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Sectional Design Standard for Rigid Organic Printed Boards

Supersedes IPC-2222A
December 2010

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Sectional Design Standard for Rigid Organic Printed Boards

Developed by the IPC-2221/2222 Task Group (D-31b) of the Rigid Printed Board Committee (D-30) of IPC

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Users of this publication are encouraged to participate in the development of future revisions.

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Table of Contents

1 SCOPE 1
1.1 Purpose 1
1.2 Document Hierarchy 1
1.3 Presentation 1
1.4 Interpretation 1
1.5 Definition of Terms 1
1.5.1 As Agreed Between User and Supplier (AABUS) 1
1.6 Classification of Products 1
1.6.1 Printed Board Type 1
1.7 Applicability 1
1.8 Revision Level Changes 2

2 APPLICABLE DOCUMENTS 2
2.1 IPC 2
2.2 Underwriters Laboratories 2

3 GENERAL REQUIREMENTS 2
3.1 Performance Requirements 2

4 MATERIALS 2
4.1 Material Selection 2
4.2 Dielectric Base Materials (Including Prepregs and Adhesives) 2
4.2.1 Epoxy Laminates 2
4.2.2 High T_g Laminates 3
4.2.3 Special Clad Materials 3
4.2.4 Other Laminates 3
4.3 Laminate Materials 3
4.3.1 UL Parameters 3
4.3.2 Measurement of Dielectric Thickness 6
4.3.3 Dielectric Thickness/Spacing 6
4.3.4 Laminate Properties 6
4.3.5 Prepreg 6
4.3.6 Single-Clad Laminate 7
4.3.7 Double-Clad Laminate 7
4.3.8 Laminate Material Code Designation 7
4.4 Conductive Materials 7
4.5 Electronic (Embedded) Component Materials 7
4.6 Organic Protective Coatings 7
4.7 Markings and Legends 7

5 MECHANICAL/PHYSICAL PROPERTIES 8
5.1 Fabrication Requirements 8
5.2 Product/Printed Board Configuration 8
5.2.1 Printed Board Size and Shape 8
5.2.2 Mechanical Support 10
5.3 Design Requirements for Printed Board Assembly 10
5.3.1 Assembly Array (or Pallet) 10
5.4 Dimensioning Systems 13
5.4.1 Profiles, Cutouts and Notches 13
5.5 Printed Board Thickness Tolerance 14

6 ELECTRICAL PROPERTIES 14

7 THERMAL MANAGEMENT 14

8 COMPONENT AND ASSEMBLY ISSUES 14
8.1 General Attachment Requirements 14
8.1.1 Attachment of Wires/Leads to Terminals 14
8.1.2 Printed Board Extractors 14

9 HOLE/INTERCONNECTIONS 15
9.1 General Requirements for Lands with Holes 15
9.1.1 Land Requirements 15
9.1.2 Thermal Relief in Conductor Planes 16
9.1.3 Clearance Area in Planes 17
9.1.4 Nonfunctional Lands 18
9.1.5 Conductive Pattern Feature Location Tolerance 18
9.2 Holes 19
9.2.1 Unsupported Holes (Non-plated Holes) 19
9.2.2 Plated-Through Holes (PTHs) 19
9.2.3 Etchback 20

10 GENERAL CIRCUIT FEATURE REQUIREMENTS 21
10.1 Conductor Characteristics 21
10.1.1 Printed Board Edge Spacing 21
10.1.2 Balanced Conductors 21
10.1.3 Flush Conductors for Rotating or Sliding Contacts 21
10.2 Land Characteristics 22
10.2.1 Offset Lands 22
10.3 Large Conductive Areas 22

11 DOCUMENTATION 22

12 QUALITY ASSURANCE 22

Figures

Figure 4-1 Dielectric Layer Thickness Measurement 6
Figure 4-2 Designer/End User Materials Selection Map 8
Figure 5-1 Borders and Margins in Printed Board Panels, mm [in] 9

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Figure 5-2 Scoring Parameters 11
Figure 5-3 Conductor Clearance for V-Groove Scoring... 11
Figure 5-4 Breakaway Tabs 12
Figure 5-5 Typical Low Stress Breakaway Tabs with Mouse Bites and Routed Slots....................... 12
Figure 5-6 Routed Slots and Break Line 13
Figure 8-1 Permanent Printed Board Extractor 15
Figure 8-2 External Printed Board Extractor.................... 15
Figure 9-1 Clearance Area in Planes............................... 17
Figure 9-2 Foil (Copper) Web Size................................. 17
Figure 9-3 Lead-to-hole Clearance 19
Figure 10-1 Typical Flush Circuit 21
Figure 10-2 Surface Flushness Conditions........................ 21
Figure 10-3 Cross-hatched Large Conductive Layers with Isothermal Conductors........................... 22

Tables

Table 4-1 Typical Thermal Properties of Selected Dielectrics 4
Table 4-2 Advantages and Disadvantages of some Common Laminate Materials 5
Table 5-1 Standard Scoring Parameters, µµm [in]......... 10
Table 5-2 Tolerance of Profiles, Cutouts and Notches, as Machined, mm [in] 13
Table 5-3 Printed Board Overall Thickness Tolerance Levels, mm [in] 14
Table 9-1 Minimum Standard Fabrication Allowance for Interconnection Lands............................... 15
Table 9-2 Pad to Plane Clearance, mm [in]................... 17
Table 9-3 Nonfunctional Land Considerations 18
Table 9-4 Feature Location Tolerances (Lands, Conductor Pattern, etc.) (Diameter True Position)[1], mm [in]................................. 18
Table 9-5 Diameter Tolerance Range for Unsupported Holes, mm [in]........................... 19
Table 9-6 PTH Diameter to Lead Diameter Relationships, mm [in]................................... 19
Table 9-7 Plated Hole Aspect Ratio 20
Table 9-8 Minimum PTH Diameter Tolerance Range, (LMC – MMC Hole Size Limits), mm [in] 20
Table 9-9 Recommended Minimum Drill Size, mm [in].. 20
Table 10-1 Surface Flushness Requirements, mm [in].. 21

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Sectional Design Standard for Rigid Organic Printed Boards

1 SCOPE

This standard establishes the specific requirements for the design of rigid organic printed boards.

The following overview describes what are the core knowledge and competencies to best serve in the role of *Printed Board Design Layout* as a stand-alone professional, or as the engineer performing this responsibility. Today's printed board designer needs to address numerous perspectives for success within a given schedule, with the goal of making the first design iteration work as intended, summarized as:

• Layout Solvability – Complex Packaging Skillset

• Electrical Integrity – Signal & Power Performance on all Layers

• Manufacturability – Design for Excellence (DfX) Considerations for High Yield and Lower Cost

• Application considerations – Environmental, Performance, Shelf life, etc.

The result provides for optimal component placement, routing density and electrical performance to achieve an efficient design with high yield and defect-free manufacturability.

1.1 Purpose The requirements contained herein are intended to establish specific design details that **shall** be used in conjunction with IPC-2221 to produce printed boards that perform as an integral part of functional electronic hardware.

The organic materials may be homogeneous, reinforced, or used in combination with inorganic materials; the interconnections may be single, double, or multilayered. They may be any combination able to perform the physical, thermal, environmental, and electronic function.

1.2 Document Hierarchy Document hierarchy **shall** be in accordance with the generic standard IPC-2221.

1.3 Presentation Presentation **shall** be in accordance with the generic standard IPC-2221.

1.4 Interpretation Interpretation **shall** be in accordance with the generic standard IPC-2221.

1.5 Definition of Terms The definition of all terms used herein **shall** be in accordance with IPC-T-50 and as defined in 1.5.1.

1.5.1 As Agreed Between User and Supplier (AABUS) A bilateral agreement which indicates additional or alternate requirements to be decided between the user and the supplier in the procurement documentation. Examples include contractual requirements, modifications to purchase documentation and information on the drawing. Agreements can be used to define test methods, conditions, frequencies, categories or acceptance criteria within a test, if not already established.

1.6 Classification of Products Classification of products **shall** be in accordance with the generic standard IPC-2221 and as defined in 1.6.1.

1.6.1 Printed Board Type This standard provides design information for different printed board types. Printed board types are classified as:

Type 1 – Single-Sided Printed Board
Type 2 – Double-Sided Printed Board
Type 3 – Multilayer Printed Board without blind or buried vias
Type 4 – Multilayer Printed Board with blind and/or buried vias
Type 5 – Multilayer Metal Core Printed Board without blind or buried vias
Type 6 – Multilayer Metal Core Printed Board with blind and/or buried vias

1.7 Applicability The contents of this standard may not apply to certain leading-edge technologies. Refer to IPC-2221 for additional information.

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