

IPC J-STD-001H
September 2020
Supersedes IPC J-STD-001G
October 2017

JOINT INDUSTRY STANDARD

Requirements for
Soldered Electrical
and Electronic
Assemblies



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IPC J-STD-001H

Requirements for Soldered Electrical and Electronic Assemblies

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Developed by the J-STD-001 Task Group (5-22A), J-STD-001 Task Group – Europe (5-22A-EU), J-STD-001 Task Group – China (5-22ACN) of the Assembly and Joining Committees (5-20) of IPC

Supersedes:

J-STD-001G - October 2017
J-STD-001F WAM1 -
February 2016
J-STD-001F - July 2014
J-STD-001E - April 2010
J-STD-001D - February 2005
J-STD-001C - March 2000
J-STD-001B - October 1996
J-STD-001A - April 1992

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J-STD-001, "Requirements for Soldered Electrical and Electronic Assemblies", was adopted on 19-JUL-01 for use by the Department of Defense (DoD). Proposed changes by DoD activities must be submitted to the DoD Adopting Activity: Commander, US Army Tank-Automotive and Armaments Command, ATTN: AMSTA-TR-E/IE, Warren, MI 48397-5000. Copies of this document may be purchased from the The Institute for Interconnecting and Packaging Electronic Circuits, 2215 Sanders Road, Northbrook, IL 60062-6135. <http://www.ipc.org/>

Custodians:

Army - AT
Navy - AS

Adopting Activity:

Army - AT
(Project SOLD-0059)

Reviewer Activities:

Army - AV, MI

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DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

Acknowledgment

Any document involving a complex technology draws material from a vast number of sources across many continents. Shown below are the principal members of the J-STD-001 Task Group (5-22A), J-STD-001 Task Group – Europe (5-22A-EU), J-STD-001 Task Group – China (5-22ACN) of the Assembly and Joining Committees (5-20). It is not possible to include all of those who assisted in the evolution of this standard. To each of them, the members of IPC extend their gratitude.

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Table of Contents

1.0 GENERAL	1	1.12 Inspection Methodology	6
1.1 Scope	1	1.12.1 Process Verification Inspection.....	6
1.2 Purpose.....	1	1.12.2 Visual Inspection.....	6
1.3 Classification	1	1.13 Facilities	7
1.4 Measurement Units and Applications	1	1.13.1 Environmental Controls	7
1.4.1 Verification of Dimensions	2	1.13.2 Field Assembly Operations.....	8
1.5 Definition of Requirements	2	1.13.3 Health and Safety	8
1.5.1 Hardware Defects and Process Indicators	2	1.14 Electrostatic Discharge (ESD).....	8
1.5.2 Material and Process Nonconformance	2	2.0 APPLICABLE DOCUMENTS	9
1.5.3 Procedures for Specialized Technologies.....	2	2.1 IPC	9
1.6 Process Control Requirements	3	2.2 JEDEC	9
1.6.1 Opportunities Determination	3	2.3 Joint Industry Standards	10
1.6.2 Statistical Process Control.....	3	2.4 ASTM	10
1.7 Order of Precedence	4	2.5 EOS/ESD Association, Inc.	10
1.7.1 Appendices.....	4	2.6 International Electrotechnical Commission	10
1.8 Terms and Definitions.....	4	2.7 SAE International	10
1.8.1 Circumferential Solder Separation (Area Void of Solder)	4	2.8 Military Standards	10
1.8.2 Diameter	4	2.9 Aerospace Industries Association / National Aeronautics Standards	10
1.8.3 Disposition	4	3.0 MATERIALS, COMPONENTS AND EQUIPMENT REQUIREMENTS	11
1.8.4 Electrical Clearance	4	3.1 Materials.....	11
1.8.5 Engineering Documentation	4	3.2 Solder	11
1.8.6 FOD (Foreign Object Debris)	4	3.2.1 Solder – Pb-Free	11
1.8.7 High Voltage	4	3.2.2 Solder Purity Maintenance	11
1.8.8 Manufacturer	5	3.3 Flux	12
1.8.9 Objective Evidence	5	3.3.1 Flux Application	12
1.8.10 Process Control.....	5	3.4 Adhesives	12
1.8.11 Proficiency.....	5	3.5 Chemical Strippers.....	12
1.8.12 Solder Destination Side	5	3.6 Components.....	13
1.8.13 Solder Source Side	5	3.6.1 Component and Seal Damage	13
1.8.14 Solder Void.....	5	3.6.2 Coating Meniscus	13
1.8.15 Supplier	5	3.7 Tools and Equipment.....	13
1.8.16 Tempered Leads	5	4.0 GENERAL SOLDERING AND ASSEMBLY REQUIREMENTS	15
1.8.17 User	5	4.1 Solderability	15
1.8.18 Wire Overlap.....	5	4.2 Solderability Maintenance	15
1.8.19 Wire Overwrap.....	5	4.3 Removal of Component Surface Finishes	15
1.9 Requirements Flowdown	6	4.3.1 Gold Removal.....	15
1.10 Personnel Proficiency	6	4.3.2 Other Metallic Surface Finishes Removal	15
1.10.1 X-Ray Specific Personnel Proficiency	6		
1.11 Acceptance Requirements.....	6		

4.4	Thermal Protection	15	5.4.1	General Requirements	23
4.5	Rework of Nonsolderable Parts	16	5.4.2	Turret and Straight Pin Terminals	24
4.6	Preprocessing Cleanliness Requirements	16	5.4.3	Bifurcated Terminals	25
4.7	General Part Mounting Requirements.....	16	5.4.4	Slotted Terminals	26
4.7.1	General Requirements.....	16	5.4.5	Hook Terminals.....	27
4.7.2	Lead Deformation Limits	16	5.4.6	Pierced or Perforated Terminals.....	27
4.8	Hole Obstruction.....	16	5.4.7	Cup and Hollow Cylindrical Terminals – Placement	27
4.9	Metal-Cased Component Isolation	16	5.4.8	Series Connected.....	28
4.10	Adhesive Coverage Limits	16	5.5	Soldering to Terminals.....	28
4.11	Mounting of Parts on Parts (Stacking of Components)	16	5.5.1	Bifurcated Terminals.....	28
4.12	Connectors and Contact Areas	16	5.5.2	Slotted Terminal.....	28
4.13	Handling of Parts.....	16	5.5.3	Cup and Hollow Cylindrical Terminals – Soldering	28
4.13.1	Preheating.....	17	5.6	Jumper Wires	29
4.13.2	Controlled Cooling	17	5.6.1	Insulation.....	29
4.13.3	Drying/Degassing.....	17	5.6.2	Wire Routing.....	29
4.13.4	Holding Devices and Materials.....	17	5.6.3	Wire Staking	29
4.14	Machine Soldering.....	17	5.6.4	Unpopulated Land or Via – Lap Soldered.....	29
4.14.1	Nonreflow Soldering	17	5.6.5	Supported Holes	29
4.14.2	Reflow Soldering	17	5.6.6	SMT	29
4.15	Solder Connection.....	17	6.0	THROUGH-HOLE MOUNTING AND TERMINATIONS	31
4.15.1	Exposed Surfaces.....	18	6.1	Through-Hole Terminations – General	31
4.15.2	Solder Connection Anomalies	18	6.1.1	Lead Forming.....	32
4.15.3	Partially Visible or Hidden Solder Connections.....	18	6.1.2	Termination Requirements.....	32
4.16	Heat Shrinkable Soldering Devices	18	6.1.3	Lead Trimming	33
4.17	Threaded Fasteners	19	6.1.4	Interfacial Connections	33
4.18	Torque	20	6.2	Supported Holes	33
5.0	WIRES AND TERMINAL CONNECTIONS	21	6.2.1	Solder Application	33
5.1	Wire and Cable Preparation	21	6.2.2	Through-Hole Component Lead Soldering.....	33
5.1.1	Insulation Damage	21	6.2.3	Coating Meniscus in Solder	34
5.1.2	Strand Damage.....	21	6.3	Unsupported Holes	34
5.1.3	Tinning of Stranded Wire – Forming	21	6.3.1	Lead Termination Requirements for Unsupported Holes	34
5.2	Solder Terminals	22	7.0	SURFACE MOUNTING OF COMPONENTS	35
5.3	Bifurcated, Turret and Slotted Terminal Installation	22	7.1	Surface Mount Device Lead	35
5.3.1	Shank Damage	22	7.1.1	Plastic Components.....	35
5.3.2	Flange Damage	22	7.1.2	Forming.....	35
5.3.3	Flared Flange Angles.....	22	7.1.3	Unintentional Bending.....	36
5.3.4	Terminal Mounting – Mechanical.....	22	7.1.4	Flat Pack Parallelism	36
5.3.5	Terminal Mounting – Electrical	22	7.1.5	Surface Mount Device Lead Bends	36
5.3.6	Terminal Mounting – Soldering	23	7.1.6	Flattened Leads	36
5.4	Mounting to Terminals	23	7.1.7	Parts Not Configured for Surface Mounting	36

7.2	Leaded Component Body Clearance.....	36	8.3.2	Level 2 – Minor Changes with Supporting Objective Evidence	64
7.2.1	Axial-Leaded Components	36	8.4	Foreign Object Debris (FOD)	64
7.3	Parts Configured for Butt/I Lead Mounting	36	8.5	Visible Residues.....	65
7.4	Installation of Surface Mount Components	36	8.6	Non-ionic Residues.....	65
7.5	Soldering Requirements.....	36	8.7	Ultrasonic Cleaning Processes	65
7.5.1	Misaligned Components	37	8.8	Guidance Documents.....	65
7.5.2	Unspecified and Special Requirements	37	9.0	PRINTED BOARD REQUIREMENTS	67
7.5.3	Bottom Only Chip Component Terminations... ..	38	9.1	Printed Board Damage	67
7.5.4	Rectangular or Square End Chip Components – 1, 2, 3 or 5 Side Termination(s).....	39	9.1.1	Blistering/Delamination	67
7.5.5	Cylindrical End Cap Terminations.....	41	9.1.2	Weave Exposure/Cut Fibers	67
7.5.6	Castellated Terminations.....	43	9.1.3	Haloing.....	67
7.5.7	Flat Gull Wing Leads	44	9.1.4	Edge Delamination	67
7.5.8	Round or Flattened (Coined) Gull Wing Leads	45	9.1.5	Land/Conductor Separation	67
7.5.9	J Lead Terminations.....	46	9.1.6	Land/Conductor Reduction in Size	67
7.5.10	Butt/I Terminations	47	9.1.7	Flexible Circuitry Delamination.....	67
7.5.11	Flat Lug Leads.....	49	9.1.8	Flexible Circuitry Damage	67
7.5.12	Tall Profile Components Having Bottom Only Terminations	50	9.1.9	Burns	67
7.5.13	Inward Formed L-Shaped Ribbon Leads.....	51	9.1.10	Non-Soldered Edge Contacts	67
7.5.14	Surface Mount Area Array Packages	52	9.1.11	Measles.....	67
7.5.15	Bottom Termination Components (BTC).....	55	9.1.12	Crazing	68
7.5.16	Components with Bottom Thermal Plane Terminations (D-Pak).....	56	9.2	Marking	68
7.5.17	Flattened Post Terminations	57	9.3	Bow and Twist (Warpage).....	68
7.5.18	P-Style Terminations.....	58	9.4	Depanelization.....	68
7.5.19	Vertical Cylindrical Cans with Outward L-Shaped Lead Terminations.....	59	10.0	COATING, ENCAPSULATION AND STAKING (ADHESIVE).....	69
7.5.20	Wrapped Terminals	61	10.1	Conformal Coating	69
7.5.21	Flexible and Rigid-Flex Printed Circuitry with Flat Unformed Leads	62	10.1.1	Materials.....	69
7.6	Specialized SMT Terminations.....	62	10.1.2	Masking.....	69
8.0	CLEANING AND RESIDUE REQUIREMENTS	63	10.1.3	Application.....	69
8.1	Qualified Manufacturing Process	63	10.1.4	Thickness.....	69
8.1.1	Cleaning Designator	63	10.1.5	Uniformity.....	69
8.2	Ionic Process Monitoring	63	10.1.6	Bubbles and Voids	69
8.2.1	Sampling Plan.....	63	10.1.7	Delamination	70
8.2.2	Control Limits.....	63	10.1.8	Foreign Objects Debris.....	70
8.2.3	Exceeding the Control Limits	64	10.1.9	Other Visual Conditions	70
8.3	Re-qualification Requirements	64	10.1.10	Inspection	70
8.3.1	Level 1 – Major Changes Requiring Validation	64	10.1.11	Rework or Touchup	70
			10.2	Encapsulation	70
			10.2.1	Application.....	70
			10.2.2	Performance Requirements.....	70

10.2.3 Rework of Encapsulant Material..... 70

10.2.4 Encapsulant Inspection 70

10.3 Staking..... 70

10.3.1 Staking – Application 71

10.3.2 Staking – Adhesive 73

10.3.3 Staking (Inspection)..... 73

11.0 WITNESS (TORQUE/ANTI-TAMPERING) STRIPE..... 75

12.0 REWORK AND REPAIR..... 77

12.1 Rework 77

12.2 Repair 77

12.3 Post Rework/Repair Cleaning 77

APPENDIX A Guidelines for Soldering Tools and Equipment..... 79

APPENDIX B Minimum Electrical Clearance – Electrical Conductor Spacing 81

APPENDIX C J-STD-001 Guidance on Objective Evidence of Material Compatibility .. 83

APPENDIX D X-Ray Guidelines 87

Figures

Figure 1-1 Wire Overlap..... 5

Figure 1-1 Wire Overwrap..... 5

Figure 4-1 Hole Obstruction..... 16

Figure 4-2 Acceptable Wetting Angles..... 18

Figure 4-3 Hardware Sequence and Orientation..... 19

Figure 4-4 Example of Hardware Sequence and Orientation 19

Figure 5-1 Insulation Thickness 21

Figure 5-2 Flange Damage 22

Figure 5-3 Flared Flange Angles 22

Figure 5-4 Terminal Mounting – Mechanical..... 22

Figure 5-5 Terminal Mounting – Electrical 23

Figure 5-6 Insulation Clearance Measurement..... 23

Figure 5-7 Service Loop for Lead Wiring..... 23

Figure 5-8 Stress Relief Examples 24

Figure 5-9 Insulation Sleeving 24

Figure 5-10 Wire and Lead Placement..... 24

Figure 5-11 Bifurcated Terminal Side Route Placement with Wrap 25

Figure 5-12 Bifurcated Terminal Side Route Placement – Straight Though and Staked 25

Figure 5-13 Bifurcated Terminal Top and Bottom Route Connection..... 26

Figure 5-14 Slotted Terminal..... 26

Figure 5-15 Hook Terminal Wire Placement..... 27

Figure 5-16 Acceptable Pierced or Perforated Terminal Wire Placement 27

Figure 5-17 Wires on Intermediate Turret, Bifurcated, and Pierced Terminals..... 28

Figure 5-18 Solder Depression 28

Figure 5-19 Cup and Hollow Cylindrical Terminals – Vertical Fill of Solder 29

Figure 6-1 Component Lead Stress Relief Examples 31

Figure 6-2 Lead Bends 32

Figure 6-3 Lead Trimming..... 33

Figure 6-4 Vertical Fill Example 34

Figure 7-1 Surface Mount Device Lead Forming 35

Figure 7-2 Surface Mount Device Lead Forming 35

Figure 7-3 Bottom Only Terminations 38

Figure 7-4 Rectangular or Square End Chip Components 39

Figure 7-4A Rectangular or Square End Chip Components – 1, 2, 3 or 5 Side Termination(s) Center Termination (When Present) 40

Figure 7-5 Cylindrical End Cap Terminations 41

Figure 7-5A Cylindrical End Cap Terminations Center Termination (When Present)..... 42

Figure 7-6 Castellated Terminations 43

Figure 7-7 Flat Gull Wing Leads..... 44

Figure 7-8 Round or Flattened (Coined) Gull Wing Leads..... 45

Figure 7-9 J Leads..... 46

Figure 7-10 Butt/I Terminations for Modified Through-Hole Leads..... 47

Figure 7-11 Butt/I Terminations for Solder Charged Leads..... 48

Figure 7-12 Flat Lug Leads..... 49

Figure 7-12A SMD-4 LED 49

Figure 7-13 Tall Profile Components Having Bottom Only Terminations..... 50

Figure 7-14 Inward Formed L-Shaped Ribbon Lead..... 51

Figure 7-15 BGA Solder Ball Clearance 53

Figure 7-16 Bottom Termination Component..... 55

Figure 7-17 Bottom Thermal Plane Termination 56

Figure 7-18 Flattened Post Termination..... 57

Figure 7-19 P-Style Termination 58

Figure 7-20 Examples of Vertical Cylindrical Cans with Outward L-Shaped Lead Terminations..... 60

Figure 7-21 Vertical Cylindrical Cans with Outward L-Shaped Lead Terminations 60

Figure 7-22 Wrapped Terminal – SMT Inductor – Bottom View 61

Figure 7-23	Wrapped Terminal – SMT Inductor – Top View	61	Table 6-2	Components with Spacers	31
Figure 7-24	Wrapped Terminal – SMT Component.....	61	Table 6-3	Lead Bend Radius.....	32
Figure 7-25	Wrapped Terminals.....	61	Table 6-4	Protrusion of Leads in Supported Holes	33
Figure 7-26	Flexible and Rigid-Flex Circuitry with Flat Unformed Leads.....	62	Table 6-5	Protrusion of Leads in Unsupported Holes	33
Figure 10-1	Radial Leded Components Whose Height Is Greater Than or Equal to Their Length or Diameter – Individual Rectangular Shaped Component	71	Table 6-6	Supported Holes with Component Leads, Minimum Acceptable Conditions, Note 1	34
Figure 10-2	Radial Leded Components Whose Height Is Greater Than or Equal to Their Length or Diameter – Individual Cylindrically Shaped Component	72	Table 6-7	Unsupported Holes with Component Leads, Minimum Acceptable Conditions, Notes 1, 4.....	34
Figure 10-3	Radial Leded Components Whose Longest Dimension Is Their Diameter or Length, e.g., TO5 Semiconductors.....	72	Table 7-1	SMT Lead Forming Minimum Lead Length (L)	35
Figure 10-4	Radial Leded Components Whose Height Is Greater Than or Equal to Their Length or Diameter – Closely Spaced Arrays	72	Table 7-2	Surface Mount Components Soldering Requirements	37
Figure 11-1	Torque Stripe on Fastener – Acceptable.....	75	Table 7-3	Dimensional Criteria – Bottom Only Chip Component Terminations.....	38
Figure 11-2	Torque Stripe on Fastener – Defect.....	75	Table 7-4	Dimensional Criteria – Rectangular or Square End Chip Components – 1, 2, 3 or 5 Side Termination(s)	39
Figure D-1	Circumferential Solder Separation	87	Table 7-4A	Dimensional Criteria – Center Termination (When Present) – Rectangular or Square End Chip Components – 1, 2, 3 or 5 Side Termination(s).....	40
Figure D-2	Solder Voids	87	Table 7-5	Dimensional Criteria – Cylindrical End Cap Terminations	41
Tables			Table 7-5A	Dimensional Criteria – Center Termination (When Present) – Cylindrical End Cap Terminations	42
Table 1-1	Design, Fabrication and Acceptability Specifications.....	1	Table 7-6	Dimensional Criteria – Castellated Terminations	43
Table 1-2	Magnification Aid Applications for Solder Connections.....	7	Table 7-7	Dimensional Criteria – Flat Gull Wing Leads	44
Table 1-3	Magnification Aid Applications for Wires and Wire Connections, Note 1	7	Table 7-8	Dimensional Criteria – Round or Flattened (Coined) Gull Wing Leads	45
Table 1-4	Magnification Aid Applications – Other.....	7	Table 7-9	Dimensional Criteria – J Leads	46
Table 3-1	Maximum Limits of Solder Bath Contaminant	12	Table 7-10	Dimensional Criteria – Butt/I Connections	47
Table 4-1	Solder Connection Anomalies	18	Table 7-11	Dimensional Criteria – Butt/I Terminations – Solder Charged Terminations.....	48
Table 5-1	Allowable Strand Damage, Notes 1, 2, 3.....	21	Table 7-12	Dimensional Criteria – Flat Lug Leads, Note 5.....	49
Table 5-2	Terminal Mounting Minimum Soldering Requirements	23	Table 7-13	Dimensional Criteria – Tall Profile Components Having Bottom Only Terminations	50
Table 5-3	Turret and Straight Pin Wire Wrap.....	24	Table 7-14	Dimensional Criteria – Inward Formed L-Shaped Ribbon Leads, Note 5.....	51
Table 5-4	AWG 30 and Smaller Wire Wrap	25	Table 7-15	Dimensional Criteria – Ball Grid Array Components with Collapsing Balls.....	53
Table 5-5	Bifurcated Terminal Wire Placement – Side Route with Wrap	25	Table 7-16	Ball Grid Array Components with Noncollapsing Balls	54
Table 5-6	Bifurcated Terminal Side Route Straight-Through Staking.....	25	Table 7-17	Column Grid Array	54
Table 5-7	Bifurcated Terminal Wire Placement – Bottom Route.....	26	Table 7-18	Dimensional Criteria – BTC.....	55
Table 5-8	Hook Terminal Wire Placement.....	27	Table 7-19	Dimensional Criteria – Bottom Thermal Plane Terminations.....	56
Table 5-9	Pierced or Perforated Terminal Wire Placement.....	27			
Table 5-10	Solder Requirements Lead/Wire to Post.....	28			
Table 6-1	Component to Land Clearance	31			

Table 7-20	Dimensional Criteria – Flattened Post Terminations	57
Table 7-21	Dimensional Criteria – P-Style Terminations	58
Table 7-22	Dimensional Criteria – Vertical Cylindrical Cans with Outward L-Shaped Lead Terminations	59
Table 7-23	Dimensional Criteria – Wrapped Terminals....	61
Table 7-24	Dimensional Criteria – Flexible and Rigid-Flex Circuitry with Flat Unformed Leads	62
Table 8-1	Designation of Surfaces to be Cleaned	63
Table 8-2	Residue Testing For Process Control	63
Table 8-3	Maximum Acceptable Rosin, Note 1	65
Table 10-1	Coating Thickness	69

Requirements for Soldered Electrical and Electronic Assemblies

1.0 GENERAL

1.1 Scope 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, such as for component placement or for applying flux and solder used to make the electrical connection.

The soldering operations, equipment, and conditions described in this document are based on electrical/electronic circuits designed and fabricated in accordance with the specifications listed in Table 1-1.

Table_1-1 Design, Fabrication and Acceptability Specifications

Board Type	Design	Fabrication/Acceptability Specification
Generic Requirements	IPC-2221	IPC-6011
Rigid Printed Boards	IPC-2222	IPC-6012 IPC-A-600
Flexible Circuits	IPC-2223	IPC-6013
Rigid Flex Board	IPC-2222 IPC-2223	IPC-6013

1.2 Purpose This standard prescribes material requirements, process requirements, and acceptability requirements for the manufacture of soldered electrical and electronic assemblies. For a more complete understanding of this document's recommendations and requirements, one may use this document in conjunction with IPC-HDBK-001, IPC-AJ-820 and IPC-A-610. Standards may be updated at any time, including with the addition of amendments. The use of an amendment or a newer revision is not automatically required.

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 manufacturability, complexity, functional performance requirements, and verification (inspection/test) frequency.

Use of this standard requires agreement on the class to which the product belongs. The User has the responsibility for identifying the class to which the assembly is produced. The product class should be stated in the procurement documentation package. If the User does not establish and document the acceptance class, the Manufacturer may do so.

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/Harsh Environment 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 This standard uses International System of Units (SI) units per ASTM SI10, IEEE/ASTM SI 10, Section 3 [Imperial English equivalent units are in brackets for convenience]. The SI units used in this standard are millimeters (mm) [in] for dimensions and dimensional tolerances, Celsius (°C) [°F] for temperature and temperature tolerances, grams (g) [oz] for weight, and lux for illuminance.

Note: This standard uses other SI prefixes (ASTM SI10, Section 3.2) to eliminate leading zeroes (for example, 0.0012 mm becomes 1.2 µm) or as alternative to powers-of-ten (3.6 x 10³ mm becomes 3.6 m).