

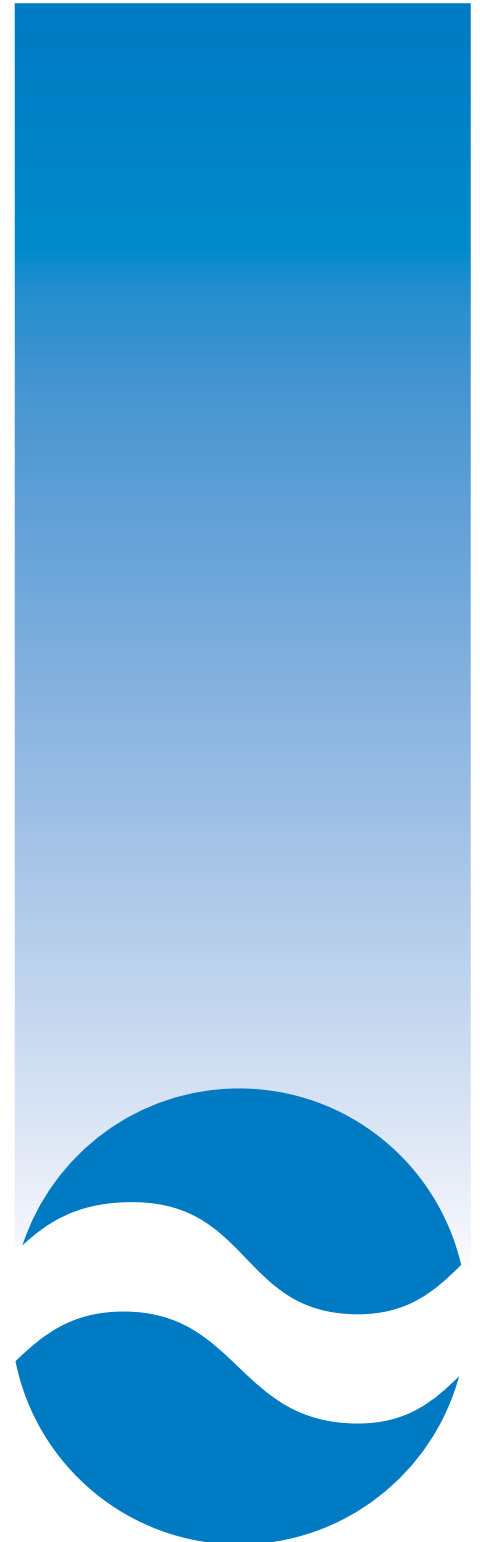
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Requirements for
Soldered Electrical
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Assemblies



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Requirements for Soldered Electrical and Electronic Assemblies

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Table of Contents

1 GENERAL	1	3 MATERIALS, COMPONENTS AND EQUIPMENT REQUIREMENTS	6
1.1 Scope	1	3.1 Materials	6
1.2 Purpose	1	3.2 Solder	7
1.3 Classification	1	3.2.1 Solder - Lead Free	7
1.4 Measurement Units and Applications	1	3.2.2 Solder Purity Maintenance	7
1.4.1 Verification of Dimensions	1	3.3 Flux	7
1.5 Definition of Requirements	2	3.3.1 Flux Application	8
1.5.1 Hardware Defects and Process Indicators	2	3.4 Solder Paste	8
1.5.2 Material and Process Nonconformance	2	3.5 Solder Preforms	8
1.6 General Requirements	2	3.6 Adhesives	8
1.7 Order of Precedence	3	3.7 Chemical Strippers	8
1.7.1 Conflict	3	3.8 Components	8
1.7.2 Clause References	3	3.8.1 Component and Seal Damage	8
1.7.3 Appendices	3	3.8.2 Coating Meniscus	8
1.8 Terms and Definitions	3	3.9 Soldering Tools and Equipment	8
1.8.1 Defect	3	4 GENERAL SOLDERING AND ASSEMBLY REQUIREMENTS	8
1.8.2 Disposition	3	4.1 Electrostatic Discharge (ESD)	8
1.8.3 Electrical Clearance	3	4.2 Facilities	8
1.8.4 High Voltage	3	4.2.1 Environmental Controls	8
1.8.5 Manufacturer (Assembler)	3	4.2.2 Temperature and Humidity	8
1.8.6 Objective Evidence	3	4.2.3 Lighting	9
1.8.7 Process Control	4	4.2.4 Field Assembly Operations	9
1.8.8 Process Indicator	4	4.3 Solderability	9
1.8.9 Proficiency	4	4.4 Solderability Maintenance	9
1.8.10 Solder Destination Side	4	4.5 Removal of Component Surface Finishes	9
1.8.11 Solder Source Side	4	4.5.1 Gold Removal	9
1.8.12 Supplier	4	4.5.2 Other Metallic Surface Finishes Removal	9
1.8.13 User	4	4.6 Thermal Protection	9
1.8.14 Wire Overwrap	4	4.7 Rework of Nonsolderable Parts	9
1.8.15 Wire Overlap	4	4.8 Presoldering Cleanliness Requirements	10
1.9 Requirements Flowdown	4	4.9 General Part Mounting Requirements	10
1.10 Personnel Proficiency	4	4.9.1 Stress Relief	10
1.11 Acceptance Requirements	4	4.10 Hole Obstruction	10
1.12 General Assembly Requirements	5	4.11 Metal-Cased Component Isolation	10
1.13 Miscellaneous Requirements	5	4.12 Adhesive Coverage Limits	10
1.13.1 Health and Safety	5	4.13 Mounting of Parts on Parts (Stacking of Components)	10
1.13.2 Procedures for Specialized Technologies	5	4.14 Connectors and Contact Areas	10
2 APPLICABLE DOCUMENTS	5	4.15 Handling of Parts	10
2.1 EIA	5	4.15.1 Preheating	10
2.2 IPC	5	4.15.2 Controlled Cooling	10
2.3 Joint Industry Standards	6		
2.4 ASTM	6		
2.5 Electrostatic Discharge Association	6		

4.15.3	Drying/Degassing	10	6.2.1	Solder Application	21
4.15.4	Holding Devices and Materials	11	6.2.2	Through-Hole Component Lead Soldering	21
4.16	Machine (Nonreflow) Soldering	11	6.3	Unsupported Holes	22
4.16.1	Machine Controls	11	6.3.1	Lead Termination Requirements for Unsupported Holes	22
4.16.2	Solder Bath	11	7	SURFACE MOUNTING OF COMPONENTS	23
4.17	Reflow Soldering	11	7.1	Surface Mount Device Lead Forming	23
4.17.1	Intrusive Soldering (Paste-in-Hole)	11	7.1.1	Lead Deformation Limits	23
4.18	Solder Connection	11	7.1.2	Flat Pack Parallelism	23
4.18.1	Exposed Surfaces	12	7.1.3	Surface Mount Device Lead Bends	24
4.18.2	Solder Connection Defects	12	7.1.4	Flattened Leads	24
4.18.3	Partially Visible or Hidden Solder Connections	12	7.1.5	Dual-in-Line Packages (DIPs)	24
4.19	Heat Shrinkable Soldering Devices	12	7.1.6	Parts Not Configured for Surface Mounting ...	24
5	WIRES AND TERMINAL CONNECTIONS	12	7.2	Leaded Component Body Clearance	24
5.1	Wire and Cable Preparation	12	7.2.1	Axial-Leaded Components	24
5.1.1	Insulation Damage	12	7.3	Parts Configured for Butt Lead Mounting	24
5.1.2	Strand Damage	13	7.4	Hold Down of Surface Mount Leads	24
5.1.3	Tinning of Stranded Wire	13	7.5	Soldering Requirements	24
5.2	Solder Terminals	13	7.5.1	Misaligned Components	24
5.3	Bifurcated, Turret and Slotted Terminal Installation	13	7.5.2	Unspecified and Special Requirements	24
5.3.1	Shank Damage	13	7.5.3	Bottom Only Terminations	26
5.3.2	Flange Damage	13	7.5.4	Rectangular or Square End Chip Components - 1, 3 or 5 Side Termination	27
5.3.3	Flared Flange Angles	14	7.5.5	Cylindrical End Cap Terminations	28
5.3.4	Terminal Mounting - Mechanical	14	7.5.6	Castellated Terminations	29
5.3.5	Terminal Mounting - Electrical	14	7.5.7	Flat Gull Wing Leads	30
5.3.6	Terminal Soldering	15	7.5.8	Round or Flattened (Coined) Gull Wing Leads	31
5.4	Mounting to Terminals	15	7.5.9	“J” Leads	32
5.4.1	General Requirements	15	7.5.10	Butt/I Connections (Not Permitted for Class 3 Products)	33
5.4.2	Bifurcated and Turret Terminals	16	7.5.11	Flat Lug Leads	34
5.4.3	Slotted Terminals	18	7.5.12	Tall Profile Components Having Bottom Only Terminations	35
5.4.4	Hook Terminals	18	7.5.13	Inward Formed L-Shaped Ribbon Leads	36
5.4.5	Pierced or Perforated Terminals	19	7.5.14	Surface Mount Area Array Packages	37
5.4.6	Cup and Hollow Cylindrical Terminals	19	7.5.15	Bottom Termination Components (BTC)	39
5.5	Soldering to Terminals	19	7.5.16	Components with Bottom Thermal Plane Terminations (D-Pak)	40
5.5.1	Cup and Hollow Cylindrical Terminals	19	7.5.17	Flattened Post Connections	41
6	THROUGH-HOLE MOUNTING AND TERMINATIONS	20	7.6	Specialized SMT Terminations	41
6.1	Through-Hole Terminations - General	20	8	CLEANING PROCESS REQUIREMENTS	42
6.1.1	Lead Forming	20	8.1	Cleanliness Exemptions	42
6.1.2	Lead Deformation Limits	20	8.2	Ultrasonic Cleaning	42
6.1.3	Termination Requirements	20	8.3	Post-Solder Cleanliness	42
6.1.4	Lead Trimming	21	8.3.1	Particulate Matter	42
6.1.5	Interfacial Connections	21			
6.1.6	Coating Meniscus In Solder	21			
6.2	Supported Holes	21			

8.3.2 Flux Residues and Other Ionic or Organic Contaminants 42

8.3.3 Post-Soldering Cleanliness Designator 42

8.3.4 Cleaning Option 42

8.3.5 Test for Cleanliness 42

8.3.6 Testing 43

9 PCB REQUIREMENTS 43

9.1 Printed Circuit Board Damage 43

9.1.1 Blistering/Delamination 43

9.1.2 Weave Exposure/Cut Fibers 44

9.1.3 Haloing 44

9.1.4 Land Separation 44

9.1.5 Land/Conductor Reduction in Size 44

9.1.6 Flexible Circuitry Delamination 44

9.1.7 Flexible Circuitry Damage 44

9.1.8 Burns 44

9.1.9 Solder on Gold Contacts 44

9.1.10 Measles 44

9.2 Marking 44

9.3 Bow and Twist (Warpage) 44

10 COATING, ENCAPSULATION AND STAKING (ADHESIVE) 45

10.1 Conformal Coating 45

10.1.1 Application 45

10.1.2 Performance Requirements 45

10.1.3 Conformal Coating Inspection 46

10.1.4 Rework of Conformal Coating 46

10.2 Encapsulation 46

10.2.1 Application 46

10.2.2 Performance Requirements 46

10.2.3 Rework of Encapsulant Material 46

10.2.4 Encapsulant Inspection 46

10.3 Staking (Adhesive) 46

10.3.1 Staking 47

10.3.2 Staking (Inspection) 47

11 PRODUCT ASSURANCE 48

11.1 Hardware Defects Requiring Disposition 48

11.2 Inspection Methodology 48

11.2.1 Process Verification Inspection 48

11.2.2 Visual Inspection 48

11.2.3 Sampling Inspection 48

11.3 Process Control Requirements 48

11.3.1 Opportunities Determination 49

11.4 Statistical Process Control 49

12 REWORK AND REPAIR 49

12.1 Rework 49

12.2 Repair 49

12.3 Post Rework/Repair Cleaning 49

Appendix A Guidelines for Soldering Tools and Equipment 51

Appendix B Minimum Electrical Clearance - Electrical Conductor Spacing 53

Figures

Figure 1-1 Overwrap 4

Figure 1-2 Overlap 4

Figure 4-1 Hole Obstruction 10

Figure 4-2 Acceptable Wetting Angles 11

Figure 5-1 Flange Damage 14

Figure 5-2 Flare Angles 14

Figure 5-3 Terminal Mounting - Mechanical 14

Figure 5-4 Terminal Mounting - Electrical 14

Figure 5-5 Insulation Clearance Measurement 15

Figure 5-6 Service Loop for Lead Wiring 15

Figure 5-7 Stress Relief Examples 15

Figure 5-8 Continuous Runs 16

Figure 5-9 Wire and Lead Wrap Around 16

Figure 5-10 Side Route Connections and Wrap on Bifurcated Terminal 17

Figure 5-11 Top and Bottom Route Terminal Connection 18

Figure 5-12 Hook Terminal Connections 18

Figure 5-13 Pierced or Perforated Terminal Wire Wrap 19

Figure 5-14 Solder Height 19

Figure 6-1 Lead Bends 20

Figure 6-2 Lead Trimming 21

Figure 6-3 Vertical Fill Example 22

Figure 7-1 Surface Mount Device Lead Forming 23

Figure 7-2 Surface Mount Device Lead Forming 23

Figure 7-3 Bottom Only Terminations 26

Figure 7-4 Rectangular or Square End Chip Components 27

Figure 7-5 Cylindrical End Cap Terminations 28

Figure 7-6 Castellated Terminations 29

Figure 7-7 Flat Gull Wing Leads 30

Figure 7-8 Round or Flattened (Coined) Gull Wing Leads 31

Figure 7-9 "J" Leads 32

Figure 7-10 Butt/I Connection 33

Figure 7-11 Flat Lug Leads 34

Figure 7-12 Tall Profile Components Having Bottom Only Terminations 35

Figure 7-13 Inward Formed L-Shaped Ribbon Lead 36

Figure 7-14 BGA Solder Ball Spacing 37

Figure 7-15	Bottom Termination Component	39
Figure 7-16	Bottom Thermal Plane Termination	40
Figure 7-17	Flattened Post Termination	41

Tables

Table 1-1	Design and Fabrication Specification	3	Table 7-4	Dimensional Criteria - Rectangular or Square End Chip Components - 1, 3 or 5 Side Termination	27
Table 3-1	Maximum Limits of Solder Bath Contaminant	7	Table 7-5	Dimensional Criteria - Cylindrical End Cap Terminations	28
Table 5-1	Allowable Strand Damage	13	Table 7-6	Dimensional Criteria - Castellated Terminations	29
Table 5-2	Terminal Soldering Requirements	15	Table 7-7	Dimensional Criteria - Flat Gull Wing Leads	30
Table 5-3	Turret and Straight Pin Wire Placement	16	Table 7-8	Dimensional Criteria - Round or Flattened (Coined) Gull Wing Leads	31
Table 5-4	AWG 30 and Smaller Wire Wrap Requirements	17	Table 7-9	Dimensional Criteria - "J" Leads	32
Table 5-5	Bifurcated Terminal Wire Placement - Side Route	17	Table 7-10	Dimensional Criteria - Butt/I Connections	33
Table 5-6	Staking Requirements of Side Route Straight Through Connections - Bifurcated Terminals ...	17	Table 7-11	Dimensional Criteria - Flat Lug Leads	34
Table 5-7	Bifurcated Terminal Wire Placement - Bottom Route	18	Table 7-12	Dimensional Criteria - Tall Profile Components Having Bottom Only Terminations	35
Table 5-8	Hook Terminal Wire Placement	18	Table 7-13	Dimensional Criteria - Inward Formed L-Shaped Ribbon Leads	36
Table 5-9	Pierced/Perforated Wire Placement	19	Table 7-14	Dimensional Criteria - Ball Grid Array Components with Collapsing Balls	37
Table 5-10	Solder Requirements Wire to Post	19	Table 7-15	Ball Grid Array Components with Noncollapsing Balls	38
Table 6-1	Lead Bend Radius	20	Table 7-16	Column Grid Array	38
Table 6-2	Protrusion of Leads in Supported Holes	21	Table 7-17	Dimensional Criteria - BTC	39
Table 6-3	Protrusion of Leads in Unsupported Holes	21	Table 7-18	Dimensional Criteria - Bottom Thermal Plane Terminations	40
Table 6-4	Supported Holes with Component Leads, Minimum Acceptable Conditions	22	Table 7-19	Dimensional Criteria Flattened Post Connections	41
Table 6-5	Unsupported Holes with Component Leads, Minimum Acceptable Conditions	22	Table 8-1	Designation of Surfaces to be Cleaned	42
Table 7-1	SMT Lead Forming Minimum Lead Length	23	Table 8-2	Cleanliness Testing Designators	42
Table 7-2	Surface Mount Components	25	Table 10-1	Coating Thickness	45
Table 7-3	Dimensional Criteria - Bottom Only Terminations	26	Table 11-1	Magnification Aid Applications for Solder Connections	48
			Table 11-2	Magnification Aid Applications - Other	48

Requirements for Soldered Electrical and Electronic Assemblies

1 GENERAL

1.1 Scope This standard prescribes practices and requirements for the manufacture of soldered electrical and electronic assemblies. Historically, electronic assembly (soldering) standards contained a more comprehensive tutorial addressing principles and techniques. For a more complete understanding of this document's recommendations and requirements, one may use this document in conjunction with IPC-HDBK-001, IPC-A-610 and IPC-HDBK-610.

1.2 Purpose This standard describes materials, methods and acceptance criteria for producing soldered electrical and electronic assemblies. The intent of this document is to rely on process control methodology to ensure consistent quality levels during the manufacture of products. It is not the intent of this standard to exclude any procedure for component placement or for applying flux and solder used to make the electrical connection.

1.3 Classification This standard recognizes that electrical and electronic assemblies are subject to classifications by intended end-item use. Three general end-product classes have been established to reflect differences in producibility, complexity, functional performance requirements, and verification (inspection/test) frequency. It should be recognized that there may be overlaps of equipment between classes.

The user (see 1.8.13) is responsible for defining the product class. The product class should be stated in the procurement documentation package.

CLASS 1 General Electronic Products

Includes products suitable for applications where the major requirement is function of the completed assembly.

CLASS 2 Dedicated Service Electronic Products

Includes products where continued performance and extended life is required, and for which uninterrupted service is desired but not critical. Typically the end-use environment would not cause failures.

CLASS 3 High Performance Electronic Products

Includes products where continued high performance or performance-on-demand is critical, equipment downtime cannot be tolerated, end-use environment may be uncommonly harsh, and the equipment must function when required, such as life support or other critical systems.

1.4 Measurement Units and Applications All dimensions and tolerances, as well as other forms of measurement (temperature, weight, etc.) in this standard are expressed in SI (System International) units (with Imperial English equivalent dimensions provided in brackets). Dimensions and tolerances use millimeters as the main form of dimensional expression; micrometers are used when the precision required makes millimeters too cumbersome. Celsius is used to express temperature. Weight is expressed in grams.

1.4.1 Verification of Dimensions Actual measurement of specific part mounting and solder fillet dimensions and determination of percentages are not required except for referee purposes. For the purposes of determining conformance to this specification, all specified limits in this standard are absolute limits as defined in ASTM E29.