The Institute for Interconnecting and Packaging Electronic Circuits

IPC-TF-870

Qualification and Performance of Polymer Thick Film Printed Boards

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Qualification and Performance of Polymer Thick Film Printed Boards

1.0 SCOPE

This specification covers the materials, qualification, certification, and performance requirements for multilayer Polymer Thick Film (PTF) printed, extrusion deposited, or otherwise applied conductor, insulator, and through-hole technology. Printed, extrusion deposited, or otherwise applied circuitry, shall meet all applicable requirements of this specification and the master drawing. Etched and plated conventional printed circuits may also be an integral part of this technology. This specification may also be used for procurement of single-sided and double-sided boards. See Figures 1, 2, and 3.

1.1 Construction Printed boards shall be of the types shown as specified:

Construction 1A Single-Sided Board (Rigid)
Construction 1B Single-Sided Board (Flex)
Construction 2B Double-Sided Board (Rigid)
Construction 2B Double-Sided Board (Flex)
Construction 3 Multilayer Board

1.1.1 Classes This specification provides Classes (1, 2, and 3) for feature requirements to reflect progressive increases in sophistication, functional performance requirements and testing severity. The reference of a single class does not preclude working, invoking or allowing specific requirements defined in other classes.

Class 1—Consumer Products (Includes TV sets, toys, entertainment electronic and non-critical or industrial control devices).

Class 2—General Industrial (Includes computers, telecommunication equipment, sophisticated business machines, instruments and certain non-critical military applications).

Note: Reliability required in high humidity conditions should be considered.

Class 3—High Reliability (Includes that equipment where continued performance is critical, equipment downtime cannot be tolerated or the equipment is a life support item).

Note: Unless otherwise specified, Class 3 shall be used for military electronic equipment.

2.0 APPLICABLE DOCUMENTS

2.1 IPC[1]

IPC-T-50 Terms and Definitions

IPC-CF-150 Copper Foil For Printed Wiring Applications

IPC-FC-250 Standard for Single- and Double- Sided Flexible Wiring with Interconnections

IPC-D-300 Printed Board Dimension and Tolerances

IPC-S-815 General Requirements for Soldering Electronic Interconnections

IPC-SF-818 General Requirements for Electronic Soldering Fluxes

IPC-SM-840 Qualification and Performance of Permanent Polymer Coating (Solder Mask) for Printed Boards

IPC-ML-950 Performance Specifications for Multilayer Printed Wiring Boards

IPC-TM-650[2] Test Methods Manual

2.1.1 Microsectioning

2.3.23 Solder Mask Cure (Permanancy) Thermally Cured Masks

2.3.38 Surface Organic Contaminant Detection Test (In-House Method)

2.4.22 Bow and Twist

2.4.27.2 Solder Mask Abrasion (Pencil Method)

2.4.28 Adhesion, Solder Mask (Non-Wetting Metals)

2.4.28.1 Adhesion, Solder Mask (Melting Materials)

2.4.29 Adhesion, Solder Mask Flexible Circuits

2.4.36 Rework Simulation, Plated-Through Holes

2.5.6.1 Dielectric Strength, Polymer Solder Mask, and/or Conformal Coatings

2.6.1 Fungus Resistance Printed Wiring Materials

1. Publications are available from the IPC, 2215 Sanders Road, Northbrook, IL 60062-6135
2. For convenience, reprints of the IPC-TM-650 Test Methods are provided at the end of this specification.