAB., ET AL
IEEE TRANS. MAGN. (USA) VOL. MAG-11, NO.2 720-3 MARCH 1975 Coden: IEMGAQ
1974 APPLIED SUPERCONDUCTIVITY CONFERENCE 30 SEPT. - 2 OCT. 1974 ARGONNE, ILL., USA
THE BRIDGE USES A POINT CONTACT SQUID AS A CURRENT NULL DETECTOR. THE UNKNOWN AND STANDARD INDUCTORS ARE AT LIQUID HELIUM TEMPERATURE, BUT THE BRIDGE IS BALANCED BY RESISTANCE ADJUSTMENTS AT ROOM TEMPERATURE. THE PRESENT BRIDGE CAN DETECT A CHANGE OF 1 PART IN 10/SUP 4/ IN A MUH INDUCTANCE AND HAS VARIOUS ADVANTAGES OVER AC BRIDGES. THE BRIDGE CAN BE APPLIED IN A NUMBER OF WAYS. THE AUTHORS ARE USING IT TO DETERMINE THE KINETIC INDUCTANCE, PENETRATION DEPTH AND CRITICAL CURRENT OF THIN FILM CIRCUITS. THE BRIDGE IS PARTICULARLY ADAPTED TO MEASURING THE QUANTUM PHASE DIFFERENCE VS CURRENT OF CURRENT-DEPENDENT INDUCTANCES. SUSCEPTIBILITY AND PRECISION MEASUREMENTS OF INDUCTANCE ARE OTHER POSSIBLE APPLICATIONS. ALTHOUGH THE BRIDGE WAS DEVELOPED TO MEASURE SMALL INDUCTANCES, THE PRINCIPLE CAN BE EASILY APPLIED TO LARGER INDUCTANCES AND MAY BE USEFUL IN LARGE SCALE APPLICATIONS (8 Refs)
Descriptors: SUPERCONDUCTING DEVICES; BRIDGE INSTRUMENTS; INDUCTANCE MEASUREMENT
Identifiers: ZERO FREQUENCY SUPERCONDUCTING INDUCTANCE [illegible] DEPTH; CRITICAL CURRENT; THIN FILM CIRCUITS
06
Section Class Codes: B4230, B2340, B4427
Unified Class Codes: BECGAY, SGAAAL, BKCRAG

782461 B7525498
HYBRID INTEGRATED OSCILLATOR FOR PUSH-BUTTON DIALING
ITO, Y.
NIPPON TELEGRAPH AND TELEPHONE CORP., MUSASHINO, TOKYO
ELECTRON. AND COMMUN. JAP. (USA) VOL.57, NO.1 119-28 JAN. 1974 Coden: ECOJAL
CIRCUITS CONSISTING OF THIN-FILM TANTALUM RC ELEMENTS AND BEAMLEAD IC'S ARE STUDIED WITH A VIEW TO REDUCING THE SIZE OF TELEPHONES. A TWIN-TEE RC CIRCUIT DESIGN TECHNIQUE FOR MINIMIZING THE AREA OCCUPIED BY THE PATTERN IS DESCRIBED AND A DYNAMIC FREQUENCY TRIMMING METHOD USING A SINGLE RESISTIVE ELEMENT TAKES ADVANTAGE OF SMALL ,RELATIVE DEVIATION OF CAPACITANCES OF THIN-FILM CAPACITORS WITHIN THE SUBSTRATE. MU CIRCUIT DESIGN CONDITIONS ARE DERIVED FROM THE ANALYSIS OF THE EFFECTS ON THE OSCILLATION FREQUENCY OF THE INPUT AND OUTPUT IMPEDANCES, PHASE SHIFTS, AND VOLTAGE GAIN, WHERE THE FREQUENCY VARIATIONS DUE TO CHANGES IN THE CHARACTERISTICS OF THE CIRCUIT ARE CONSIDERED (8 Refs)
Descriptors: TELEPHONE STATION EQUIPMENT; OSCILLATORS; HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS; BEAM-LEAD DEVICES
Identifiers: THIN FILM RC OSCILLATOR; BEAM LEAD IC; TWIN T CIRCUIT; MU CIRCUIT; PUSH BUTTON DIALLING; DYNAMIC FREQUENCY TRIMMING METHOD; HYBRID INTEGRATED OSCILLATOR
02
Section Class Codes: B3532, B1850, B2540, B2524
Unified Class Codes: FEECAY, ETKAAR, SMEAAB, SMCEAH

782138 B7525113
MINIATURE PLANE MICROWAVE ANTENNA
WIESBECK, W.
AEG-TELEFUNKEN, ULM, GERMANY
NACHRICHTENTECH. Z. (NTZ) (GERMANY) VOL.28, NO.5 156-9 MAY 1975 Coden: NAZEAA
THIS MICROSTRIP ANTENNA IS PRODUCED IN THICK- OR THIN-FILM TECHNIQUES ON ALUMINIUM CERAMIC SUBSTRATES. THE RADIATING ELEMENT IS A SQUARE METALISED SPOT, THE SIDES BEING LAMDA/2. COUPLING IS ACCOMPLISHED BY A COAXIAL LINE THROUGH A HOLE IN THE SUBSTRATE. LINEAR AND CIRCULAR POLARISATION ARE POSSIBLE. BOTH IMPEDANCE AND CENTER FREQUENCY CAN BE MATCHED BY LASER OR ABRASIVE TRIMMING. IN THE PLANE OF THE SUBSTRATE THE ANTENNA DIAGRAM IS ROTATIONAL SYMMETRIC, WHILE THE VERTICAL DIAGRAM IS CARDIAL. THE GAIN IS BETWEEN -3 AND +3 DB (6 Refs)
Descriptors: MICROWAVE ANTENNAS; ANTENNA RADIATION PATTERNS; STRIP LINE COMPONENTS; PRINTED CIRCUITS
Identifiers: MINIATURE ANTENNA; PRINTED CIRCUIT ANTENNA; THICK FILM CIRCUIT; ANTENNA GAIN; THIN FILM CIRCUIT; ANTENNA RADIATION PATTERNS; HALF WAVELENGTH SQUARE ANTENNA; COAXIAL LINE COUPLED; EXPERIMENTAL RESULTS; LINEAR POLARISATION; PLANE MICROWAVE ANTENNA; MICROSTRIP ANTENNA; ALUMINIUM CERAMIC SUBSTRATES; SQUARE METALLISED SPOT; CIRCULAR POLARISATION; TRIMMING
02
Section Class Codes: B3232, B3290
Unified Class Codes: EMGCAH, EMWAAW
Language: GERMAN

781590 B7524539
DESIGN OF A 1.3-1.7 GHZ THIN-FILM HYBRID AMPLIFIER WITH OPTIMUM PERFORMANCE AT A LOW COST
CHI-CHIA HSIEH; SHU-PARK CHAN
UNIV. SANTA CLARA, CALIF., USA
PARKER, S.R.;
NAVAL POSTGRADUATE SCHOOL, UNIV. SANTA CLARA, IEEE, ET AL
8TH ASILOMAR CONFERENCE ON CIRCUITS, SYSTEMS AND COMPUTERS 328-31 1975
3-5 DEC. 1974 PACIFIC GROVE, CALIF., USA
WESTERN PERIODICALS NORTH HOLLYWOOD, CALIF., USA
DESCRIBES THE DESIGN OF A LOW-NOISE THIN-FILM HYBRID AMPLIFIER AT A FREQUENCY RANGE OF 1.3 TO 1.7 GHZ WITH THE EMPHASIS ON OPTIMIZING ITS PERFORMANCE AT A VERY LOW COST. THE DESIGN OBJECTIVES WERE ACHIEVED WITH A MINIMUM NUMBER OF CIRCUIT ELEMENTS AND A LOW-COST MICROWAVE TRANSISTOR CHIP. BY APPLYING A SENSITIVITY ANALYSIS BEFORE OPTIMIZING THE CIRCUIT, THE NUMBER OF ITERATIONS IN THE OPTIMIZATION ROUTINE WERE GREATLY REDUCED. THE RESULT OF THIS WORK POINTS OUT A NEW MICROWAVE CIRCUIT DESIGN PHILOSOPHY' INSTEAD OF MERELY DESIGNING A CIRCUIT WITH OPTIMUM PERFORMANCE, ONE SHOULD ALSO MAKE CERTAIN THAT THE CIRCUIT IS PRACTICAL ONE WHICH CAN BE MANUFACTURED AT A LOW COST (7 Refs)
Descriptors: THIN FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; [illegible] AMPLIFIERS; SENSITIVITY ANALYSIS
Identifiers: 1.3 TO 1.7 GHZ; THIN FILM HYBRID AMPLIFIER; OPTIMUM PERFORMANCE; LOW COST; SENSITIVITY ANALYSIS; MICROWAVE CIRCUIT DESIGN PHILOSOPHY
06
Section Class Codes: B2540, B1820, B1840, B2524
Unified Class Codes: SMEAAB, ETEAAD, ETHAAB, SMCEAH

781589 B7524538
COMPARATIVE CHARACTERISTICS OF THE ELECTRICAL-PHYSICAL PROPERTIES OF COPPER ALLOYS IN THE VACUUM CONDENSATE STATE AND THE SOLID STATE
PERMYAKOV, V.G.; POPOV, V.I.; SIDORENKO, S.I.
RADIOTEKHNIKA, KHARKOV (USSR) NO.29 59-65 1974 Coden: RTKHAJ
DATA ARE OBTAINED ON THESE PROPERTIES OF A NUMBER OF CU-BASED ALLOYS AND VACUUM CONDENSATES OF THOSE ALLOYS IN ORDER TO ASSESS THEIR SUITABILITY FOR USE AS CONTACT AREAS CONDUCTING BUSBARS AND RESISTORS IN HYBRID-FILM MICROCIRCUITS (9 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS; ELECTRICAL CONDUCTIVITY OF SOLID METALS AND ALLOYS; COPPER ALLOYS
Identifiers: HYBRID IC; ELECTRICAL PROPERTIES; PHYSICAL PROPERTIES; COPPER ALLOYS; VACUUM CONDENSATE; SOLID STATE; CONTACT AREAS; CONDUCTING BUSBARS; RESISTORS
02
Section Class Codes: B2540, B2524
Unified Class Codes: SMEAAB, SMCEAH
Language: RUSSIAN

781580 B7524537
THICK-FILM HYBRIDS-WHAT THEY CAN OFFER
HETHERINGTON, D.R.
NEWMARKET TRANSISTORS LTD., ENGLAND
NEW ELECTRON. (GB) VOL.8, NO.6 64, 67-8 18 MARCH 1975 Coden: NWELAC
HYBRID MICROCIRCUITS HAVE BECOME ESTABLISHED IN A WIDE RANGE OF APPLICATIONS, MILITARY AND AEROSPACE, MEDICAL, PROFESSIONAL, INDUSTRIAL COMMUNICATIONS, AUTOMOTIVE AND CONSUMER. THEY ARE USED TO COMPLEMENT THE USE OF I.C.S IN COMPUTER AND AUTOMOTIVE APPLICATIONS. THICK FILM TECHNOLOGY PROVIDING THE RESISTOR NETWORKS AND SOME INTERCONNECTOR PATTERNS. THE HYBRID CIRCUIT HAS DEVELOPED NEW MARKET FEATURES. INSTEAD OF BEING A COMPONENT IN A P.C.B. IT HAS BECOME A COMPLETE ASSEMBLY. BESIDES THE ECONOMIC COMPARISONS, AN EQUIPMENT DESIGNER WHEN CONSIDERING THE USE OF THICK FILM CIRCUITS MUST CONSIDER THE BENEFITS HE GAINS FROM IMPROVED RELIABILITY, IMPROVED PRODUCT CONSISTENCY, REDUCED FUNCTION VOLUME, AND SIMULATION OF NEW DESIGN IDEAS
Descriptors: THICK FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS
Identifiers: THICK FILM HYBRID CIRCUITS; RELIABILITY; PRODUCT CONSISTENCY; REDUCED FUNCTION VOLUME
02
Section Class Codes: B2540, B2522
Unified Class Codes: SMEAAB, SMCCAX

781584 B7524533
THE PRODUCTION OF HYBRID CIRCUITS FOR THE DEVELOPMENT OF ELECTRONIC EQUIPMENT
SALEWSKI, G.
FERNMELDETECHNIK (GERMANY) VOL.15, NO.1 15-18 13 FEB. 1975 Coden: FERNBG
TECHNIQUES OF MANUFACTURING HYBRID CIRCUITS ARE BRIEFLY REVIEWED. THE IMPORTANCE OF ECONOMICAL CONSIDERATIONS IS STRESSED WITH REGARD TO CHANGE FROM CONVENTIONAL TO THIN FILM CIRCUITS. A BETTER CHOICE IS OFFERED BY THE USE OF HYBRID CIRCUITS WHICH MAKE USE OF ENCAPSULATED IC'S AND TRANSISTOR CHIPS. (4 Refs)
Descriptors: INTEGRATED CIRCUIT PRODUCTION; HYBRID INTEGRATED CIRCUITS
Identifiers: ENCAPSULATED IC; PRODUCTION OF HYBRID CIRCUITS; IMPORTANCE OF ECONOMICAL CONSIDERATIONS; THIN FILM CIRCUITS; TRANSISTOR CHIPS
02
Section Class Codes: B2540
Unified Class Codes: SMEAAB
Language: GERMAN

781582 B7524531
TECHNOLOGICAL PRODUCTION LINE FOR THIN FILM HYBRID PHOTOLITHOGRAPHY PROCESSING
ROMAN, W.; SMOLSKI, R.
ELEKTRONIKA (POLAND) VOL.16, NO.3 97-101 1975 Coden: EKNTDZ
DESCRIBES THE CONSTRUCTION, WORKING PRINCIPLE AND PRACTICAL EXPERIENCE WITH A PHOTOLITHOGRAPHY PROCESSING PRODUCTION LINE (6 Refs)
Descriptors: THIN FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; PHOTOLITHOGRAPHY; INTEGRATED CIRCUIT PRODUCTION
Identifiers: THIN FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; INTEGRATED CIRCUIT PROCESSING; PRODUCTION LINE; PHOTOLITHOGRAPHY; CONSTRUCTION; WORKING PRINCIPLE; PRACTICAL EXPERIENCE
02
Section Class Codes: B2540, B2524
Unified Class Codes: SMEAAB, SMCEAH
Language: POLISH

781526 B7524447
PERFORMANCE CHARACTERISTICS OF UNIFORM THIN-FILM RESISTIVE-CAPACITIVE-RESISTIVE STRUCTURES
KAMAL, A.K.; AHMED, K.U.; AGARWAL, R.P.; SINHA, H.P.
UNIV. ROORKEE, INDIA
MICROELECTRONICS (GB) VOL.6, NO.1 6-10 SEPT. 1974 Coden: MICEB9
PERFORMANCE CHARACTERISTICS OF A FEW SPECIMEN OF UNIFORM THIN FILM STRUCTURES, EACH CONSISTING OF TWO RESISTIVE LAYERS OF DIFFERENT PER-UNIT-LENGTH RESISTANCE SEPARATED FROM ONE ANOTHER BY A DIELECTRIC LAYER ARE EVALUATED BOTH THEORETICALLY AND EXPERIMENTALLY. THE EXPERIMENTAL RESULTS AGREE FAIRLY WELL WITH THE THEORETICAL COUNTERPARTS WITHIN THE BOUNDS OF EXPERIMENTAL ERRORS. THE EFFECT OF VARYING THE LOAD ON THE PERFORMANCE CHARACTERISTICS IS OBSERVED EXPERIMENTALLY AND THE RESULTS ARE FOUND TO CONFORM TO THOSE REPORTED EARLIER. THE EXISTENCE OF A NULL FREQUENCY SHOWN BY THE NUMERICAL ANALYSIS OF A LOW PASS FILTER CONFIGURATION OF THE UNIFORM THIN FILM STRUCTURE IS ALSO CONFIRMED BY EXPERIMENTAL OBSERVATIONS (8 Refs)
Descriptors: THIN FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; DISTRIBUTED PARAMETER NETWORKS
Identifiers: THIN FILM DISTRIBUTED NETWORK; PERFORMANCE CHARACTERISTICS; THIN FILM; RESISTIVE LAYERS; DIELECTRIC LAYER; NULL FREQUENCY; NUMERICAL ANALYSIS; LOW PASS FILTER CONFIGURATION; UNIFORM THIN FILM STRUCTURE
02
Section Class Codes: B2524
Unified Class Codes: SMCEAH

781525 B7524446
EVOLUTION OF THE CHROMIUM-GOLD THIN FILM METALLIZATION
TRAEGER, R.K.
SANDIA LABS., ALBUQUERQUE, N.MEX., USA
J. VAC. SCI. AND TECHNOL. (USA) VOL.12, NO.1 27
JAN.-FEB. 1975 Coden: JVSTAL
ABSTRACT ONLY GIVEN, IN WHICH SELECTION, IMPLEMENTATION AND LIMITATIONS OF THE METALLIZATION SYSTEM ARE MENTIONED (3 Refs)
Descriptors: THIN FILMS; CHROMIUM; GOLD; METALLISATION; THIN FILM CIRCUITS
Identifiers: CR-AU FILM METALLISATION; EVOLUTION
02
Section Class Codes: B2524
Unified Class Codes: SMCEAH

781524 B7524445
ELECTRICAL RESISTANCE OF METALLIZED VIA HOLES
HALL, P.M.
BELL TELEPHONE LABS., ALLENTOWN, PA., USA
AMERICAN VACUUM SOC.
J. VAC. SCI. AND TECHNOL. (USA) VOL.12, NO.1 88-91
JAN.-FEB. 1975 Coden: JVSTAL
21ST NATIONAL SYMPOSIUM OF THE AMERICAN VACUUM SOCIETY
8-11 OCT. 1974 ANAHEIM, CALIF., USA
THE RESISTANCE OF HOLES DRILLED BY LASER THROUGH ALUMINA SUBSTRATES AND THE COATED BY EVAPORATION IS CONSIDERED ANALYTICALLY. THE GEOMETRY IS TAKEN IDEALLY AS A CONICAL HOLE. THE EFFECTS OF FOUR-POINT PROBE TECHNIQUES ARE DISCUSSED AND A THEORETICAL EXPRESSION BASED ON CONFORMED MAPPING TECHNIQUES IS GIVEN. THE CASES OF TIPD AND TIPDAU FILMS ARE DISCUSSED. THE SUCH HIGHER RESISTANCE WITHIN THE HOLE IS ATTRIBUTED TO NON-PERPENDICULAR INCIDENCE AND NOT TO SURFACE IRREGULARITIES (2 Refs)
Descriptors: METALLISATION; THIN FILM CIRCUITS; ELECTRICAL CONDUCTIVITY; METALLIC THIN FILMS
Identifiers: METALLISED VIAHOLE; AL/SUB 2/O/SUB 3/ SUBSTRATE ; CONICAL HOLE GEOMETRY; FOUR POINT PROBE TECHNIQUES; TIPD FILM; TIPDAU FILM; LASER DRILLED VIAHOLE; ELECTRICAL RESISTANCE
06
Section Class Codes: B2524
Unified Class Codes: SMCEAH

781523 B7524444
THIN FILM METALLIZATION AND PATTERN GENERATION TECHNIQUES
PFAHNL, A.
BELL TELEPHONE LABS. INC., ALLENTOWN, PA., USA
INTERNAT. UNION FOR VACUUM SCI., TECHNIQUE AND APPLICATIONS
JAP. J. APPL. PHYS. (JAPAN) SUPPL.2, PT.1 A-857 1974
Coden: JJAPA5
PROCEEDINGS OF THE 6TH INTERNATIONAL VACUUM CONGRESS 25-29 MARCH 1974 KYOTO, JAPAN
ABSTRACT ONLY GIVEN, SUBSTANTIALLY AS FOLLOWS. DESCRIBES SOME DEVELOPMENTS IN SUBSTRATE METALLIZATION AND INVESTIGATIONS OF CONDUCTOR SYSTEM PROPERTIES, INCLUDING SUBSTRATES WITH VIA-HOLES, AND EVAPORATED VS SPUTTERED METAL FILMS. NEXT THE PROPERTIES OF THIN FILM CONDUCTORS DEPOSITED BY SELECTIVE PLATING OF GOLD ON TIPD METALLIZATIONS ARE OUTLINED. AND FINALLY THE APPLICATION AND CHARACTERIZATION CONDITIONS FOR THIN FILM PHOTORESISTS ARE SHOWN WHICH PERMIT THE GENERATION OF FINE LINE CONDUCTORS WITH +OR- 2.5 MUM TOLERANCE. IT IS CONCLUDED THAT THE INTERCONNECTION DENSITY AND PRECISION ACHIEVABLE BY THIS TECHNOLOGY ARE ADEQUATE TO MEET THE REQUIREMENTS FOR THE PRESENT AND AT LEAST NEAR FUTURE NEEDS OF THIN FILM CIRCUIT TECHNOLOGY
Descriptors: METALLISATION; INTEGRATED CIRCUIT PRODUCTION; HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS
Identifiers: THIN FILM METALLIZATION; HYBRID INTEGRATED CIRCUITS; PATTERN GENERATION TECHNIQUES; THIN FILM PHOTORESISTS; THIN FILM CONDUCTORS; INTERCONNECTION DENSITY; PRECISION; THIN FILM CIRCUIT TECHNOLOGY
06
Section Class Codes: B2524, B2540, B2528
Unified Class Codes: SMCEAH, SMEAAB, SMCKAK

781521 B7524442
TEMPERATURE COMPENSATED RC-ACTIVE NETWORKS IN THICK FILM TECHNOLOGY
KALLFASS, T.
INST. NETZWERK SYSTEMTHEORIE, DER UNIV. STUTTGART, GERMANY
FREQUENZ (GERMANY) VOL.29, NO.5 147-51 MAY 1975
Coden: FONZA3
AN IMPORTANT CONDITION FOR THE MANUFACTURE OF COMMUNICATION FILTERS IN THICK FILM TECHNOLOGY IS A LOW TEMPERATURE COEFFICIENT OF THE TIME CONSTANTS EXHIBITED BY THE INTEGRATED R'S AND C'S. THIS PROBLEM CAN BE SOLVED BY MATCHING THE TEMPERATURE COEFFICIENTS OF R'S AND C'S. IT IS POSSIBLE TO ADJUST THE TCC TO THE GIVEN TCR BY BLENDING TWO DIELECTRIC COMPOSITIONS. TEST RESULTS OF A TWIN-T-NETWORK AND A RC-ACTIVE LOWPASS FILTER OF 7TH DEGREE ARE GIVEN WHICH DEMONSTRATE THAT THICK FILM CIRCUITS CAN ATTAIN THE LOW TEMPERATURE SENSITIVITY OF THIN FILM CIRCUITS (4 Refs)
Descriptors: ACTIVE FILTERS; THICK FILM CIRCUITS
Identifiers: RC ACTIVE NETWORK; TEMPERATURE COMPENSATED; THICK FILM TECHNOLOGY
02
Section Class Codes: B2524, B1880
Unified Class Codes: SMCEAH, ETRAAM

781520 B7524441
THIN FILM CIRCUITS USING TANTALUM TECHNIQUES
MULLER, S.
ELEKTRON. IND. (GERMANY) VOL.6, NO.1-2 EP1-4 JAN.-FEB. 1975 Coden: EKIDAT
THE ADVANTAGES OF TANTALUM IN THIN FILM CIRCUITS, COMPARED TO NICKEL/CHROME, IS THAT RESISTORS ARE EASILY ADJUSTED BY ANODIC OXIDATION AND THE RESULTING OXIDE LAYER ALSO ACTS AS A GOOD PASSIVATOR. CAPACITORS WITH TANTALUM OXIDE DIELECTRIC ALSO SHOW ADVANTAGES BY GREATLY INCREASED PACKING DENSITY. THE ARTICLE DESCRIBES PROCESSING AND CHARACTERISTICS OF TANTALUM THIN FILM CIRCUITS, AS WELL AS A SHORT REVIEW OF THE PRESENT TECHNOLOGICAL STATUS (20 Refs)
Descriptors: THIN FILM CIRCUITS; THIN FILM DEVICES; REVIEWS; TANTALUM
Identifiers: TA TECHNOLOGY; TA/SUB 2/O/SUB 5/; THIN FILM CIRCUITS; RESISTORS; ANODIC OXIDATION; PASSIVATOR; CAPACITORS; PACKING DENSITY; PROCESSING
02
Section Class Codes: B2524
Unified Class Codes: SMCEAH
Language: GERMAN

781519 B7524440
MULTILAYER THICK FILMS
HICKS, J.
NEW ELECTRON. (GB) VOL.8, NO.6 72 18 MARCH 1975 Coden: NWELAC
THE MANUFACTURING TECHNIQUES FOR THICK FILM CIRCUITS ARE REVIEWED TOGETHER WITH THEIR APPLICATIONS IN INDUSTRY, OPTOELECTRONICS AND INSTRUMENTATION
Descriptors: THICK FILM CIRCUITS
Identifiers: MULTILAYER THICK FILMS
02
Section Class Codes: B2522
Unified Class Codes: SMCCAX

781518 B7524439
THIN AND THICK FILM FOR PROFESSIONAL AND MILITARY APPLICATIONS
BISWELL, D.
ITT COMPONENTS GROUP EUROPE, HARLOW, ENGLAND
NEW ELECTRON. (GB) VOL.8, NO.6 54-5 18 MARCH 1975 Coden: NWELAC
THE FUTURE OF MULTI-CHIP FILM CIRCUIT TECHNOLOGY FOR PROFESSIONAL AND MILITARY USE CAN BE SUMMARISED AS' (1) THE DIFFERENCE IN PRECISION AND STABILITY BETWEEN THIN AND THICK FILMS IS NARROWING; (2) MAJOR CHANGES ARE EXPECTED IN ASSEMBLY AND ENCAPSULATION METHODS; (3) DEVELOPMENT OF COMPUTER-CONTROLLED AUTOMATIC METHODS OF MANUFACTURE OF COMPLEX MULTI-CHIP CIRCUITS; (4) MONOLITHIC CIRCUIT CHIPS AND FILM TECHNOLOGY PROVIDES A BASIS FOR FUTURE ELECTRONIC EQUIPMENT
Descriptors: THICK FILM CIRCUITS; THIN FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS
Identifiers: MULTICHIP FILM CIRCUITS; THIN FILM CIRCUITS; PROFESSIONAL APPLICATIONS; THICK FILM; MILITARY APPLICATIONS; PRECISION; STABILITY; ASSEMBLY; ENCAPSULATION; MONOLITHIC CIRCUIT CHIPS
02
Section Class Codes: B2522, B2524, B2540
Unified Class Codes: SMCCAX, SMCEAH, SMEAAB

781125 B7524029
ADVANCES IN SUPERCONDUCTING QUANTUM ELECTRONIC MICROCIRCUIT FABRICATION
KIRSCHMAN, R.K.; NOTARYS, H.A.; MERCEREAU, J.E.
JET PROPULSION LAB., PASADENA, CALIF., USA
AMERICAN PHYS. SOC., IEE, ARGONNE NAT. LAB., ET AL
IEEE TRANS. MAGN. (USA) VOL. MAG-11, NO.2 778-81 MARCH 1975 Coden: IEMGAQ
1974 APPLIED SUPERCONDUCTIVITY CONFERENCE 30 SEPT. - 2 OCT. 1974 ARGONNE, ILL., USA
STANDARD MICROELECTRONIC FABRICATION TECHNIQUES HAVE BEEN UTILIZED TO PRODUCE BATCH QUNATITIES OF SUPERCONDUCTING QUANTUM ELECTRONIC DEVICES AND CIRCUITS. THE OVERALL GOAL IS A FABRICATION TECHNOLOGY YIELDING CIRCUITS THAT ARE RUGGED AND STABLE AND CAPABLE OF BEING FABRICATED CONTROLLABLY AND REPRODUCIBLY IN SIZEABLE QUANTITIES. PROGRESS TOWARD THIS GOAL IS PRESENTED, WITH PRIMARY EMPHASIS ON THE MOST RECENT WORK, WHICH INCLUDES THE USE OF ELECTRON-BEAM LITHOGRAPHY AND TECHNIQUES OF HYBRID MICROELECTRONICS. SEVERAL PROTOTYPE MICROCIRCUITS HAVE BEEN SUCCESSFULLY FABRICATED. THESE MICROCIRCUITS ARE FORMED IN A THIN-FILM PARENT MATERIAL CONSISTING OF LAYERS OF SUPERCONDUCTING AND NORMAL METALS, AND USE PROXIMITY-EFFECT STRUCTURES AS THE ACTIVE CIRCUIT ELEMENTS (12 Refs)
Descriptors: INTEGRATED CIRCUIT PRODUCTION; HYBRID INTEGRATED CIRCUITS; SUPERCONDUCTING DEVICES; THIN FILM CIRCUITS
Identifiers: ELECTRON BEAM LITHOGRAPHY; SUPERCONDUCTING QUANTUM ELECTRONIC MICROCIRCUIT FABRICATION; HYBRID MICROELECTRONICS
06
Section Class Codes: B2340, B2524, B2540
Unified Class Codes: SGAAAL, SMCEAH, SMEAAB

781022 B7523920
REVIEW OF THE MARKET FOR P.C.B. AND FILM CIRCUITS
SCHEMILT, H.R.
NEW ELECTRON. (GB) VOL.8, NO.6 41-2 18 MARCH 1975
Coden: NWELAC
REVIEWS THE MARKET FOR PRINTED CIRCUITS, THICK AND THIN MICROCIRCUITS, THIN AND THICK FILM HYBRIDS
Descriptors: REVIEWS; PRINTED CIRCUITS; THICK FILM CIRCUITS; THIN FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS
Identifiers: PCB CIRCUITS; PC LAMINATE; THIN FILM MICROCIRCUIT; THICK FILM MICROCIRCUIT; HYBRID IC; REVIEW; FILM CIRCUITS
02
Section Class Codes: B2230, B2522, B2524, B2540
Unified Class Codes: SEMAAW, SMCCAX, SMCEAH, SMEAAB

772755 B7519877, C7514688
COMPUTER-AIDED DESIGN OF THIN-FILM ANODIZATION FIXTURES
DICKERSON, P.J.
BELL LAB., HAWTHORNE, NEV., USA
WESTERN ELECTRIC ENG. (USA) VOL.19, NO.1 24-9 JAN. 1975 Coden: WELEAX
THE USE OF A COMPUTER TO PERFORM THE DRAFTING FUNCTIONS REQUIRED IN THE DESIGN OF THIN-FILM ANODIZATION FIXTURES HAS REDUCED DESIGN AND DRAFTING TIME BY 24 DAYS, OR 96 PERCENT. FIXTURE CONSTRUCTION TIME HAS BEEN REDUCED BY TWO DAYS, OR 10 PERCENT, BECAUSE THE PRINTOUT PREPARED BY THE COMPUTER IS MORE ACCURATE AND EASIER TO USE THAN THE DRAWINGS PREPARED BY A DRAFTSMAN. THE REDUCTION IN CONSTRUCTION TIME HAS LED TO A 10-PERCENT REDUCTION IN THE COST OF THE FIXTURE. WITH THE COMPUTER-AIDED DESIGN AND DRAFTING PROCESS, THE PRODUCT ENGINEER PREPARES DETAILED INFORMATION ABOUT DIMENSIONS, CIRCUITS, PROBES, CABLES AND OTHER DESIGN FACTORS. THE COMPUTER USES THIS INFORMATION TO FURNISH SOME 30 PAGES OF FIXTURE DESIGN INFORMATION CONSISTING OF A PROBE-PLATE DRILLING INFORMATION LIST, A WIRING INFORMATION LIST, AND AN ORDERED CABLE INTERFACE LIST. THESE LISTS ARE USED TO CONSTRUCT AND MAINTAIN THE FIXTURE
Descriptors: INTEGRATED CIRCUIT PRODUCTION; THIN FILM CIRCUITS; ELECTRONICS APPLICATIONS OF COMPUTERS; COMPUTER-AIDED DESIGN; OXIDATION
Identifiers: CAD; THIN FILM ANODISATION FIXTURES; INTEGRATED CIRCUIT PRODUCTION; THIN FILM FUNCTIONS; DRAUGHTING FUNCTIONS; DESIGN FACTORS
02
Section Class Codes: B2524, C8842, B1269
Unified Class Codes: SMCEAH, WMEEAQ, ADGMAE

772713 B7519869, C7514643
DESIGN OF THICK FILM INTEGRATED CIRCUITS (RESISTORS)
RIPKA, G.; PAPP, K.; ALBRECHT, M.
BME ELEKTRONIKAI TECHNOLOGIA TANSZEK, HUNGARY
HIRADASTECHNIKA (HUNGARY) VOL.25, NO.12 353-2 DEC. 1974 Coden: HIRAAG
THE PROCESS OF DESIGNING THICK FILM RESISTORS, THEIR WIRING AND TOPOLOGY IS DESCRIBED. AN EXAMPLE ILLUSTRATES THE COURSE OF THE DESIGN AND THE MAIN CONSTRUCTIONAL PROBLEMS. A COMPUTER PROGRAMME WAS DEVELOPED FOR THE CORRECT TECHNOLOGICAL DESIGN OF THICK FILM RESISTORS. THIS PROGRAMME IS DESCRIBED (3 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS; TOPOLOGY; WIRING; COMPUTER-AIDED CIRCUIT DESIGN; THICK FILM RESISTORS
Identifiers: THICK FILM HYBRID INTEGRATED CIRCUITS; COMPUTER PROGRAM; COMPUTER AIDED DESIGN; DESIGN; THICK FILM RESISTORS; WIRING; TOPOLOGY
02
Section Class Codes: B2522, B2540, C8842
Unified Class Codes: SMCCAX, SMEAAB, WMEEAQ
Language: HUNGARIAN

771829 B7519868, C7513671
TOWARDS A BETTER UNDERSTANDING OF SCREEN PRINT THICKNESS CONTROL
HORWOOD, R.J.
BAC, BRISTOL, ENGLAND
ELECTROCOMPON. SCI. AND TECHNOL. (GB) VOL.1, NO.2 129-36 DEC. 1974 Coden: ECSTCS
IN RECENT YEARS, A MORE SCIENTIFIC APPROACH TO THE AGE-OLD CRAFT OF SILK SCREEN PRINTING HAS RESULTED IN THE EVOLUTION OF COMPLEX PRECISION-BUILT PRINTING MACHINES FOR USE IN THE ELECTRONICS MICRO-CIRCUIT INDUSTRY. EVEN SO, KNOWLEDGE OF THE PHYSICAL PROCESSES INVOLVED IN SCREEN PRINTING IS STILL FAR FROM COMPLETE. AN ATTEMPT IS MADE HERE TO PROVIDE A BETTER UNDERSTANDING OF THE SCREEN PRINTING MECHANISM AND MORE SPECIFICALLY OF PRINT THICKNESS CONTROL. TWO DIFFERENT PRINTING MODES ARE DESCRIBED AND THE EFFECT OF AN INTERACTION BETWEEN SOME OF THE MORE IMPORTANT MACHINE PARAMETERS IN THIS RESPECT ARE DISCUSSED. A SIMPLE PILLAR THEORY IS OFFERED WHICH ALLOWS A PREDICTION TO BE MADE OF THE QUANTITY OF INK FUNDAMENTALLY DEPOSITED BY A GIVEN SCREEN (3 Refs)
Descriptors: INTEGRATED CIRCUIT PRODUCTION; HYBRID INTEGRATED CIRCUITS; PRODUCTION CONTROL; THICKNESS CONTROL; THICK FILM CIRCUITS
Identifiers: PRECISION BUILT PRINTING MACHINES; ELECTRONICS MICROCIRCUIT INDUSTRY; THICK FILMS; SCREEN PRINT THICKNESS CONTROL; SILK SCREEN PRINTING; SIMPLE,PILLAR THEORY; QUANTITY OF INK; HYBRID MICROCIRCUITS
02
Section Class Codes: B2522, C7862, C7441, B2540
Unified Class Codes: SMCCAX, VMMEAE, VGECAF, SMEAAB

AD-A062 407 ROCKWELL INTERNATIONAL ANAHEIM CA ELECTRONIC DEVICES DIV F/G 9/3
HYBRID TECHNOLOGY COST REDUCTION IMPROVEMENT SUDY PROGRAM. VOLU--ETC(U)
APR 78 N00163-77-C-0299

UNCLASSIFIED C78-299/501-VOL-2 NL

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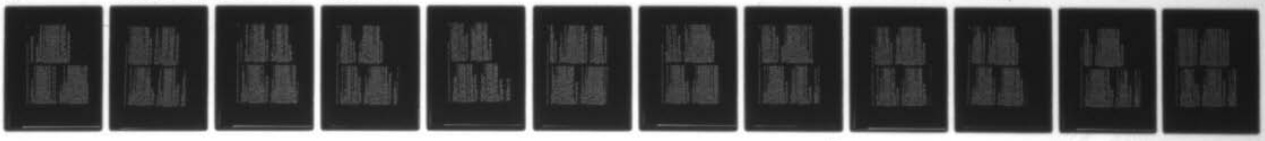

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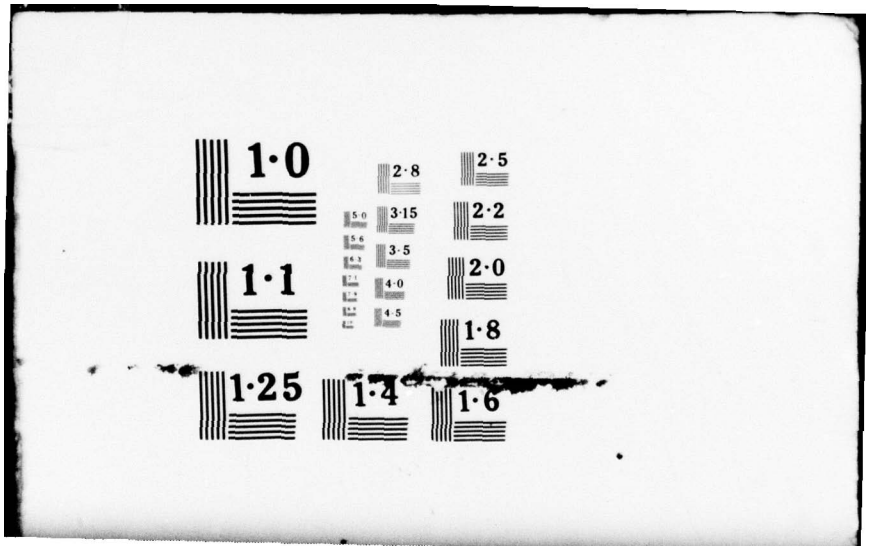
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771828 B7519873, C7513670
GALVANOMETER CONTROLLED LASER TRIMMING
COZZENS, W.
ELECTRON (GB) NO.66 37, 38, 40 16 JAN. 1975 Coden: ELTNCL
GREAT DEVELOPMENT EFFORT HAS BEEN SPENT IN RECENT YEARS IMPROVING THE TECHNIQUES OF MANUFACTURING FILM RESISTORS AND FILM HYBRID CIRCUITS. ONE AREA, THE TRIMMING PROCESS, HAS SEEN ESPECIALLY SIGNIFICANT IMPROVEMENT IN COST REDUCTION AND AUTOMATION. TWO MAJOR FACTORS CONTRIBUTED TO THIS IMPROVEMENT: THE SUCCESSFUL APPLICATION OF THE LASER AS A TRIMMING TOOL AND THE INVENTION OF THE GALVANOMETER BEAM POSITIONER. BECAUSE OF THESE AND OTHER ADVANCES, TRIMMING NEED NO LONGER BE THE SLOWEST AND MOST COSTLY PART OF THE PRODUCTION PROCESS
Descriptors: THIN FILM RESISTORS; THIN FILM CIRCUITS; LASER BEAM MACHINING; POSITION CONTROL; GALVANOMETERS; INTEGRATED CIRCUIT PRODUCTION
Identifiers: LASER TRIMMING; FILM HYBRID CIRCUITS; COST REDUCTION; AUTOMATION; GALVANOMETER BEAM POSITIONER; FILM RESISTORS
02
Section Class Codes: B2524, B2210, B2980, B1267, C7862, C7441
Unified Class Codes: SMCEAH, SEEAAS, EGMAAA, ADGKAT, VMMEAE, VGECAF

768495 B7519942
FILM HYBRID CIRCUITS FOR LSI
HARWOOD, G.
MULLARD LTD., MITCHAM, ENGLAND
AGARD LECTURE SERIES NO.75 CUSTOM DESIGN FOR LARGE SCALE INTEGRATION (LSI) 4/1-16 1975
21-25 APRIL 1975 LONDON, ENGLAND
AGARD NEUILLY SUR SEINE, FRANCE
CONSIDERS BOTH THICK AND THIN FILM HYBRID TECHNOLOGIES FOR USE WITH LSI DEVICES. MATERIALS USED FOR THE PASSIVE PART OF THE CIRCUIT AND THEIR PROPERTIES ARE CONSIDERED WITH REGARD TO INTERACTION WITH BONDING MATERIALS. TYPES OF INTEGRATED AND ATTACHED COMPONENTS ARE DISCUSSED WITH PARTICULAR REFERENCE TO RESISTORS, CAPACITORS AND SEMI-CONDUCTORS. MATERIALS AND TECHNIQUES USED FOR ATTACHING COMPONENTS TO THE FILM CIRCUIT ARE INDICATED AND A SELECTION OF THOSE MOST LIKELY TO GIVE LONG SERVICE AND GOOD PERFORMANCE ARE MADE. THE EFFECTS OF ENVIRONMENTAL TREATMENT AND OF PACKAGING IN VARIOUS WAYS ARE CONSIDERED AND THE MOST SUITABLE WAYS OF PROTECTING THE COMPONENTS SENSITIVE TO MECHANICAL DAMAGE AND HOSTILE ENVIRONMENTS ARE SET OUT. A SUMMARY OF IMPORTANT ASPECTS OF DESIGN OF FILM HYBRIDS FOR LSI IS MADE (29 Refs)
Descriptors: LARGE SCALE INTEGRATION; THICK FILM CIRCUITS; THIN FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS
Identifiers: THIN FILM CIRCUIT; LARGE SCALE INTEGRATION; SEMICONDUCTORS; FILM HYBRID CIRCUITS; THIN FILM HYBRID TECHNOLOGIES; RESISTORS; CAPACITORS; FILM CIRCUIT; PACKAGING; EFFECTS OF ENVIRONMENTAL TREATMENT
06
Section Class Codes: B2540, B2524, B2522
Unified Class Codes: SMEAAB, SMCEAH, SMCCAX

768491 A7535338, B7519938
THIN-FILM CRYOGENIC AMPLIFIER
KRAMER, G.
AEROJET ELECTROSYSTEMS CO. AZUSA, CALIF., USA
INTERNAT. UNION FOR VACUUM SCI., TECHNIQUE AND APPLICATIONS
JAP. J. APPL. PHYS. (JAPAN) SUPPL.2, PT.1 833-5 1974 Coden: JJAPA5
PROCEEDINGS OF THE 6TH INTERNATIONAL VACUUM CONGRESS 25-29 MARCH 1974 KYOTO, JAPAN
A THREE-STAGE AMPLIFIER, DESIGNED FOR CRYOGENIC APPLICATIONS, EMPLOYING ALL THIN-FILM COMPONENTS, I.E., THIN-FILM TRANSISTORS, THIN-FILM DIODES, THIN-FILM CAPACITORS AND THIN-FILM RESISTORS, IS DESCRIBED. THE TFTS USED IN THIS THIN-FILM INTEGRATED CIRCUIT (TFIC) EXHIBIT SATISFACTORY STABILITY AND RELATIVELY LOW NOISE AT CRYOGENIC TEMPERATURES. AT A TEMPERATURE OF 77K, AND FREQUENCY OF 500 HZ THE AMPLIFIER EXHIBITS A VOLTAGE GAIN OF GREATER THAN 100 AND A NOISE LEVEL OF 400 NANOVOLTS/SQROOTHZ. THE FREQUENCY RANGE OF OPERATION IS 1 HZ TO 10 KHZ. AN ARRAY OF 102 DISCRETE AMPLIFIERS ARE DEPOSITED ON A TWO INCH SQUARE SUBSTRATE BY ADDITIVE EVAPORATION PROCESSES IN A SINGLE PUMPDOWN OF THE VACUUM SYSTEM. EACH AMPLIFIER CONTAINS 3 THIN-FILM TRANSISTORS, 6 THIN-FILM DIODES, 4 THIN-FILM RESISTORS AND 3 THIN-FILM CAPACITORS
Descriptors: CRYOGENICS; LOW-TEMPERATURE TECHNIQUES; AMPLIFIERS; THIN FILM CIRCUITS; THIN FILM TRANSISTORS
Identifiers: THIN FILM IC AMPLIFIER; THREE STAGE AMPLIFIER; VACUUM SYSTEM SINGLE PUMPDOWN; CRYOGENIC APPLICATIONS; CRYOGENIC APPLICATIONS; STABILITY:, LOW NOISE; ADDITIVE EVAPORATION PROCESSES
06
Section Class Codes: A0660, A0624, B2540, B1840
Unified Class Codes: BGMAAH, BGFEAJ, SMEAAB, ETHAAB

768449 B7519874
PRODUCTION OF THIN FILM NETWORKS BY MEANS OF ELECTROEROSION MICRO-ENGRAVING
ILLYEFALVI VITEZ, ZS.
BUE ELEKTRONIKAI TECHNOLOGIA TANSZEK, HUNGARY
HIRADASTECHNIKA (HUNGARY) VOL.25, NO.12 363-5 DEC. 1974 Coden: HIRAAG
MICRO-ENGRAVING BY ELECTROEROSION OF A THIN FILM IS A WIDE-SPREAD METHOD OF TRIMMING THIN FILM RESISTORS AND CAPACITORS OF INTEGRATED CIRCUITS. TESTS WERE MADE TO CLARIFY THE PHYSICS OF THE ELECTROEROSION AND TO OPTIMIZE THE PARAMETERS OF TECHNOLOGY. AS A RESULT OF FURTHER DEVELOPMENT OF THE PROCEDURE THE QUALITY OF THE ADJUSTED ELEMENTS HAS IMPROVED AND THE POSSIBILITY OF THE DEVELOPMENT OF A COMPLETE TOPOLOGY OF RESISTANCE NETWORKS BY MICRO-ENGRAVING WAS ESTABLISHED (3 Refs)
Descriptors: THIN FILM CIRCUITS; THIN FILM RESISTORS; THIN FILM CAPACITORS; INTEGRATED CIRCUIT PRODUCTION
Identifiers: ELECTROEROSION MICROENGRAVING; THIN FILM CAPACITORS; PARAMETER OPTIMISATION; THIN FILM NETWORKS; THIN FILM RESISTORS; INTEGRATED CIRCUITS; TOPOLOGY
02
Section Class Codes: B2524
Unified Class Codes: SMCEAH
Language: HUNGARIAN

768448 B7519872
IMPROVEMENT OF THICK FILM CIRCUIT ELEMENT
Patent No.: UK 1377682 Assignees: ELECTRONIC COMPONENTS AB Filed: 26 FEB. 1973
Priority Date: 1 MAR 1972
18 DEC. 1974
A THICK-FILM PRINTED CIRCUIT FOR USE AT RADIO FREQUENCIES COMPRISES A SUBSTRATE HAVING PRINTED COMPONENTS ON EACH SIDE, ONE OF THE COMPONENTS ON ONE SIDE HAVING AN EARTH AREA PRINTED WITH CONDUCTIVE INK AND SOME OF THE COMPONENTS ON THE OTHER SIDE OF THE SUBSTRATE BEING LOCATED DIRECTLY OPPOSITE THE EARTH AREA. DISCRETE COMPONENTS ARE ALSO CONNECTED TO THE PRINTED COMPONENTS. THE ARRANGEMENT MINIMIZES ALTERATION IN THE BASIC CHARACTERISTICS OF THE CIRCUITRY BY UNWANTED COUPLING
Descriptors: PRINTED CIRCUITS; EARTHING; THICK FILM CIRCUITS
Identifiers: THICK FILM RF PRINTED CIRCUIT; SUBSTRATE; EARTH AREA; CONDUCTIVE INK; COUPLING
08
Section Class Codes: B2522, B2230
Unified Class Codes: SMCCAX, SEMAAW

767944 B7519155
1.8 GHZ LUMPED COMPONENT THICK FILM AMPLIFIER
ALLEN, C.P.; TUCKER, C.E.; WOODCOCK, K.W.; BARNWELL, P.G.
BRIGHTON POLYTECH., ENGLAND
ELECTROCOMPON. SCI. AND TECHNOL. (GB) VOL.1, NO.2 141-4 DEC. 1974 Coden: ECSTC5
TEST CIRCUITS WERE PRINTED AND MEASURED. A MICROSTRIP LAUNCHER WAS USED TO CONNECT DIRECTLY INTO THE CIRCUIT. WHILE A SHORTING BAR CONNECTED TO THE PLATE HOLDING LAUNCHER MADE THE GROUND CONTACT. AS CAPACITOR VALUES OF INTEREST ARE OF THE ORDER OF 1 PF, INTERDIGITAL CAPACITORS WERE USED, AS THESE HAD PREVIOUSLY BEEN FOUND TO HAVE LOW LOSS AND WELL-DEFINED CAPACITANCE. A HEWLETT-PACKARD TYPE 35822 TRANSISTOR WAS SELECTED WHICH WAS IN A FORM SUITABLE FOR ATTACHMENT TO THICK FILM CONDUCTORS AND COMPLETELY CHARACTERISED AT THE OPERATION FREQUENCY. TO IMPROVE STABILITY AND LOWER TRANSISTOR NOISE THE COMMON EMITTER CONNECTION WAS EMPLOYED (4 Refs)
Descriptors: MICROWAVE AMPLIFIERS; HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS
Identifiers: HEWLETT PACKARD TYPE 35822 TRANSISTOR; MICROSTRIP LAUNCHER; SHORTING BAR; PLATE HOLDING LAUNCHER; GROUND CONTACT; INTERDIGITAL CAPACITORS; THICK FILM CONDUCTORS ; STABILITY; TRANSISTOR NOISE; COMMON EMITTER CONNECTION
02
Section Class Codes: B1840, B2540, B2522
Unified Class Codes: ETHAAB, SMEAAB, SMCCAX

758196 B7516643, C7511147
CONTROLLABLE L.V. AUDIO AMPLIFIER FOR MINIATURE RECEIVER
Patent No.: UK 1377143 Assignees: MOTOROLA INC Filed: 25 MAY 1972
Original Patent Appl. No.: US 151461
Priority Date: 9 JUNE 1971
11 DEC. 1974
A BATTERY OPERATED RADIO PAGER HAS AN AUDIO AMPLIFIER WITH AN INTEGRATED CIRCUIT CHIP COMBINED WITH OTHER COMPONENTS ON A THICK FILM, DESIGNED FOR HIGH STABILITY AT LOW OPERATING VOLTAGES, IN A VERY COMPACT DESIGN, AND WHICH INCLUDES A PREAMPLIFIER ON THE THICK FILM AND A POWER AMPLIFIER ON THE CHIP, TURNED OFF, BUT SWITCHED ON WHEN A PAGING TIME IS RECEIVED
Descriptors: MOBILE RADIO SYSTEMS; AUDIO-FREQUENCY AMPLIFIERS; PREAMPLIFIERS; RADIO RECEIVERS; THICK FILM CIRCUITS; COMMUNICATIONS APPLICATIONS OF CONTROL
Identifiers: BATTERY OPERATED RADIO PAGER; AUDIO AMPLIFIER; INTEGRATED CIRCUIT CHIP; THICK FILM; PREAMPLIFIER; POWER AMPLIFIER
08
Section Class Codes: B3566, B1840, C7883, C7895
Unified Class Codes: FEKRAG, ETHAAB, VMTGAL, VMZMAB

755544 B7516785
MODULE CHASSIS IV-A CONCEPT OF COLOUR RECEIVER WITH COLD CHASSIS (DESIGN USING THICK AND THIN FILM CIRCUITS)
DANGSCHAT, R.
SIEMENS AG, MUNCHEN, GERMANY
COMPONENTS REP. (GERMANY) VOL.9, NO.5 146-51 DEC. 1974
Coden: CMREC3
FOR SOME YEARS NOW, THERE HAS BEEN A DEFINITE TREND TOWARDS MODULARIZATION IN COLOUR TELEVISION SETS. MOST OF THE NEW DEVELOPMENTS SHOW A LAYOUT MODULARIZED TO A GREATER OR LESSER EXTENT. IN THIS LABORATORY DEVELOPMENT OF MODULE TECHNOLOGY WITH PARTICULAR RESPECT TO THE POWER SUPPLY AND POWER STAGES AND NOT ONLY OF SMALL SIGNAL STAGES, HAS BEEN CARRIED OUT. FROM EXPERIENCE, POWER STAGES HAVE A RELATIVELY HIGH FAILURE RATE AND ALSO GIVE THE SERVICE TECHNICIAN MORE DIFFICULTIES. THE SYSTEM DESCRIBED TAKES INTO ACCOUNT THE USE OF THIN AND THICK FILM CIRCUITS. THE PRESENT CONCEPT INTENDS TO INITIATE VALUABLE DESIGN OF MODULE COLOUR TV SETS WITH SPECIAL ATTENTION TO THE INTERFACES
Descriptors: COLOUR TELEVISION RECEIVERS; MODULES; THICK FILM CIRCUITS; THIN FILM CIRCUITS
Identifiers: MODULAR DESIGN; THICK FILM CIRCUITS; COLD CHASSIS; THIN FILM CIRCUITS
02
Section Class Codes: B3740, B2522, B2524
Unified Class Codes: FKGAAM, SMCCAX, SMCEAH

754403 B7515399
THIN FILM PATTERNS WITH SLOPING EDGES
MICROELECTRON. AND RELIAB. (GB) VOL.14, NO.1 69 FEB. 1975 Coden: MCRLAS
DISCUSSES A NEW METHOD WITH WHICH IT IS POSSIBLE TO PRODUCE ETCHED PATTERNS HAVING GENTLY SLOPING SIDES FOR THIN FILM DEVICES AND OTHER INTEGRATED CIRCUITS. THE ANGLE OF SLOPE CAN HERE BE ADJUSTED WITHIN WIDE LIMITS AND IS REPRODUCIBLE. AN AUXILIARY FILM IS FIRST APPLIED TO THE SURFACE WHICH IS TO BE PROCESSED. THIS AUXILIARY FILM HAS THE PROPERTY OF ETCHING AWAY MORE QUICKLY IN THE ETCHING AGENT USED THAN THE MATERIAL WHICH IT IS DESIRED TO PROCESS. IN THE COURSE OF ETCHING THIS LEADS TO A SLOPE WITH UNIFORM INCLINATION. THE METHOD HAS BEEN WORKED OUT FULLY FOR THIN FILMS OF GOLD, OF PERMALLOY AND SILICON DIOXIDE (UP TO ABOUT 10 MUM THICK). IT IS POSSIBLE TO ADJUST THE ANGLE OF SLOPE AS DESIRED, TO BETWEEN 1 DEGREES AND ABOUT 60 DEGREES BY VARYING OF THE COMPOSITION OF THE ETCHING AGENT OR OF THE AUXILIARY FILM. A MICROGRAPH OF A TREATED FILM OF SILICON OXIDE ON SILICON IS SHOWN
Descriptors: INTEGRATED CIRCUIT PRODUCTION; THIN FILM CIRCUITS; THIN FILM DEVICES
Identifiers: AU FILMS; SIO/SUB 2/ FILMS; THIN FILM PATTERNS; SLOPING EDGES; THIN FILM DEVICES; INTEGRATED CIRCUITS; NEW METHOD; ETCHED PATTERNS; AUXILIARY FILM; ETCHING AGENT; PERMALLOY; MICROGRAPH
02
Section Class Codes: B2524, B2520
Unified Class Codes: SMCEAH, SMCAAL

754402 B7515397
FACILITIES, EQUIPMENT, AND MANUFACTURING OPERATIONS FOR CIRCUIT DEPOSITION AND TESTING (THICK FILM CIRCUIT MANUFACTURE)
COTE, R.E.
INTEGRATED CIRCUITS INC., BELLEVUE, WASH., USA
SOLID STATE TECHNOL. (USA) VOL.18, NO.1 49-52 JAN. 1975 Coden: SSTEAP
THE FACILITIES REQUIRED TO SCREEN PRINT, FIRE AND ADJUST THICK FILM COMPONENTS ARE EXAMINED. THE SUBJECT IS EXPLORED IN SUFFICIENT DETAIL TO ALLOW THE READER TO UNDERSTAND THE PROCESS, ALONG WITH ITS ADVANTAGES AND DISADVANTAGES. THE INFORMATION REQUIRED TO AVOID THE USUAL PITFALLS IS GIVEN
Descriptors: THICK FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; THICK FILM RESISTORS
Identifiers: THICK FILM CIRCUITS; SCREEN PRINTING; RESISTOR ADJUSTMENT; THICK FILM CIRCUIT FIRING; INTEGRATED CIRCUIT PRODUCTION; ECONOMIES; FACILITIES; EQUIPMENT; MANUFACTURING OPERATIONS; CIRCUIT DEPOSITION; TESTING; THICK FILM COMPONENTS ; ADVANTAGES; DISADVANTAGES; PITFALLS
02
Section Class Codes: B2522, B2210
Unified Class Codes: SMCCAX, SEEAAS

754401 B7515396
NOVEL SCREEN PRINT STENCILS FOR THICK FILM TECHNIQUE
SCHNEIDER, J.
ELEKTRON. IND. (GERMANY) VOL.5, NO.12 EP115 DEC. 1974 Coden: EKIDAT
THE METHOD EMPLOYS A 40-70 MUM THICK PHOTOPOLYMER FILM WHICH RESISTS ELECTROLYTIC BATHS, ETCHANTS AND A NUMBER OF SOLVENTS. THE PROCESS OF STENCIL PREPARATION IS BRIEFLY DESCRIBED. A RESOLUTION OF 50 MUM CAN BE ACHIEVED. THE STENCILS CAN BE USED FOR SEVERAL THOUSAND PRINTS THEN REMOVED WHEN THE SCREEN IS AVAILABLE FOR FURTHER APPLICATIONS
Descriptors: THICK FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION
Identifiers: 40 TO 70 MICRON THICK PHOTOPOLYMER FILM; ETCHANT RESIST; THICK FILM CIRCUITS; ELECTROLYTIC BATH RESIST; SOLVENT RESIST; 50 MICRON RESOLUTION; SCREEN PRINT STENCILS
02
Section Class Codes: B2522
Unified Class Codes: SMCCAX
Language: GERMAN

754043 B7514955
DESIGN AND CONSTRUCTION OF ACTIVE RC FILTERS (INTEGRATED CIRCUITS)
BOSSELMANN, W.
ELEKTRON. IND. (GERMANY) VOL.5, NO.12 271-3 DEC. 1974 Coden: EKIDAT
THE TECHNICAL FEASIBILITY OF REPLACING CONVENTIONAL PASSIVE LC NETWORKS FOR LOW FREQUENCIES (BELOW 20 KHZ) WITH ACTIVE RC FILTERS IS DISCUSSED. CONSIDERING THE USE OF ADVANCED TANTALUM FILM TECHNOLOGY WITH INTEGRATED OPERATIONAL AMPLIFIERS (5 Refs)
Descriptors: ACTIVE FILTERS; THIN FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS
Identifiers: DESIGN; CONSTRUCTION; ACTIVE RC FILTERS; FEASIBILITY; PASSIVE LC NETWORKS; BELOW 20 KHZ; INTEGRATED OPERATIONAL AMPLIFIERS; ADVANCED TA FILM TECHNOLOGY; LF
02
Section Class Codes: B1880, B2524, B2540
Unified Class Codes: ETRAAM, SMCEAH, SMEAAB
Language: GERMAN

753899 B7514771
HARMONICALLY PUMPED STRIPLINE DOWN-CONVERTER
SCHNEIDER, M.V.; SNELL, W.W., JR.
BELL LABS., HOLMDEL, N.J., USA
IEEE TRANS. MICROWAVE THEORY AND TECH. (USA) VOL.MTT-23, NO.3 271-5 MARCH 1975 Coden: IETMAB
A NOVEL THIN-FILM DOWN-CONVERTOR WHICH IS PUMPED AT A SUBMULTIPLE OF THE LOCAL-OSCILLATOR FREQUENCY HAS GIVEN A CONVERSION LOSS WHICH IS COMPARABLE TO THE PERFORMANCE OF CONVENTIONAL BALANCED MIXERS. THE CONVERTOR CONSISTS OF TWO STRIPLINE FILTERS AND TWO SCHOTTKY-BARRIER DIODES WHICH ARE SHUNT MOUNTED IN A STRIP TRANSMISSION LINE. THE CONVERSION LOSS MEASURED AT A SIGNAL FREQUENCY OF 3.5 GHZ IS 3.2 DB FOR A PUMP FREQUENCY OF 1.7 GHZ AND 4.9 DB FOR A PUMP FREQUENCY OF 0.85 GHZ. THE CIRCUIT LOOKS ATTRACTIVE FOR USE AT MILLIMETER-WAVE FREQUENCIES WHERE STABLE PUMP SOURCES WITH LOW FM NOISE ARE NOT READILY AVAILABLE (14 Refs)
Descriptors: PARAMETRIC DEVICES; SOLID-STATE MICROWAVE CIRCUITS; FREQUENCY CONVERTORS; STRIP LINES; THIN FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS
Identifiers: THIN FILM STRIPLINE CIRCUIT; HARMONICALLY PUMPED DOWN CONVERTOR; MIC; BALANCED MIXERS; SCHOTTKY BARRIER DIODES; FM NOISE; STRIPLINE FILTERS
02
Section Class Codes: B1810, B1820, B2524, B2540
Unified Class Codes: ETCAAN, ETEAAD, SMCEAH, SMEAAB

746926 B7511715, C7509539
THIN-FILM MEMORY WITH A 400 NS CYCLE
HANERLIK, R.; KOL, A.
ELEKTROTECH. CAS. (CZECHOSLOVAKIA) VOL.26, NO.1 43-52 1975 Coden: ELKCA9
IN THE WORK A DESCRIPTION IS GIVEN OF A FAST MEMORY, USING THIN-FILM MEMORY ELEMENTS WITH DESTRUCTIVE READING. THE FUNCTION OF THIN-FILM MEMORY ELEMENTS IS MENTIONED, AS WELL AS THE MEMORY BLOCK, AND THE MAIN ELECTRONIC CIRCUITS OF THE MEMORY. PARAMETERS ARE GIVEN OF VARIOUS ELECTRONIC CIRCUITS AS WELL AS OF THE COMPLETE MEMORY (8 Refs)
Descriptors: THIN FILM CIRCUITS; SEMICONDUCTOR STORAGE DEVICES
Identifiers: THIN FILM MEMORY; 400 NS CYCLE; DESTRUCTIVE READING; ELECTRONIC CIRCUITS; PARAMETERS
02
Section Class Codes: B2524, C9560
Unified Class Codes: SMCEAH, XKKAAX
Language: SLOVAK

743246 B7511778
MULTIPLE POSITION NEST FOR BONDING
FOWLER, W.H.
WESTERN ELECTRIC CO., ALLENTOWN, PA., USA
TECH. DIG. (USA) NO.36 9-10 OCT. 1974 Coden: TCHDAV
DESCRIBES A POSITIONING DEVICE FOR BONDING SEMICONDUCTOR DEVICES TO THIN-FILM CIRCUITS USING A HORIZONTAL PLATE REQUIRED TO SUPPORT THE CIRCUITS IN RELATION TO THE BONDING THERMODE. THE SUPPORT PLATE HAS A NEST FORMED IN IT FOR THE THIN-FILM CIRCUIT TO POSITION THE CIRCUIT SO THAT A BONDING SITE IS LOCATED BENEATH THE BONDING THERMODE. NORMALLY ONE PLATE, WITH THE NEST APPROPRIATELY LOCATED, IS USED FOR EACH BONDING SITE ON A PARTICULAR THIN-FILM CIRCUIT. THE NUMBER OF SUPPORT PLATES MAY BE REDUCED BY SEPARATING THE NEST FROM THE PLATE AS DESCRIBED (11 Refs)
Descriptors: THIN-FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; INTEGRATED CIRCUIT PRODUCTION
Identifiers: THIN FILM CIRCUITS; CIRCUIT POSITIONING DEVICE; BONDING SITE LOCATION; MULTIPLE POSITION NEST FOR BONDING; BONDING SEMICONDUCTOR DEVICES; BONDING THERMODE; SUPPORT PLATE
02
Section Class Codes: B2560, B1269
Unified Class Codes: SMGAAR, ADGMAE

743245 B7511777
SOLDERING OF HYBRID INTEGRATED CIRCUIT
KAGEYAMA, K.; YOSHIKAWA, T.; MINATOGUCHI, T.
ANRITSU ELECTRIC CO. LTD., TOKYO, JAPAN
ANRITSU TECH. BULL. (JAPAN) NO.30 127-31 DEC. 1973
Coden: ANTKAE
THIS ARTICLE IS CONCERNED WITH THE ADHESION STRENGTH OF SOLDERED LEAD-WIRES AND ALSO THE EXTINCTION OF CIRCUIT FILMS BY SOLDERING. THESE EFFECTS DEPEND UPON THE FILM MATERIALS, THE COMBINATIONS OF LAYERED FILMS AND THEIR THICKNESS. EXPERIMENTAL STUDIES, EMPLOYING SMOOTHED-ALUMINA SUBSTRATES HAVE BEEN CONDUCTED IN COMBINATIONS OF TA/SUB 2/N, CR OR NICR, AU AND AU PLATING. THE RESULTS ARE PRESENTED AND DISCUSSED (2 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; SOLDERING; MECHANICAL STRENGTH; THIN FILM CIRCUITS; INTEGRATED CIRCUIT TESTING
Identifiers: HYBRID INTEGRATED CIRCUIT; ADHESION STRENGTH OF SOLDERED LEAD WIRES; EXTINCTION OF CIRCUIT FILMS; SOLDERING; COMBINATIONS OF LAYERED FILMS; SUBSTRATES
02
Section Class Codes: B2560, B2540, B2524
Unified Class Codes: SMGAAR, SMEAAB, SMCEAH
Language: JAPANESE

743244 B7511776
WIRE BONDING FOR THIN-FILM INTEGRATED CIRCUIT
KAGEYAMA, K.; YOSHIMURA, T.; NISHIMURA, Y.
ANRITSU ELECTRIC CO. LTD., TOKYO, JAPAN
ANRITSU TECH. BULL. (JAPAN) NO.30 121-6 DEC. 1973
Coden: ANTKAE
THE BONDING STRENGTH OF LEADWIRES DEPENDS UPON THE FILM MATERIALS, THE COMBINATIONS OF LAYERED FILMS AND THEIR THICKNESS, AND THE HEATING CONDITIONS OF SUBSTRATES. EXPERIMENTAL STUDIES, EMPLOYING SMOOTHED-ALUMINA AND GLASS SUBSTRATES, HAVE BEEN CONDUCTED IN COMBINATIONS AND HEATING CONDITIONS OF TA/SUB 2/N, NICR, AU AND AU PLATING. THE RESULTS ARE PRESENTED AND DISCUSSED (4 Refs)
Descriptors: THIN FILM CIRCUITS; MECHANICAL STRENGTH; WIRES (ELECTRIC); JOINING PROCESSES; INTEGRATED CIRCUIT TESTING
Identifiers: THIN FILM IC; BONDING STRENGTH OF LEADWIRES; COMBINATIONS OF LAYERED FILMS; HEATING CONDITIONS OF SUBSTRATES
02
Section Class Codes: B2560, B2524
Unified Class Codes: SMGAAR, SMCEAH
Language: JAPANESE

743241 B7511773
THIN FILM HYBRID CRYSTAL OSCILLATOR
DUBEY, G.C.; SINGH, R.A.
SOLID STATE PHYS. LAB., DELHI, INDIA
J. INST. ELECTRON. AND TELECOMMUN. ENG. (INDIA) VOL.20, NO.3-4 119-21 MARCH-APRIL 1974 Coden: JIETAU
A THIN FILM COLPITTS TYPE 3.155 MHZ CRYSTAL OSCILLATOR HAS BEEN DESIGNED AND FABRICATED. THIS MEETS THE REQUIREMENTS OF HIGH STABILITY COMBINED WITH SMALL PHYSICAL DIMENSIONS. BOTH THE CIRCUIT AND THE CRYSTAL ARE CONTAINED WITHIN A TEMPERATURE CONTROLLED OVEN AS PROTECTION AGAINST AMBIENT TEMPERATURE CHANGES (7 Refs)
Descriptors: THIN FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; OSCILLATORS; FREQUENCY STABILITY; CRYSTAL RESONATORS; OVENS
Identifiers: THIN FILM HYBRID IC; COLPITTS CRYSTAL OSCILLATOR; 3.155 MHZ; HIGH STABILITY; SMALL PHYSICAL DIMENSIONS; TEMPERATURE CONTROLLED OVEN
02
Section Class Codes: B2540, B2524, B1850
Unified Class Codes: SMEAAB, SMCEAH, ETKAAR

743240 B7511772
NEW ALUMINA SUBSTRATE FOR HYBRID INTEGRATED CIRCUITS
NIWA, K.; NAKAMURA, J.; MURAKAWA, K.; NAKAMURA, M.
FUJITSU LABS. LTD., NAKAHARAKU, KAWASAKI, JAPAN
IEEE TRANS. PARTS, HYBRIDS AND PACKAG. (USA) VOL. PHP-10, NO. 4 262-6 DEC. 1974 Coden: IEPHAA
A NEW ALUMINA SUBSTRATE WHICH INCLUDES CR/SUB 2/O/SUB 3/ AND MGO AS THE ADDITIVES, WITH AN EXTREMELY SMOOTH SURFACE IS DEVELOPED. RELIABILITY DATA AND CHARACTERISTICS OF TANTALUM NITRIDE OR TANTALUM AND TANTALUM OXIDE FILMS ON THE NEW SUBSTRATE ARE COMPARED WITH THOSE ON THE GLAZED ALUMINA (9 Refs)
Descriptors: SUBSTRATES; HYBRID INTEGRATED CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; THIN FILM CIRCUITS
Identifiers: HYBRID IC; RELIABILITY DATA; TA/SUB 2/N FILM; CAPACITOR PROPERTIES; RESISTOR PROPERTIES; SURFACE TOPOGRAPHY; ALUMINA SUBSTRATE
02
Section Class Codes: B2540, B2524
Unified Class Codes: SMEAAB, SMCEAH

743239 B7511771
CHARACTERIZATION OF A CHROMIUM-GOLD DEPOSITION PROCESS FOR THE PRODUCTION OF THIN FILM HYBRID MICROCIRCUITS
CLAY, F.A.; PANOUSIS, N.T.; PIERCE, R.W., JR.
BENDIX CORP., KANSAS CITY, MO., USA
IEEE TRANS. PARTS, HYBRIDS AND PACKAG. (USA) VOL. PHP-10, NO. 4 258-62 DEC. 1974 Coden: IEPHAA
DESCRIBES THE EFFECT OF CHROMIUM DEPOSITION RATE, GOLD DEPOSITION RATE AND SUBSTRATE TEMPERATURE ON THE ADHESION, RESISTIVITY AND THERMOCOMPRESSION BONDABILITY OF THE FILM PRODUCED. TANTALUM NITRIDE COATED, ALUMINUM OXIDE SUBSTRATES WERE USED IN THIS WORK. THE ADHESION WAS CHECKED USING THE STANDARD TAPE TEST; THE RESISTIVITY WAS MEASURED USING A FOUR POINT PROBE; AND THE BONDABILITY WAS EVALUATED USING BOTH FINE WIRES AND LEAD FRAMES. AUGER ELECTRON SPECTROSCOPY WAS USED TO MONITOR THE SURFACE OF THE FILM (9 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; METALLIC THIN FILMS; ADHESION; THIN FILM CIRCUITS
Identifiers: CR DEPOSITION RATE; AU DEPOSITION RATE; SPECTROSCOPY; TA/SUB 2/N COATING; AL/SUB 2/O/SUB 3/ SUBSTRATE; DIFFUSION; THIN FILM HYBRID MICROCIRCUITS; SUBSTRATE TEMPERATURE; ADHESION; RESISTIVITY; THERMOCOMPRESSION BONDABILITY
02
Section Class Codes: B2540, B2524
Unified Class Codes: SMEAAB, SMCEAH

743238 B7511770
AN APPROACH FOR EVALUATING POLYMER MATERIALS AS PROTECTIVE COATINGS ON HYBRID MICROCIRCUITS
SZEDON, J.R.
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA., USA
IEEE TRANS. PARTS, HYBRIDS AND PACKAG. (USA) VOL. PHP-10, NO. 4 251-7 DEC. 1974 Coden: IEPHAA
RESULTS ARE DISCUSSED OF AN EVALUATION PROGRAM WHICH IS IN TERMS OF SEVEN POTENTIAL MECHANISMS BY WHICH COATINGS COULD FAIL TO PROVIDE PROTECTION. EMPHASIS IS ON DESCRIBING THOSE SIX TESTS WHICH DEVELOPED DIFFERENCES IN MATERIAL BEHAVIOR CONSIDERED TO BE SIGNIFICANT IN TERMS OF THE GENERAL APPLICATION. THREE INVOLVED ELECTRICAL PERFORMANCE OF THE FILMS ALONE OR IN CONJUNCTION WITH HYBRID CIRCUIT ELEMENTS, TWO DEALT WITH MECHANICAL PROPERTIES, AND ONE WITH CHEMICALLY RELATED BEHAVIOR. IT IS SUGGESTED THAT THE TESTS COULD BE USED FOR PARTICULAR APPLICATIONS WHICH RELATE TO THE TEST CONDITIONS OR IN UNDERSTANDING SOME FAILURE MODES WHICH COULD BE EXPECTED IN COMPLEX HYBRID MICROCIRCUIT ASSEMBLIES. A BRIEF REVIEW IS GIVEN OF THOSE TESTS WHICH WERE NOT CONSIDERED TO DEVELOP DISTINCTIONS BETWEEN MATERIALS. THE ROLE OF ORGANIC COATINGS ON BARE SEMICONDUCTOR DEVICE SURFACES WAS NOT INVESTIGATED (7 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; PROTECTIVE COATINGS; PACKAGING; POLYMERS
Identifiers: CHEMICAL BEHAVIOUR; ENCAPSULATION; THERMAL
; POLYMER MATERIALS; PROTECTIVE COATINGS; HYBRID MICROCIRCUITS; EVALUATION PROGRAM; MATERIAL BEHAVIOUR; ELECTRICAL PERFORMANCE; MECHANICAL PROPERTIES; TEST CONDITIONS
02
Section Class Codes: B2540, B1266
Unified Class Codes: SMEAAB, ADGHAH

743200 A7526271, B7511718
THE STRUCTURE AND PROPERTIES OF THIN METAL FILMS
HOFFMAN, D.M.
RCA LABS., PRINCETON, N.J., USA
US ARMY
PROCEEDINGS OF THE 28TH ANNUAL FREQUENCY CONTROL SYMPOSIUM 1974 85-8 1974
29-31 MAY 1974 ATLANTIC CITY, N.J., USA
ELECTRONIC INDUSTRIES ASSOC. WASHINGTON, D.C., USA
THE PROPERTIES OF VACUUM EVAPORATED THIN METAL FILMS ARE DIRECTLY ATTRIBUTABLE TO THE CONDITIONS OF PREPARATION. AMONG THESE PARAMETERS ARE RESIDUAL ATMOSPHERE, RATES OF EVAPORATION AND DEPOSITION, PURITY OF SOURCE MATERIAL AND EVAPORANT, SUBSTRATE TEMPERATURE AND CLEANLINESS. SOME OF THE REASONS FOR VARIATION OF THE PROPERTIES OF FILMS FROM THOSE OF BULK METALS ARE DISCUSSED AS WELL AS WAYS OF MINIMIZING THESE EFFECTS. ILLUSTRATIONS FOCUS ON METALS USED IN CRYSTAL COATING, E.G. GOLD, CHROMIUM, AND SILVER (20 Refs)
Descriptors: METALLIC THIN FILMS; CRYSTAL GROWTH FROM VAPOUR; THIN FILM CIRCUITS; ADHESION
Identifiers: EVAPORATION RATE; DEPOSITION RATE; PURITY OF EVAPORANT; VACUUM EVAPORATED THIN METAL FILMS; CONDITIONS OF PREPARATION; RESIDUAL ATMOSPHERE; PURITY OF SOURCE MATERIAL; SUBSTRATE TEMPERATURE; CLEANLINESS; CRYSTAL COATING; STRUCTURE
06
Section Class Codes: A9112, A8362, A7880, B2524
Unified Class Codes: ZGCCAX, RGGCAD, NVVAAK, SMCEAH

743199 B7511717
SELECTIVE FLOW COATING OF THIN FILM INTEGRATED CIRCUITS
WYLIE, J.R.
TECH. DIG. (USA) NO.36 33-4 OCT. 1974 Coden: TCHDAV
DESCRIBES A SELECTIVE COATING TECHNIQUE WHICH PROVIDES PROTECTION AGAINST MOISTURE AND MECHANICAL DAMAGE ALLOWING POST TRIMMING OF THIN FILM RESISTORS, CAPACITORS OR DISCRETE COMPONENTS OF THE CIRCUIT WHEN REQUIRED. ALSO CONTACT PADS REMAIN EXPOSED TO PROVIDE CONNECTION POINTS TO OTHER CIRCUITRY
Descriptors: THIN FILM CIRCUITS; ENCAPSULATION
Identifiers: POST COATING TRIMMING; SELECTIVE FLOW COATING; THIN FILM INTEGRATED CIRCUITS; COATING TECHNIQUE; CONTACT PADS REMAIN EXPOSED
02
Section Class Codes: B2524, B1267, B1266
Unified Class Codes: SMCEAH, ADGKAT, ADGHAH

742686 B7511160
HYBRID CIRCUIT TECHNOLOGY' RADIATION OF A FAST INS AMPLIFIER
VELER, J.C.
CEA/CENG, GRENOBLE, FRANCE
THIN SOLID FILMS (SWITZERLAND) VOL. 24, NO. 2 251-60 DEC. 1974 Coden: THSFAP
A FAST RISE-TIME AMPLIFIER (1 NS) HAS BEEN MADE USING HYBRID MICROCIRCUIT TECHNOLOGY. THIS IS A SINGLE POLARITY PULSE AMPLIFIER WITH A 20 DB VOLTAGE GAIN. THE AUTHOR USED THIN FILM TECHNOLOGY ON CERAMIC SUBSTRATES AND AN ELECTRON-BEAM GUN FOR EVAPORATING THE TANTALUM AND GOLD. AN INVESTIGATION OF THE AMPLIFIER HAS INDICATED THAT THE CHARACTERISTICS OF THE HYBRID MICROCIRCUIT ARE BETTER THAN THOSE OF THE PRINTED CIRCUIT VERSION. THE IMPROVEMENTS ARE A SHORTER OUTPUT RISE-TIME AND AN APERIODIC RESPONSE (5 Refs)
Descriptors: PULSE AMPLIFIERS; HYBRID INTEGRATED CIRCUITS
Identifiers: FAST RISE TIME AMPLIFIER; TA; AU; HYBRID MICROCIRCUIT TECHNOLOGY; SINGLE POLARITY PULSE AMPLIFIER; 20 DB VOLTAGE GAIN; CERAMIC SUBSTRATES
02
Section Class Codes: B1840, B2540
Unified Class Codes: ETHAAB, SMEAAB
Language: FRENCH

738813 A7522604, B7508602
FLAT-SURFACE ALUMINIUM-OXIDE CERAMICS
S'TANKOVICS, L.
FINOMMECH. AND MIKROTECH. (HUNGARY) VOL. 13, NO. 9 262-6 SEPT. 1974 Coden: FNMKAY
SUGGESTS ON THE BASIS OF EXPERIMENTS THAT CHEMICALLY PURE RAW MATERIAL, WITH AVERAGE GRAIN SIZE OF MAX. 1 MUM CONTAINING ALSO ADDITIVES TO PREVENT GRAIN GROWTH, IS NECESSARY TO PRODUCE ALUMINUM-OXIDE CERAMICS WITH A SURFACE ROUGHNESS OF BELOW 0.5...0.1 MUM. AFTER MOULDING AT HIGH RAW DENSITY, THIS SHOULD BE SINTERED AT A POSSIBLY LOW TEMPERATURE (AROUND 1600 DEGREESC). THE FINE CRYSTAL PROFILE ATTAINS ITS FINAL SURFACE FINISH AFTER MULTISTEP GRINDING AND POLISHING. CORRELATIONS ARE GIVEN ON THE EFFECT OF SIO/SUB 2/ CONTENT AND OF GRAIN SIZE ON SURFACE ROUGHNESS. FURTHER SINTERIZING CHARACTERISTICS ARE PRESENTED. THE EXPERIMENTS ARE CONNECTED PRIMARILY WITH THE PRODUCTION TECHNOLOGY OF THICK AND THIN FILM INTEGRATED CIRCUIT SUBSTRATES (29 Refs)
Descriptors: CERAMICS; ALUMINIUM COMPOUNDS; INTEGRATED CIRCUIT PRODUCTION; SUBSTRATES; THIN FILM CIRCUITS; THICK FILM CIRCUITS
Identifiers: FLAT SURFACE; AL/SUB 2/O/SUB 3/ CERAMICS; THICK FIBRE CIRCUIT SUBSTRATES; INTEGRATED CIRCUIT PRODUCTION; GRAIN GROWTH; SURFACE ROUGHNESS; SURFACE FINISH; EFFECT OF SIO/SUB 2/; GRAIN SIZE; SINTERIZING CHARACTERISTICS; THIN FILM INTEGRATED CIRCUIT SUBSTRATES

733935 B7509632
TANTALUM NITRIDE THIN FILM CIRCUITS FOR CS-36M SUBMARINE CABLE REPEATER
MATSUMOTO, T.; HAYASHI, K.; YAMAMOTO, T.; MORIYA, K.
ELECTR. COMMUN. LAB. TECH. J. (JAPAN) VOL. 23, NO. 8 1549-61 1974 Coden: TJECAS
(12 Refs)
Descriptors: SUBMARINE CABLES; REPEATERS; TANTALUM COMPOUNDS; THIN FILM CIRCUITS
Identifiers: TANTALUM NITRIDE THIN FILM CIRCUITS; CS36M SUBMARINE CABLE REPEATERS
02
Section Class Codes: B3562, B1840, B2524
Unified Class Codes: FEKEAX, ETHAAB, SMCEAH
Language: JAPANESE

733028 B7508625
IDENTIFICATION OF AGCL AS A SURFACE CONTAMINANT ON HYBRID MICROCIRCUIT CAPACITORS USING ION MICROPROBE TECHNIQUES
GUTHRIE, J.W.
SANDIA LABS., ALBUQUERQUE, N.MEX., USA
J. ELECTROCHEM. SOC. (USA) VOL. 121 NO. 12 1617-20 DEC. 1974 Coden: JESOAN
AN ION MICROPROBE MASS ANALYZER (IMMA) WAS USED FOR THE IDENTIFICATION ANALYSIS OF A MICRON-SIZED SURFACE CONTAMINANT ON HYBRID MICROCIRCUIT BARIUM TITANATE CAPACITORS WITH SILVER FRIT TERMINATIONS. A 18.5 KEV O/SUB 2//SUP +/ SPUTTERING ION BEAM WAS USED TO OBTAIN CHARACTERISTIC POSITIVE AND NEGATIVE SPUTTERED ION SPECIES FOR MASS SPECTRA, SCANNING ION MICROGRAPHS, AND DEPTH PROFILES FROM CLEAN AND CONTAMINATED CAPACITORS. THE MASS SPECTRA FROM THE CONTAMINATED CAPACITORS CONTAINED SIGNIFICANT PEAKS FOR AGOH/SUP +/, HACL/SUP +/, AG/SUB 2//SUP +/, AG/SUB 2/OH/SUP +/, AND CL/SUP -/ SPUTTERED ION SPECIES. ON THE CLEAN CAPACITORS THESE SPECIES WERE DETECTED ONLY AS LOW DENSITY PEAKS OR NOT AT ALL. SILVER CHLORIDE WAS IDENTIFIED AS A MAJOR CONTAMINANT BY COMPARING AGCL CALIBRATION MASS SPECTRA WITH THE MASS SPECTRA OBTAINED FROM THE CLEAN AND THE CONTAMINATED CAPACITORS (9 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; CAPACITORS
Identifiers: SURFACE CONTAMINANT IDENTIFICATION; AG FRIT TERMINATIONS; AGCL; HYBRID MICROCIRCUIT CAPACITORS; ION MICROPROBE TECHNIQUES; SPUTTERED ION SPECIES
02
Section Class Codes: B2540, B2670
Unified Class Codes: SMEAAB, SNMAAR

733011 B7508603
EFFECT OF GRAIN SIZE ON THE LIFE TIME OF ALUMINUM INTERCONNECTIONS
SAITO, M.; HIROTA, S.
REV. ELECTR. COMMUN. LAB. (JAPAN) VOL. 22 NO. 7-8 678-94 JULY-AUG. 1974 Coden: RELTAN
IN ORDER TO SUPPRESS TRANSPORT STRAIN AND PLASTIC DEFORMATION, ALUMINUM EVAPORATION CONDITIONS MAKING UNIFORM FILM WITH LARGE GRAIN SIZE WERE INVESTIGATED. ALUMINUM STRIPE FILMS IN FOUR GRAIN SIZE CATEGORIES WERE MADE AND HIGH TEMPERATURE-HIGH CURRENT TESTS WERE PERFORMED. IT WAS FOUND THAT THE AVERAGE GRAIN SIZE D HAD A LARGE EFFECT ON MEAN TIME TO FAILURE. ACTIVATION ENERGY AND CURRENT DENSITY INDEX. THE RELATION OF MTF AND D WAS MTF=D/SUP N/(N=1) AT STRIPE WIDTH W=7-20MU. AND MTF INCREASED LINEARLY WITH W (10 Refs)
Descriptors: THIN FILM CIRCUITS; CRYSTAL GROWTH FROM VAPOUR; CIRCUIT RELIABILITY; GRAIN SIZE; INTEGRATED CIRCUIT PRODUCTION ; INTEGRATED CIRCUIT TESTING; ALUMINIUM
Identifiers: AL EVAPORATED FILMS; UNIFORM FILM; GRAIN SIZE; MEAN TIME TO FAILURE; ACTIVATION ENERGY; CURRENT DENSITY INDEX ; INTERCONNECTIONS
02
Section Class Codes: B2526, B2524
Unified Class Codes: SMCGAT, SMCEAH

733010 B7508601
AIR-ABRASIVE FUNCTIONAL TRIMMING OF THICK FILM CIRCUITS
GOULD, L.F.; WEST, R.J.; WOOD, M.J.
WESTINGHOUSE BRAKE SIGNAL CO. LTD., CHIPPENHAM, ENGLAND
ELECTROCOMPON. SCI. AND TECHNOL. (GB) VOL. 1, NO. 1 75-8 SEPT. 1974
AN MPM RT-5 AIR ABRASIVE TRIMMER HAS BEEN MODIFIED TO ALLOW IT TO BE USED FOR FUNCTIONAL TRIMMING. THIS INVOLVES THE USE OF A NEW GIG TO HOLD THE CIRCUIT AND TO MAKE ELECTRICAL CONTACT WITH ITS TERMINALS. THE AUTOMATIC RESISTANCE BRIDGE ON THE RT-5 IS REPLACED WITH A PULSE MEASURING CIRCUIT WHICH STOPS THE TRIMMING CYCLE WHEN THE CORRECT OUTPUT IS OBTAINED
Descriptors: THICK FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION
Identifiers: AIR ABRASIVE FUNCTIONAL TRIMMING; INTEGRATED CIRCUIT PRODUCTION; THICK FILM CIRCUITS; PULSE MEASURING CIRCUITS
02
Section Class Codes: B2522
Unified Class Codes: SMCCAX

732650 B7508213
ACTIVE RC-FILTERS IN TANTALUM THIN-FILM HYBRID TECHNIQUE
BOSSELMANN, W.
SIEMENS AG, MUNCHEN, GERMANY
COMPONENTS REP. (GERMANY) VOL. 9 NO. 3 77-80 JULY 1974
FOR THE A.F. RANGE. FILTERS INCREASINGLY REPRESENT A TECHNICAL AND OFTEN ALSO ECONOMICAL ALTERNATIVE TO LC-FILTERS. FAVORING THEIR APPLICATION ARE THE DEGREE OF MINIATURIZATION ACHIEVABLE IN THIS FREQUENCY RANGE, AND THE RELIABILITY, ACCURACY, LASTING STABILITY AND TEMPERATURE CONSTANCY, MADE POSSIBLE THROUGH THE TANTALUM-FILM TECHNOLOGY. THE DIMENSIONAL REQUIREMENTS AND THE TECHNICAL REALIZATION OF RC-FILTERS IN TANTALUM THIN-FILM TECHNIQUE ARE DESCRIBED (5 Refs)
Descriptors: ACTIVE FILTERS; HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS
Identifiers: ACTIVE RC FILTERS; TA THIN FILM HYBRID IC; AUDIO FREQUENCY; MINIATURIZATION; ,RELIABILITY; ACCURACY; STABILITY; TEMPERATURE CONSTANCY; DIMENSIONAL REQUIREMENTS
02
Section Class Codes: B1880, B2540, B2524
Unified Class Codes: ETRAAM, SMEAAB, SMCEAH

726721 B7505378, C7504659
ANODIZATION CONTROLLER
HASABNIS, S.V.; JIRAFE, W.J.
INDIAN INST. TECHNOL., BOMBAY
J. INST. ELECTRON. AND TELECOMMUN. ENG. (INDIA) 10-13 JAN.-FEB. 1974 Coden: JIETAU
AN ELECTRON INSTRUMENT TO CONTROL ANODIZATION OF TANTALUM THIN FILM USED IN THE FABRICATION OF RESISTORS AND CAPACITORS FOR HYBRID MICROCIRCUITS HAS BEEN DEVELOPED. IN THE CASE OF RESISTORS, TANTALUM PENTOXIDE LAYER WHICH IS GROWN ON THE SURFACE DURING ANODIZATION REDUCES THE RESISTORS TRACK THICKNESS THEREBY INCREASING ITS RESISTANCE. DURING ANODIZATION THE RESISTANCE IS SENSED CONTINUOUSLY USING A WHEATSTONE BRIDGE EXCITED FROM AN A.C. VOLTAGE SOURCE. THE FOUR ARMS OF THE BRIDGE CONSIST OF TWO EQUAL RESISTORS, THE TANTALUM RESISTOR BEING ANODIZED AND A REFERENCE RESISTOR BECOME. WHEN THE TANTALUM RESISTOR BECOMES EQUAL TO THE REFERENCE RESISTOR THE OUTPUT OF THE BRIDGE AT THIS MOMENT IS USED TO GET A STEP OUTPUT WHICH IN TURN IS USED TO STOP THE ANODIZATION PROCESS (7 Refs)
Descriptors: CONTROLLERS; THIN FILM RESISTORS; THIN FILM CAPACITORS; HYBRID INTEGRATED CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; THIN FILM CIRCUITS
Identifiers: THIN FILM RESISTORS; THIN FILM CAPACITORS; ANODIZATION CONTROLLER; TANTALUM THIN FILM; FABRICATION; HYBRID MICROCIRCUITS
02
Section Class Codes: C7895, C7610, B2540, B2210, B2670, B2524
Unified Class Codes: VMZMAB, VKCAAQ, SMEAAB, SEEAAS, SNMAAR, SMCEAH

721415 B7505380
THICK FILM TECHNIQUES FOR HYBRID INTEGRATED MICROWAVE CIRCUITS
FUNK, W.; SCHILZ, W.
PHILIPS FORSCHUNGSLAB. HAMBURG GMBH, GERMANY
RADIO AND ELECTRON. ENG. (GB) VOL.44 NO.9 504-8 SEPT. 1974 Coden: RDEEA4
THE APPLICABILITY OF THICK FILM TECHNIQUE HAS BEEN INVESTIGATED FOR FREQUENCIES ABOVE 1 GHZ. BY USING A SPECIAL TECHNIQUE (DIRECT METAL FOIL SCREENS) INTEGRATED MICROWAVE CIRCUITS FOR FREQUENCIES UP TO 10 GHZ HAVE BEEN FABRICATED. THE SPECIAL REQUIREMENTS FOR MICROWAVE THICK FILM CIRCUITS ARE DISCUSSED AND THE ELECTRICAL AND TECHNOLOGICAL PROPERTIES OF THREE SELECTED MICROWAVE CIRCUITS ARE REPORTED IN DETAIL (3 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; SOLID-STATE MICROWAVE CIRCUITS; THICK FILM CIRCUITS
Identifiers: THICK FILM TECHNIQUES; HYBRID INTEGRATED MICROWAVE CIRCUITS
02
Section Class Codes: B2540
Unified Class Codes: SMEAAB

721413 B7505377
MONOLITHIC AND HYBRID INTEGRATED CIRCUITS
GALLI, H.
ELEKTRONIKER (SWITZERLAND) VOL.13, NO.10 EL6-10 OCT. 1974 Coden: ELKRBL
DISCUSSES THE CRITERIA FOR THE CHOICE OF HYBRID, RATHER THAN MONOLITHIC INTEGRATED CIRCUITS. INTRODUCES THE BASIC TECHNOLOGY OF THICK-FILM CIRCUITS, DESCRIBING THE BASIC ELEMENTS, THE ADDITION OF DISCRETE SEMICONDUCTORS, AND METHODS OF ENCAPSULATION. PRESENTS NUMEROUS PHOTOGRAPHS AS WELL AS A TABLE QUOTING THE MAIN PHYSICAL CHARACTERISTICS OF SUBSTRATES, DATA OF THREE DIFFERENT PASTES FOR RESISTOR DEPOSITION AND A LIST OF SOT 23 HOUSED TRANSISTORS AND DIODES, WITH COLLECTOR DISSIPATION OF APPROX. 200 MW AT 25 DEGREESC
Descriptors: HYBRID INTEGRATED CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; MONOLITHIC INTEGRATED CIRCUITS
Identifiers: THICK FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; HYBRID INTEGRATED CIRCUITS; MONOLITHIC INTEGRATED CIRCUITS; DISCRETE SEMICONDUCTORS; ENCAPSULATION; SUBSTRATES; PASTES FOR RESISTOR DEPOSITION; HOUSED TRANSISTORS AND DIODES
02
Section Class Codes: B2540, B2528
Unified Class Codes: SMEAAB, SMCKAK
Language: GERMAN

721400 B7505252
[illegible] COMPATIBLE TO THE [illegible]
AEG-TELEFUNKEN, ULM, GERMANY
SOLID STATE TECHNOL. (USA) VOL.17 NO.10 69-72 OCT. 1974 Coden: SSTEAP
A D.C. DIODE SPUTTER ETCH PROCESS IS DESCRIBED YIELDING A SPUTTER ETCH RATE OF THE INSULATING MASKING LAYER WHICH IS CONSIDERABLY SMALLER THAN THAT OF THE CONDUCTING MATERIAL. WITH THIS TECHNIQUE WALL ANGLES OF ABOUT 60 DEGREES ARE ACHIEVED WITH NO UNDERCUTTING (2 Refs)
Descriptors: SPUTTERING; INTEGRATED CIRCUIT PRODUCTION; ETCHING; THIN FILM CIRCUITS
Identifiers: ALUMINA SUBSTRATE; POTENTIAL DISTRIBUTION; STENCIL MASK; FABRICATION; PHOTORESIST MASK; SECONDARY ELECTRONS; THIN FILM STRUCTURES; GAP WIDTH; DC DIODE SPUTTER ETCH PROCESS; SPUTTER ETCH RATE; WALL ANGLES
02
Section Class Codes: B2524, B1267
Unified Class Codes: SMCEAH, ADGKAT

721397 B7505351
SCREEN' ESSENTIAL TOOL FOR THICK FILM PRINTING
FRANCONVILLE, F.; KURZWEIL, K.; STALNECKER, S.G.
COMPAGNIE HONEYWELL BULL, SAINT-OUEN, FRANCE
SOLID STATE TECHNOL. (USA) VOL.17 NO.10 61-8 OCT. 1974 Coden: SSTEAP
MANY VARIABLES IN THICK-FILM PRINTING HAVE BEEN STUDIED AND DESCRIBED IN THE LITERATURE. THEY REFER GENERALLY TO PASTE BEHAVIOR AND PRINTING CONDITIONS. DIFFERENT SCREEN TYPES ARE REVIEWED, AND COMPARISON OF THE METAL MASK VERSUS THE EMULSION SCREEN FOR DIFFERENT APPLICATIONS ARE PRESENTED. THE MAIN CHARACTERISTICS AND ADVANTAGES OF DIRECT-EMULSION TYPE SCREENS ARE DISCUSSED IN TERMS OF SCREEN QUALITY CONTROL FOR REPEATABLE PRINTING WITH SPECIAL ATTENTION TO SCREEN TENSION EVOLUTION DURING ITS LIFETIME AND TO SELECTION OF THE PROPER SOLVENT FOR SCREEN CLEANING. THE INFLUENCE OF VARIOUS SCREEN PARAMETERS WILL BE DOCUMENTED BY TYPICAL PRINTED EXAMPLES AND METHODS OF CONTROL OF THESE PARAMETERS IN PRODUCTION WILL BE DESCRIBED (8 Refs)
Descriptors: THICK FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; TOOLS; PRINTING
Identifiers: DIRECT EMULSION TYPE SCREEN; TENSION; EMULSION THICKNESS MEASUREMENT; STAINLESS STEEL MESH; ALUMINIUM FRAMES; EPOXY ADHESIVE; THICK FILM PRINTING; PRINTING CONDITIONS; METAL MASK; EMULSION SCREEN; QUALITY CONTROL; SCREEN TENSION; SOLVENT; SCREEN CLEANING
02
Section Class Codes: B2522, B1269
Unified Class Codes: SMCCAX, ADGMAE

721396 B7505350
SCREENABILITY AND RHEOLOGY
MILLER, L.F.
IBM, HOPEWELL JUNCTION, N.Y., USA
SOLID STATE TECHNOL. (USA) VOL.17 NO.10 54-60 OCT. 1974 Coden: SSTEAP
A BRIEF SUMMARY OF SOME OF THE CHARACTERISTICS OF POLYMER SOLUTIONS WHICH AFFECT RHEOLOGY IS PRESENTED. THE RATES OF SHEAR OBSERVED IN ACTUAL SCREENING PROCESSES, AND THE MORE SUBTLE IMPLICATIONS OF VISCOELASTICITY ARE EXAMINED. THIS ARTICLE PROVIDES A BACKGROUND ON THE RHEOLOGY OF POLYMER SOLUTIONS, TO SHOW HOW RHEOLOGY CAN BE MODIFIED AND CONTROLLED, AND TO PROVIDE SOME EXAMPLES RELATING TO THESE CONSIDERATIONS IN THICK FILM PASTES (13 Refs)
Descriptors: RHEOLOGY; THICK FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; VISCOELASTICITY; PRINTING
Identifiers: ELASTIC RESPONSES; RATE OF STRESS; TEMPERATURE; GEL STRUCTURES; VISCOUS FLOW; THIXOTROPIC TIME CONSTANT; SCREENABILITY; RHEOLOGY; POLYMER SOLUTIONS; SCREENING PROCESSES; VISCOELASTICITY, THICK FILM PASTES
02
Section Class Codes: B2522
Unified Class Codes: SMCCAX, DDEMAG, NCKGAH

721395 B7505349
THICK FILM TECHNOLOGY
RIVERA, J.
REV. ESP. ELECTRON. (SPAIN) VOL.21 NO.238 42-5 SEPT. 1974 Coden: RVELBT
A HYBRID THICK FILM CIRCUIT IS PRODUCED BY PRINTING OR DEPOSITING A SERIES OF CONDUCTING, RESISTIVE, INSULATING OR DIELECTRIC COMPOUNDS AND THE PROCEDURE IS DESCRIBED. THE CONCEPT AND SPECIFICATIONS OF RESISTIVE FILMS ARE DISCUSSED AND COMPARED WITH THE SPECIFICATIONS OF THE SUBSTRATE AND PRE-PRINTED CONDUCTING FILMS. THE THICKNESS OF THE FILMS DEPOSITED IS MEASURED AND CONTROLLED BY A COMPARATOR OR A STILETTO PROFILOGRAPH OR A MICROSCOPE WITH AN OPTICAL INTERSECTION DETECTOR. THE CHARACTERISTICS AND POTENTIAL APPLICATIONS OF THICK FILM CIRCUITS ARE ALSO CONSIDERED
Descriptors: THICK FILM CIRCUITS; THICK FILM RESISTORS; THICKNESS MEASUREMENT
Identifiers: HYBRID CIRCUITS; CIRCUIT PRINTING; FILM THICKNESS MEASUREMENT; THICK FILM TECHNOLOGY; DIELECTRIC COMPOUNDS; SPECIFICATIONS; RESISTIVE FILMS; SUBSTRATE; PREPRINTED CONDUCTING FILMS; CHARACTERISTICS; APPLICATIONS
02
Section Class Codes: B2522, B2210, B4441
Unified Class Codes: SMCCAX, SEEAAS, BKECAB
Language: SPANISH

[illegible]

FABER, M.L., JR.
HEWLETT-PACKARD, LOVELAND, COLO., USA
IEEE TRANS. PARTS, HYBRIDS AND PACKAG. (USA) VOL.PHP-10 NO.3 169-74 SEPT. 1974 Coden: IEPHAA
SEE ABSTR. B34122 OR C20408 OF 1974 (1 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION; LASER BEAM APPLICATIONS; THIN FILM RESISTORS; ELECTRONICS APPLICATIONS OF COMPUTERS
Identifiers: LASERS; HYBRID ICS; THIN FILM ICS; TAN; ALGORITHMIC TRIMMING; ACTIVE CIRCUITRY
02
Section Class Codes: C8842, B2540, B2524, B2980
Unified Class Codes: WMEEAQ, SMEAAB, SMCEAH, EGMAAA

715397 B7503419
A NEW CLASS OF HIGH PERFORMANCE BROADBAND 3 DB DIRECTIONAL COUPLERS IN THIN FILM TECHNIQUE
SCHIEK, B.; KOHLER, J.
PHILIPS FORSCHUNGSLABORATORIUM HAMBURG GMBH, GERMANY
4TH EUROPEAN MICROWAVE CONFERENCE 536-40 1974
10-13 SEPT. 1974 MONTREUX, SWITZERLAND
MICROWAVE EXHIBITIONS AND PUBLISHERS SURBITON, SURREY, ENGLAND
THE AUTHORS SHOW THAT PLANAR BROADBAND 3 DB DIRECTIONAL COUPLERS CAN BE CONSTRUCTED IN MICROSTRIP-SLOT AND THIN FILM TECHNIQUE. ETCHING BOTH SIDES OF A CERAMIC SUBSTRATE. NO OVERLAPPING OR BONDING WIRES ARE NEEDED AND THE DIMENSIONS OF THE LAYOUT ARE BY NO MEANS CRITICAL. AN ACCURATE, STRAIGHTFORWARD AND CLOSED FORM THEORY ALLOWS 3 DB COUPLERS TO BE CONSTRUCTED WHOSE MEASURED PERFORMANCE IS WITHIN A FEW TENTHS OF 1 DB OF THE PREDICTED VALUE. THE MEASURED INSERTION LOSS OF THESE COUPLERS, INCLUDING THE CONNECTOR LOSSES, IS AS LOW AS 0.3 DB IN C-BAND AND 0.6 DB IN X-BAND. THE +OR- 0.5 DB BANDWIDTH IS APPROXIMATELY ONE OCTAVE AND THE ISOLATION OF THE COUPLER IS BETTER THAN 30 DB OVER THIS BAND (6 Refs)
Descriptors: DIRECTIONAL COUPLERS; THIN FILM CIRCUITS; STRIP LINE COMPONENTS
Identifiers: THIN FILM TECHNIQUE; CERAMIC SUBSTRATE; CLOSED FORM THEORY; INSERTION LOSS; CONNECTOR LOSSES; C-BAND; X-BAND; ISOLATION; MICROSTRIP SLOT TECHNIQUE; WIDEBAND 3 DB DIRECTIONAL COUPLERS; HALF DECIBEL BANDWIDTH
06
Section Class Codes: B3290, B2524
Unified Class Codes: EMWAAW, SMCEAH

714927 B7502927
ADVANCES IN LOW TEMPERATURE DIE BONDING TECHNIQUES
BULL, D.N.
MOTOROLA INC., FT. LAUDERDALE, FLA., USA
SOLID STATE TECHNOL. (USA) VOL.17, NO.9 60-5 SEPT. 1974 Coden: SSTEAP
WHEN HYBRID MICROCIRCUITS WERE FIRST PRODUCED, THE ACTIVE DEVICES WERE EITHER ENCAPSULATED IN STANDARD PACKAGES OR EUTECTICALLY DIE BONDED TO GOLD PLATED TABS. DURING ASSEMBLY, THESE PACKAGES OR TABS WERE ATTACHED TO THE FILM CIRCUIT WITH A LOW TEMPERATURE SOLDER. SENSITIVITY OF THE FILM RESISTORS TO THE HIGH TEMPERATURE ASSOCIATED WITH EUTECTIC DIE BONDING REQUIRED THIS PREPACKAGED APPROACH. SINCE THEN, CIRCUIT DENSITY HAS INCREASED AND THE REQUIREMENT OF MANY ACTIVE DEVICES FURTHER COMPLICATES THE PROCESS WITH DIE PARAMETER SHIFTS AND BOND PAD LEACHING (FLOATING) EFFECTS. THIS ARTICLE DISCUSSES SEVERAL TECHNIQUES DEVELOPED TO ATTACH THE DIE DIRECTLY TO THE MODULE WHICH AVOIDS OR REDUCES THESE AFFECTS. ALSO MONOLITHIC DEVICE ASSEMBLY OF HEAT SENSITIVE DICE CAN USE THESE TECHNIQUES TO ADVANTAGE (7 Refs)
Descriptors: INTEGRATED CIRCUIT PRODUCTION; JOINING PROCESSES
Identifiers: LOW TEMPERATURE DIE BONDING TECHNIQUES; HYBRID MICROCIRCUITS; FILM CIRCUIT; EUTECTIC DIE BONDING; MONOLITHIC DEVICE ASSEMBLY; EPOXY DIE BONDING
02
Section Class Codes: B2560
Unified Class Codes: SMGAAR

714924 B7502921
A HIGH DENSITY THICK FILM MULTILAYER PROCESS FOR LSI CIRCUITS
ILGENFRITZ, R.N.; MOGEY, L.E.; WALTER, D.W.
RAYTHEON CO., BEDFORD, MASS., USA
IEEE TRANS. PARTS, HYBRIDS AND PACKAG. (USA) VOL.PHP-10 NO.3 165-8 SEPT. 1974 Coden: IEPHAA
SEE ABSTR. B34118 OF 1974 (3 Refs)
Descriptors: HYBRID INTEGRATED CIRCUITS; THICK FILM CIRCUITS; LARGE SCALE INTEGRATION; INTEGRATED CIRCUIT PRODUCTION
Identifiers: HYBRID ICS; HIGH DENSITY THICK FILM MULTILAYER PROCESS; LSI CIRCUITS
02
Section Class Codes: B2540, B2522
Unified Class Codes: SMEAAB, SMCCAX

714905 B7502896
REAL TIME DETECTION OF MICROCRACKS IN BRITTLE MATERIALS USING STRESS WAVE EMISSION (SWE)
VAHAVIOLOS, S.J.
WESTERN ELECTRIC CO., PRINCETON, N.J., USA
IEEE TRANS. PARTS, HYBRIDS AND PACKAG. (USA) VOL.PHP-10 NO. [illegible] SEPT. 1974 Coden: IEPHAA
SEE ABSTR. B34086 OF 1970 (19 Refs)
Descriptors: THIN FILM CIRCUITS; INTEGRATED CIRCUIT TESTING; MATERIALS TESTING; CRACK DETECTION
Identifiers: THIN FILM IC TESTING; REAL TIME DETECTION OF MICROCRACKS; BRITTLE MATERIALS; STRESS WAVE EMISSION
02
Section Class Codes: B2524, B1268
Unified Class Codes: SMCEAH, ZGTAAA

714904 B7502895
MOLECULAR BONDING CONDUCTIVE FILMS
SAYERS, P.
ENGELHARD MINERALS AND CHEM. CORP., EAST NEWARK, N.J., USA
SOLID STATE TECHNOL. (USA) VOL.17, NO.9 66-9 SEPT. 1974 Coden: SSTEAP
A REACTIVE BOND MECHANISM TERMED 'MOLECULAR BONDING' HAS BEEN DEVELOPED AND INCORPORATED IN CONDUCTIVE SYSTEMS BASED ON GOLD, SILVER, ALUMINUM OR NICKEL. THE REACTIVE BOND MECHANISM IS UNIQUE IN THAT THE INTERFACIAL ENERGY ASSOCIATED WITH THE CONDUCTOR-REACTION PRODUCT INTERFACE IS GREATER THAN THE SURFACE TENSION OF MOLTEN ALUMINUM OR SILVER AND THESE CONDUCTORS MAY BE FIRED AT TEMPERATURES WHICH EXCEED THEIR MELTING POINTS. SIGNIFICANTLY, THE LEACH RESISTANCE AND ADHESION WERE GREATLY IMPROVED FOR SILVER AND GOLD CONDUCTORS AND TECHNIQUES WERE DISCOVERED WHICH PERMIT STANDARD AIR ATMOSPHERE FIRING OF THE BASE METALS ALUMINUM AND NICKEL. THE HISTORY OF DEVELOPMENT, THE REASONS FOR THE DEVELOPMENT AND THE POTENTIAL ADVANTAGES OF THESE MATERIALS TO THICK FILM USERS ARE PRESENTED. THE APPLICATIONS FOR THESE MATERIALS AND THEIR FUTURE POTENTIAL IS EXPLORED (5 Refs)
Descriptors: THICK FILM CIRCUITS; CONDUCTORS (ELECTRIC)
Identifiers: MOLECULAR BONDING CONDUCTIVE FILMS; CONDUCTIVE SYSTEMS; REACTIVE BOND MECHANISM; LEACH RESISTANCE; ADHESION; THICK FILM CONDUCTORS
02
Section Class Codes: B2522, B2205
Unified Class Codes: SMCCAX, SECAAC

714903 B7502894
DIP-TINNING EQUIPMENT FOR THICK-FILM INTEGRATED CIRCUITS
FABENYI, E.; SULYOK, P.
FINOMMECH. AND MIKROTECH. (HUNGARY) VOL.13, NO.8 230-2 AUG. 1974 Coden: FNMKAY
DESCRIBES EQUIPMENT BUILT FOR TINNING THICK FILM CIRCUIT PLATES OF 1/2SECONDS *1/2SECONDS AND 1SECONDS *1SECONDS DIMENSIONS. IT CAN WORK IN INTERMITTENT OR CONTINUOUS OPERATION. THE OUTPUT IN CONTINUOUS OPERATION IS 180 PLATES/HOUR. DIP-TINNING IS CARRIED OUT BY MEANS OF A ROTATING DISC. TEMPERATURE OF THE BATH CAN BE ADJUSTED (3 Refs)
Descriptors: THICK FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION
Identifiers: INTEGRATED CIRCUIT PRODUCTION; DIP TINNING EQUIPMENT; THICK FILM INTEGRATED CIRCUITS
02
Section Class Codes: B2522, B1269
Unified Class Codes: SMCCAX, AOGMAE
Language: HUNGARIAN

714950 B7502471
A WIDE-BAND FEEDFORWARD AMPLIFIER
MEYER, R.G.; ESCHENBACH, R.; EDGERLEY, W.M., JR.
UNIV. CALIFORNIA, BERKELEY, USA
IEEE J. SOLID-STATE CIRCUITS (USA) VOL.SC-9, NO.6 422-8 DEC. 1974 Coden: IJSCBC
THE DESIGN OF A WIDE-BAND FEEDFORWARD AMPLIFIER IN THE FREQUENCY RANGE 30-300 MHZ IS DESCRIBED. EXPRESSIONS ARE DERIVED FOR FEEDFORWARD AMPLIFIER SENSITIVITY, AND THE EFFECT OF IMPERFECT LOOP CANCELLATION IS DESCRIBED. THE EFFECT OF CIRCUIT IMBALANCE ON GAIN AND TERMINAL IMPEDANCES IS INVESTIGATED. THE CIRCUIT IS REALIZED IN THIN-FILM HYBRID FORM, AND MEASUREMENTS SHOW 20 DB OF DISTORTION IMPROVEMENT AT 300 MHZ. PRACTICAL ASPECTS OF CIRCUIT ADJUSTMENT AND OPERATION ARE CONSIDERED (7 Refs)
Descriptors: THIN FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; AMPLIFIERS; SENSITIVITY ANALYSIS
Identifiers: 30-300 MHZ; FEEDFORWARD AMPLIFIER SENSITIVITY; IMPERFECT LOOP CANCELLATION; WIDEBAND FEEDFORWARD AMPLIFIER; THIN FILM HYBRID
02
Section Class Codes: B1840, B2524, B2540
Unified Class Codes: ETHAAB, SMCEAH, SMEAAB

714513 B7502418
A LUMP-ELEMENT APPROACH TO MICROWAVE INTEGRATED CIRCUITS
KATOH, H.
NIPPON ELECTRIC CO. LTD., KAWASAKI
ELECTRON. AND COMMUN. JAP. (USA) VOL.56 NO.6 47-53 JUNE 1973 Coden: ECOJAL
THE FREQUENCY CHARACTERISTICS OF A SPIRAL INDUCTOR AND A THIN-FILM CAPACITOR AND THEIR Q-VALUES ARE DESCRIBED. BASED ON THE RESULTS, A NEW IC STRUCTURE IS FOUND WHICH HAS A HIGH Q-VALUE: A QUARTZ PLATE IS USED AS A SUBSTRATE AND RF-SPUTTERED SIO/SUB 2/ FILMS ARE USED AS CROSSOVER INSULATORS. A MICROMINIATURE L-BAND HIGH-PASS FILTER AND A 1.7 GHZ TRANSISTOR AMPLIFIER WERE FABRICATED WHICH HAVE CHARACTERISTICS ALMOST EQUAL TO THOSE OF CONVENTIONAL DISTRIBUTED CONSTRUCTION. MEASURED PROPERTIES WITHOUT ADJUSTMENT ARE IN GOOD AGREEEMENT WITH DESIGN VALUES (13 Refs)
Descriptors: INDUCTORS; SOLID-STATE MICROWAVE CIRCUITS; THIN FILM CIRCUITS; THIN FILM CAPACITORS; MICROWAVE AMPLIFIERS; MICROWAVE FILTERS; HYBRID INTEGRATED CIRCUITS
Identifiers: THIN FILM CAPACITORS; L-BAND HIGH PASS FILTER; THIN FILM CAPACITOR; THIN FILM CIRCUITS; MICROWAVE INTEGRATED CIRCUITS; SPIRAL INDUCTOR; LUMPED ELEMENTS
02
Section Class Codes: B1820, B2524, B1880, B1840, B2540
Unified Class Codes: ETEAAD, SMCEAH, ETRAAM, ETHAAB, SMEAAB

714507 B7502411
HARMONICALLY PUMPED STRIPLINE DOWNCONVERTER
SCHNEIDER, M.V.; SNELL, W.W. JR.
BELL LABS., HOLMDEL, N.J., USA
4TH EUROPEAN MICROWAVE CONFERENCE 599-603 1974
10-13 SEPT. 1974 MONTREUX, SWITZERLAND
MICROWAVE EXHIBITIONS AND PUBLISHERS SURBITON, SURREY, ENGLAND
A NOVEL THIN FILM DOWNCONVERTOR PUMPED AT A SUBMULTIPLE OF THE LOCAL OSCILLATOR FREQUENCY HAS GIVEN A CONVERSION LOSS COMPARABLE TO THE PERFORMANCE OF CONVENTIONAL BALANCED MIXERS. THE CONVERTOR CONSISTS OF TWO STRIPLINE FILTERS AND TWO SCHOTTKY BARRIER DIODES WHICH ARE SHUNT MOUNTED IN A STRIP TRANSMISSION LINE. THE CONVERSION LOSS MEASURED AT A SIGNAL FREQUECY OF 3.5 GHZ IS 3.2 DB FOR A PUMP FREQUENCY OF 1.7 GHZ AND 4.9 DB FOR A PUMP FREQUENCY OF 0.85 GHZ. THE CIRCUIT LOOKS ATTRACTIVE FOR USE AT MILLIMETER-WAVE FREQUENCIES WHERE STABLE PUMP SOURCES WITH LOW FM NOISE ARE NOT READILY AVAILABLE (6 Refs)
Descriptors: FREQUENCY CONVERTORS; PARAMETRIC DEVICES; SUPERHETERODYNE RECEIVERS; MICROWAVE FILTERS; SCHOTTKY-BARRIER DIODES; STRIP LINE COMPONENTS; HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS
Identifiers: THIN FILM DOWNCONVERTOR; CONVERSION LOSS; STRIPLINE FILTERS; SCHOTTKY BARRIER DIODES; LOW FM NOISE; LOCAL OSCILLATOR SUBMULTIPLE PUMP FREQUENCY
06
Section Class Codes: B1810, B2524, B3290, B1890, B2540
Unified Class Codes: ETCAAN, SMCEAH, EMWAAW, ETTAAC, SMEAAB

704111 B7501352
THE ADVANTAGES OF THIN FILM HYBRIDS IN INSTRUMENTS
JONES, R. D.
HEWLETT PACKARD, SOUTH QUEENSFERRY, SCOTLAND
ELECTRON. COMPONENTS (GB) VOL.16, NO. 14 29-33 13 AUG. 1974 Coden: ELCCA3
BECAUSE OF THE CLOSE ELECTRICAL COUPLING OF INDIVIDUAL ELEMENTS IN MONOLITHIC INTEGRATED CIRCUITS, THE IMMEDIATE TRANSLATION OF A GIVEN CIRCUIT INTO A MONOLITHIC IC IS NOT POSSIBLE, PARTICULARLY WITH HIGH FREQUENCY ANALOGUE CIRCUITRY. HOWEVER, CIRCUITS OF THIS TYPE ARE READILY FABRICATED AS HYBRID ICS. PROCESSING TECHNIQUES AND ELECTRICAL AND ECONOMIC ADVANTAGES IN UTILIZING HYBRID TECHNOLOGY ARE DISCUSSED
Descriptors: THIN FILM CIRCUITS; HYBRID INTEGRATED CIRCUITS; INSTRUMENTATION
Identifiers: HF CIRCUITRY; THIN FILM CIRCUITS; ELECTRICAL ADVANTAGES; ECONOMIC ADVANTAGES; PROCESSING TECHNIQUES; INSTRUMENTS; ANALOGUE CIRCUITRY; HYBRID ICS; HYBRID TECHNOLOGY
02
Section Class Codes: B42C0, B2524, B2540
Unified Class Codes: BECAAQ, SMCEAH, SMEAAB

704189 B7500671
METALLIZING MULTILAYER CERAMIC TOP AND BOTTOM SIDE
HADDAD, M.C.
IBM TECH. DISCLOSURE BULL. (USA) VOL.16, NO.11 3612 APRIL 1974 Coden: IBMTAA
VARIOUS METALS CAN BE PLATED UPON FIRED GLASS FRITTED NOBLE METAL PASTE CONDUCTORS WHICH PROVIDE THE SUBSTRATE WITH THE PROPER METALLURGY, FOR PERFORMING THE FUNCTIONAL REQUIREMENTS OF SITES FOR SEMICONDUCTOR CHIP JOINING, PIN BRAZING, AND SO FORTH. THE METALLURGY CAN THEN WITHSTAND CORROSION IN MOST HOSTILE ENVIRONMENTS
Descriptors: METALLISATION; THICK FILM CIRCUITS; INTEGRATED CIRCUIT PRODUCTION
Identifiers: METALLIZING MULTILAYER CERAMIC; FIRED GLASS FRITTED NOBLE METAL PASTE CONDUCTORS; SEMICONDUCTOR CHIP JOINING; PIN BRAZING
02
Section Class Codes: B2522, B2540
Unified Class Codes: SMCCAX, SMEAAB

704194 B7500415
STAR' AN ACTIVE BIQUADRATIC FILTER SECTION
FRIEND, J.J.; HARRIS, C.A.; HILBERMAN, D.
BELL TELEPHONE LABS. INC., HOLMDEL, N.J., USA
IEEE
PROCEEDINGS OF THE 1974 IEEE INTERNATIONAL SYMPOSIUM ON CIRCUITS AND SYSTEMS 640-4 1974
22-25 APRIL 1974 SAN FRANCISCO, CALIF., USA
IEEE NEW YORK, USA
STAR (STANDARD TANTALUM ACTIVE RESONATOR) IS A THIN FILM ACTIVE FILTER BUILDING BLOCK CAPABLE OF REALIZING A VARIETY OF SINGLE AMPLIFIER BIQUADRATIC TOPOLOGIES AND A WIDE RANGE OF TRANSFER FUNCTIONS. THE CIRCUITS MOST COMMONLY USED ARE DESCRIBED. THE DOMINANT PHYSICAL DESIGN FEATURES AND THEIR IMPACT ON THE MANUFACTURE AND USE OF STAR ARE DISCUSSED (8 Refs)
Descriptors: ACTIVE FILTERS; HYBRID INTEGRATED CIRCUITS; THIN FILM CIRCUITS; RESONATORS; INTEGRATED CIRCUIT PRODUCTION
Identifiers: THIN FILM HYBRID IC; ACTIVE BIQUADRATIC FILTER SECTION; SINGLE AMPLIFIER BIQUADRATIC TOPOLOGIES; TRANSFER FUNCTIONS; PHYSICAL DESIGN FEATURES; MANUFACTURE; STANDARD TANTALUM ACTIVE RESONATOR
06
Section Class Codes: B1880, B2540, B2524
Unified Class Codes: ETRAAM, SMEAAB, SMCEAH