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 (5-23b) 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.

Contact:

EIA Standards
Electronic Components
Industry Association

IPC
Association Connecting
Electronics Industries®

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Association

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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)