EIA/IPC/JEDEC J-STD-002E
November 2017
Supersedes J-STD-002D
June 2013

JOINT INDUSTRY STANDARD

Solderability Tests for Component Leads, Terminations, Lugs, Terminals and Wires

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For Technical Information Contact:

EIA Standards
Electronic Components
Industry Association
1111 Alderman Drive, Suite 400
Alpharetta, GA 30005
Phone: (678) 393-9990
Fax: (678) 393-9998

IPC
Association Connecting
Electronics Industries®
3000 Lakeside Drive, Suite 105N
Bannockburn, IL 60015-1249
Phone: (847) 615-7100
Fax: (847) 615-7105

JEDEC Solid State Technology
Association
3103 North 10th Street, Suite 240-S
Arlington, VA 22201-2107
Phone: (703) 907-7540
Fax: (703) 907-7583

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EIA/IPC/JEDEC J-STD-002E

Solderability Tests for Component Leads, Terminations, Lugs, Terminals and Wires

A joint standard developed by IPC Component and Wire Solderability Specification Task Group (5-23a) of the Assembly and Joining Processes Committee (5-20), the Electronic Components Industry Association Soldering Technology Committee (STC) and the JEDEC Solid State Technology Association Committee (JC14.1)

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

Supersedes:

J-STD-002D - June 2013
J-STD-002C w/Amendment 1 - November 2008
J-STD-002C - December 2007
Amendment 1 - October 2008
J-STD-002B - February 2003
J-STD-002A - October 1998
J-STD-002 - April 1992

Contact:

EIA Standards
Electronic Components Industry Association
1111 Alderman Drive, Suite 400
Alpharetta, GA 30005
Phone: (678) 393-9990
Fax: (678) 393-9998

IPC
Association Connecting Electronics Industries®
3000 Lakeside Drive, Suite 105N
Bannockburn, IL 60015-1249
Phone: (847) 615-7100
Fax: (847) 615-7105

JEDEC Solid State Technology Association
3103 North 10th Street, Suite 240-S
Arlington, VA 22201-2107
Phone: (703) 907-7540
Fax: (703) 907-7583

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Acknowledgment

Any document involving a complex technology draws material from a vast number of sources across many continents. While the principal members of the IPC Component and Wire Solderability Specification Task Group (5-23b) of the Assembly and Joining Processes Committee (5-20) are shown below, it is not possible to include all of those we assisted in the evolution of this joint industry standard. Additionally, there were many participants from the EIA (Electronic Components Industry Association) Soldering Technology Committee (STC) and the JEDEC Solid State Technology Association Committee (JC-14.1) Reliability Test Methods for Packaged Devices. Note: IPC is the lead organization and responsible for typesetting and release of this standard. To each of them, the members and staffs of IPC, ECIA and JEDEC Associations extend their gratitude.

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Missile Defense Agency

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Alpha Assembly Solutions

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MacDermid Enthone Electronics Solutions

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Chair
Douglas W. Romm
Texas Instruments Inc.

JEDEC JC14.1 Reliability Test Methods for Packaged Devices

Chair
Ife Hsu
Intel Corporation

IPC Component & Wire Solderability Specification Task Group

Donald Abbott, Sensata Technologies
David Adams, Rockwell Collins
Dominik Alder, Lockheed Martin Space Systems Company
Greg Alexander, Ascentech, LLC
Elizabeth Allison, NTS - Baltimore
Gustavo Arredondo, Para Tech Coating Inc.
Chris Ball, Valeo Inc.
Marvin Banks
Dr. Martin Bayes, TE Connectivity
Bill Beair, Raytheon Company
Mary Be[illegible]
Frederick Beltran, L-3 Communications
James Bielick, IBM Corporation
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Lance Brack, Raytheon Missile Systems
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Giovanni Casanova, Schweitzer Engineering Laboratories, Inc.
Calette Chamness, U.S. Army Aviation & Missile Command
Laya (Yan) Chen, Microtek Changzhou Laboratories
Dr. Beverley Christian, HDP User Group
Michael Connors, NTS - Chicago
Paul Cooke, FTG Circuits
David Corbett, DLA Land and Maritime
Alejandro Cruz, Jabil Mexico
James Daggett, Raytheon Company
Richard Davidson, Honeywell Aerospace
Ross Dillman, ACI Technologies, Inc.
Glenn Dody, Dody Consulting
Miguel Dominguez, Continental Temic SA de CV
Richard Edgar, Tec-Line Inc.
Theodore Edwards
Ernst Eggelaar, Microtronic
Arturo Espejo, Kester
Brian Flemming, National Instruments
William Fox, Lockheed Martin Missile & Fire Control
Darrell Freiwald, Northrop Grumman Systems Corporation
Mark Fulcher, Continental Automotive Systems

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Gerald Gagnon, Extech Instruments Corporation
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Donald Gerstle, Google Inc.
Dr. Reza Ghaffarian, Jet Propulsion Laboratory
Andrew Giamis, Andrew Corporation
Cynthia Gomez, Continental Temic SA de CV
Constantino Gonzalez, ACME Training & Consulting
Ben Gumpert, Lockheed Martin Missile & Fire Control
Vicka Hammill, Honeywell Inc. Air Transport Systems
Dr. Carol Handwerker, Purdue University
Shirley He, The 5th Electronic Institute of MII
Robert Heber, DLA Land and Maritime
Steven Herrberg, Raytheon Systems Company
Gaston Hidalgo, Samsung Electronics America
Eddie Hofer, Rockwell Collins
Ife Hsu, Intel Corporation
Dr. Christopher Hunt, Pireta
Richard Iodice, Raytheon Company
Todd Jarman, L-3 Communications
Michael Jawitz, Orbital ATK
Sharissa Johns, Lockheed Martin Missiles & Fire Control
Prakash Kapadia, Celestica - Suzhou
Gregg Klawson, General Dynamics Mission Systems
Dr. Christian Klein, Robert Bosch GmbH
Jason Koch, Robisan Laboratory Inc.
Dr. Wei Koh, Pacrim Technology
Richard Kraszewski, Plexus Corp.
Jeffery Kukelhan, BAE Systems Platform Solutions
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Chris Mahanna, Robisan Laboratory Inc.
Renee Michalkiewicz, NTS - Baltimore
George Milad, Uyemura International Corp.
Dr. Kil-Won Moon, NIST
Michael Moore, U.S. Army Aviation & Missile Command
Michael Mora, Delta Group Electronics Inc.
Robert Morris, Raytheon Missile Systems
Terry Munson, Foresite, Inc.
Joshua Muonio, Analog Technologies Corporation
Hayes Myers, FTG Circuits
Suzanne Nachbor, Honeywell Aerospace Minneapolis
Graham Naisbitt, Gen3 Systems Limited
Mark Northrup, IEC Electronics Analysis and Testing Laboratories
Gerard O'Brien, Solderability Testing & Solutions Inc.
Debora Obitz
J. Lee Parker, JLP
Mel Parrish
Douglas Pauls, Rockwell Collins
Michael Pavlov, ECI Technology, Inc.
John Radman, NTS
Guy Ramsey, R&D Altanova
Henry Rekers, Schneider Electric
Ivan Roman, Continental Temic SA de CV
Irene Romero, Delta Group Electronics Inc.
Douglas Romm, Texas Instruments Inc.
Mark Routley, Gen3 Systems Limited
William Russell, Raytheon Professional Services LLC
Martin Scionti, Raytheon Missile Systems
Jeff Seekatz, Raytheon Company
William Sepp, Technic Inc.
Jose Servin Olivares, Continental Temic SA de CV
Russell Shepherd, NTS
Joseph Sherfick, NSWC Crane
Lowell Sherman, DLA Land and Maritime
Jeff Shubrooks, Raytheon Company
Prabjit Singh, IBM Corporation
Bradley Smith, Allegro MicroSystems Inc.
Manuel Solis, Foresite, Inc.
Roger Su, L-3 Communications
Fujiang Sun, Huawei Technologies Co., Ltd.
Keith Sweatman, Nihon Superior Co., Ltd.
Toshiyasu Takei, NSK Co., ltd.
Royce Taylor, Raytheon Company
Bob Teegarden, Honeywell International
Dr. Karen Tellefsen, Alpha Assembly Solutions
John Thompson, FCI USA, Inc.
Michael Toben, Dow Electronic Materials
Dr. Brian Toleno, Microsoft Corporation
Yunhua (Danny) Tu, Huawei Technologies Co., Ltd.
Donald Tyler, Corfin Industries LLC
Bill Vuono, Qorvo
Greg Wade, Indium Corporation
Brian Wardhaugh, Gen3 Systems Limited
Dr. Udo Welzel, Robert Bosch GmbH
George Wenger, Andrew Corporation
Robert Wettermann, BEST Inc.
Martin Wickham, National Physical Laboratory
Maureen Williams, NIST
Russell Winslow, Six Sigma
Neil Witkowski, Witkowski Consulting
Jere Wittig
Linda Woody, LWC Consulting
Yung-Herng Yau, MacDermid Enthone Electronics Solutions
Michael Yuen, Hongfujin Precision Industry Shenzhen Co., Ltd.

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Solderability Tests for Component Leads, Terminations, Lugs, Terminals and Wires

1 PREFACE

1.1 Scope This standard prescribes test methods, defect definitions, acceptance criteria, and illustrations for assessing the solderability of electronic component leads, terminations, solid wires, stranded wires, lugs, and tabs. This standard also includes a test method for the resistance to dissolution/dewetting of metallization. This standard is intended for use by both supplier and user.

1.2 Purpose Solderability evaluations are made to verify that the solderability of component leads and terminations meets the requirements established in this standard and to determine that storage has had no adverse effect on the ability to solder components to an interconnecting substrate. Determination of solderability can be made at the time of manufacture, at receipt of the components by the user, or just before assembly and soldering.

The resistance to dissolution of metallization determination is made to verify that metallized terminations will remain intact throughout the assembly soldering processes.

In the case of a discrepancy, the description or written criteria always takes precedence over the illustrations.

1.2.1 Shall and Should The words **"shall"** or **"shall not"** are 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 recommendations and is used to reflect general industry practices and procedures for guidance only.

1.2.2 Document Hierarchy In the event of conflict, the following decreasing order of precedence applies:

1. Procurement as agreed between user and supplier.
2. Master drawing or master assembly drawing reflecting the user's detailed requirements.
3. When invoked by the user or per contractual agreement, this document, J-STD-002.
4. Other documents to the extent specified by the user/customer.

1.3 Method Classification This standard describes methods by which component leads or terminations may be evaluated for solderability. Any one of the following test methods - Test A, Test B, Test C, Test D, and Test S - may be used for SnPb solder processes and any one of the following test methods - Test A1, Test B1, Test C1, Test D, and Test S1 - may be used for Pb-free solder processes and are to be used for each application as a default unless otherwise AABUS.

1.3.1 Visual Acceptance Criteria Tests

Test A – Solder Bath/Dip and Look Test (Leaded Components and Stranded Wires) SnPb Solder (4.2.1)

Test B – Solder Bath/Dip and Look Test (Leadless Components) SnPb Solder (4.2.2)

Test C – Wrapped Wires Test (Lugs, Tabs, Hooked Leads, and Turrets) SnPb Solder (4.2.3)

Test D – Resistance to Dissolution/Dewetting of Metallization Test SnPb Solder and Pb-free Solder (4.2.4)

Test S – Surface Mount Process Simulation Test SnPb Solder (4.2.5)

Test A1 – Solder Bath/Dip and Look Test (Leaded Components and Stranded Wires) Pb-free Solder (4.2.6)

Test B1 – Solder Bath/Dip and Look Test (Leadless Components) Pb-free Solder (4.2.7)

Test C1 – Wrapped Wires Test (Lugs, Tabs, Hooked Leads, and Turrets) Pb-free Solder (4.2.8)

Test S1 – Surface Mount Process Simulation Test Pb-free Solder (4.2.9)

1.3.2 Force Measurement Tests

Test E – Wetting Balance Solder Pot Test (Leaded Components) SnPb Solder (4.3.1)

Test F – Wetting Balance Solder Pot Test (Leadless Components) SnPb Solder (4.3.2)