

## SECTION H — ELECTRICITY

### H05 ELECTRIC TECHNIQUES NOT OTHERWISE PROVIDED FOR

**H05K PRINTED CIRCUITS; CASINGS OR CONSTRUCTIONAL DETAILS OF ELECTRIC APPARATUS; MANUFACTURE OF ASSEMBLAGES OF ELECTRICAL COMPONENTS** (details of instruments or comparable details of other apparatus not otherwise provided for G12B; thin-film or thick-film circuits H01L 27/01, H01L 27/13; non-printed means for electric connections to or between printed circuits H01R; casings for, or constructional details of, particular types of apparatus, see the relevant subclasses; processes involving only a single technical art, e.g. heating, spraying, for which provision exists elsewhere, see the relevant classes)

#### Note(s)

1. This subclass covers:
  - combinations of a radio or television receiver with apparatus having a different main function;
  - printed circuits structurally associated with non-printed electric components.
2. In this subclass, the following expression is used with the meaning indicated:
  - "printed circuits" covers all kinds of mechanical constructions of circuits that consist of an insulating base or support carrying the conductor and are combined structurally with the conductor throughout their length, especially in a two-dimensional plane, the conductors of which are secured to the base in a non-dismountable manner, and also covers the processes or apparatus for manufacturing such constructions, e.g. forming the circuit by mechanical or chemical treatment of a conductive foil, paste, or film on an insulating support.

#### Subclass index

PRINTED CIRCUITS ASSOCIATED OR NOT ASSOCIATED WITH NON-PRINTED ELECTRIC COMPONENTS

Types; manufacture.....	1/00, 3/00
CASINGS, CABINETS OR DRAWERS; CONSTRUCTIONAL DETAILS.....	5/00, 7/00
SCREENING.....	9/00
COMBINATIONS OF A RADIO OR TELEVISION RECEIVER WITH OTHER APPARATUS.....	11/00
MANUFACTURE OF ELECTRONIC ASSEMBLAGES.....	13/00
ARRANGEMENTS FOR IMPROVING THE OPERATING RELIABILITY.....	10/00

**1/00 Printed circuits** (assemblies of a plurality of individual semiconductor or solid state devices H01L 25/00; devices consisting of a plurality of solid state components formed in or on a common substrate, e.g. integrated circuits, thin-film or thick-film circuits, H01L 27/00)

- 1/02 • Details
- 1/03 • • Use of materials for the substrate [3]
- 1/05 • • • Insulated metal substrate [3]
- 1/09 • • Use of materials for the metallic pattern [3]
- 1/11 • • Printed elements for providing electric connections to or between printed circuits [3]
- 1/14 • • Structural association of two or more printed circuits (providing electric connection to or between printed circuits H05K 1/11, H01R 12/00)
- 1/16 • incorporating printed electric components, e.g. printed resistor, capacitor, inductor
- 1/18 • Printed circuits structurally associated with non-printed electric components (H05K 1/16 takes precedence)

**3/00 Apparatus or processes for manufacturing printed circuits** (photomechanical production of textured or patterned surfaces, materials or originals therefor, apparatus specially adapted therefor, in general G03F; involving the manufacture of semiconductor devices H01L) [3]

- 3/02 • in which the conductive material is applied to the surface of the insulating support and is thereafter removed from such areas of the surface which are not intended for current conducting or shielding
- 3/04 • • the conductive material being removed mechanically, e.g. by punching
- 3/06 • • the conductive material being removed chemically or electrolytically, e.g. by photo-etch process
- 3/07 • • • being removed electrolytically [3]
- 3/08 • • the conductive material being removed by electric discharge, e.g. by spark erosion
- 3/10 • in which conductive material is applied to the insulating support in such a manner as to form the desired conductive pattern
- 3/12 • • using printing techniques to apply the conductive material
- 3/14 • • using spraying techniques to apply the conductive material
- 3/16 • • • by cathodic sputtering

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- 3/18 • • using precipitation techniques to apply the conductive material
- 3/20 • • by affixing prefabricated conductor pattern
- 3/22 • Secondary treatment of printed circuits
- 3/24 • • Reinforcing of the conductive pattern
- 3/26 • • Cleaning or polishing of the conductive pattern
- 3/28 • • Applying non-metallic protective coatings
- 3/30 • Assembling printed circuits with electric components, e.g. with resistor
- 3/32 • • electrically connecting electric components or wires to printed circuits
- 3/34 • • • by soldering
- 3/36 • Assembling printed circuits with other printed circuits
- 3/38 • Improvement of the adhesion between the insulating substrate and the metal [3]
- 3/40 • Forming printed elements for providing electric connections to or between printed circuits [3]
- 3/42 • • Plated through-holes [3]
- 3/44 • Manufacturing insulated metal core circuits [3]
- 3/46 • Manufacturing multi-layer circuits [3]
- 5/00 Casings, cabinets or drawers for electric apparatus** (in general A47B; radio receiver cabinets H04B 1/08; television receiver cabinets H04N 5/64)
  - 5/02 • Details
  - 5/03 • • Covers
  - 5/04 • Metal casings
  - 5/06 • Hermetically-sealed casings
- 7/00 Constructional details common to different types of electric apparatus** (casings, cabinets, drawers H05K 5/00)
  - 7/02 • Arrangements of circuit components or wiring on supporting structure
  - 7/04 • • on conductive chassis
  - 7/06 • • on insulating boards
  - 7/08 • • • on perforated boards
  - 7/10 • • Plug-in assemblages of components
  - 7/12 • • Resilient or clamping means for holding component to structure (holding two-part couplings together H01R 13/00)
  - 7/14 • Mounting supporting structure in casing or on frame or rack
  - 7/16 • • on hinges or pivots
  - 7/18 • Construction of rack or frame
  - 7/20 • Modifications to facilitate cooling, ventilating, or heating
- 9/00 Screening of apparatus or components against electric or magnetic fields** (devices for absorbing radiation from an aerial H01Q 17/00)

## 10/00 Arrangements for improving the operating reliability of electronic equipment, e.g. by providing a similar stand-by unit

### Note(s)

Attention is drawn to the following appropriate places:

- G05B 9/03.....Electric redundant control systems
- G06F 11/16.....Error detection or correction of data by redundancy in digital computer hardware
- G08B 29/16.....Security signalling or alarm systems
- H02H 3/05.....Redundant emergency protective circuit arrangements
- H02J 3/38.....Arrangements for parallelly feeding a single network
- H02J 9/04.....Circuit arrangements with stand-by power supply
- H03K 19/003.....Modifications for increasing the reliability of logic circuits or inverting circuits
- H03K 19/007.....Fail-safe logic circuits or inverting circuits
- H03L 7/07.....Redundant clock signal generation in generators of electronic oscillations or pulses
- H04B 1/74.....Transmission systems using redundant channels or apparatus
- H04L 1/22.....Redundant apparatus for increasing reliability of arrangements used for the transmission of digital information.

## 11/00 Combinations of a radio or television receiver with apparatus having a different main function

- 11/02 • with vehicles

## 13/00 Apparatus or processes specially adapted for manufacturing or adjusting assemblages of electric components

- 13/02 • Feeding of components (in general B65G)
- 13/04 • Mounting of components
- 13/06 • Wiring by machine
- 13/08 • Monitoring manufacture of assemblages