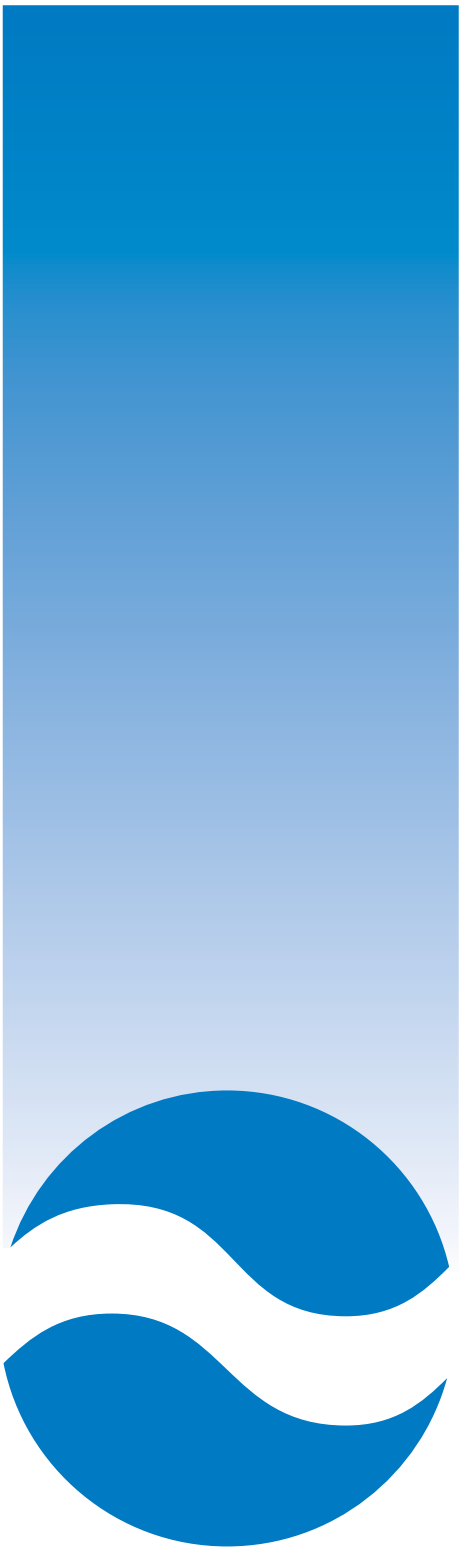
IPC J-STD-003C
September 2013
Supersedes
J-STD-003B March 2007

JOINT INDUSTRY STANDARD

Solderability Tests for Printed Boards



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- Minimize time to market
- Contain simple (simplified) language
- Just include spec information
- Focus on end product performance
- Include a feedback system on use and problems for future improvement

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- Inhibit innovation
- Increase time-to-market
- Keep people out
- Increase cycle time
- Tell you how to make something
- Contain anything that cannot be defended with data

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IPC J-STD-003C

Solderability Tests for Printed Boards

Developed by the Printed Circuit Board Solderability Specifications Task Group (5-23a) of the Assembly and Joining Committee (5-20) of IPC

Supersedes:
J-STD-003B - March 2007
J-STD-003A - February 2003
J-STD-003 - April 1992
IPC-S-804A - January 1987
IPC-S-803
IPC-S-801

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

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Acknowledgment

Any document involving a complex technology draws material from a vast number of sources. While the principal members of the Printed Circuit Board Solderability Specifications Task Group (5-23a) of the Assembly and Joining Committee (5-20) are shown below, 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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William Miller, Panasonic Automotive Systems Company of America
Mumtaz Bora, Peregrine Semiconductor
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Ursula Marquez de Tino, Plexus Corporation

Bill Beair, Raytheon Company
Richard Iodice, Raytheon Company
Roger Miedico, Raytheon Company
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David Adams, Rockwell Collins
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Rachel Grinvalds, Rockwell Collins
David Hillman, Rockwell Collins
Gaston Hidalgo, Samsung Telecommunications America
Srinivas Chada, Schlumberger Well Services
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SPECIAL ACKNOWLEDGMENT

The author thanks the International Electrotechnical Commission (IEC) per permission to reproduce Figures 4-6 and 4-7 which include information from its International Standards IEC 60068-2-69 ed.2.0 (2007) and IEC 60068-2-54 ed.2.0 (2006). All such extracts are copyright of IEC, Genva, Switzerland. All rights reserved. Further information on the IEC is available from www.iec.ch. IEC has no responsibility for the placement and context in which the extracts and contents are reproduced by the author, nor is IEC in any way responsible for the other content or accuracy therein.

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Solderability Tests for Printed Boards

1 GENERAL

1.1 Scope This standard prescribes test methods, defect definitions, and illustrations for assessing the solderability of printed wiring board surface conductors, attachment lands, and plated-through holes. This standard is intended for use by both vendor and user.

This standard is not intended to verify the potential of successful processing at assembly or to evaluate design impact on wettability. This specification describes procedures or methods to determine the acceptable wettability of a surface finish. Wettability can be affected by handling, finish application, and environmental conditions.

1.2 Purpose This standard describes solderability determinations that are made to verify that the printed board fabrication processes and subsequent storage have had no adverse effect on the solderability of those portions of the printed board intended to be soldered. Reference coupons or representative portions of a printed board may be used. Solderability is determined by evaluation of a test specimen which has been processed as part of a panel of boards and subsequently removed for testing per the method selected.

1.3 Objective To provide solderability test methods to determine the acceptance of printed board surface conductors, attachment lands, and plated-through holes to wet easily with solder, and to withstand the rigors of the printed board assembly processes.

1.3.1 Definition of Requirements The word ''**shall**'' is used in the text of this document wherever there is a requirement for materials, preparation, process control, or acceptance of a soldered connection or a test method. The word ''should'' reflects ''best processing techniques'' and is used to reflect general industry practices and a suggestion for guidance only.

1.3.2 Document Hierarchy In the event of conflict, the following descending order of precedence applies:

a. Procurement documentation as agreed between user and supplier, which should include expected shelf life requirements if stored and handled properly.

b. Master drawing or master assembly drawing reflecting the user's detailed requirements.

c. When required by the customer or per contractual agreement, this document, J-STD-003.

d. Other documents, to the extent specified by the customer.

1.4 Classification Three general classes have been established to reflect progressive increases in sophistication, functional performance requirements, and testing/ inspection frequency as defined in the IPC-6010 series of documents.

The user 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.

Circuit board performance classes do not dictate the surface finish durability rating that may be specified. Category 2/ Category A durability is the default coating durability rating.