

Solderability test method

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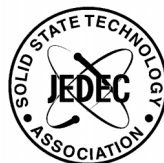
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EIA/JEDEC STANDARD

Solderability Test Method

EIA/JESD22-B102-C

SEPTEMBER 1998

ELECTRONIC INDUSTRIES ALLIANCE

JEDEC Solid State Technology Division



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

SOLDERABILITY TEST METHOD

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Draft PAS	Report on voting
47/1446/PAS	47/1479/RVD

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TEST METHOD B102-C

SOLDERABILITY

(From JEDEC Council Ballot JCB-97-71, formulated under the cognizance of the JC-14.1 Subcommittee on Reliability Test Methods for Packaged Devices.)

1 Purpose

The purpose of this test method is to provide a means of determining the solderability of device package terminations that are intended to be joined to another surface using solder for the attachment.

This test method provides optional conditions for aging and soldering for the purpose of allowing simulation of the soldering process to be used in the device application. It provides procedures for dip & look solderability testing of through hole, axial and surface mount devices and reflow simulated use testing for surface mount packages.

2 Apparatus

2.1 Solder pot

A static solder pot of sufficient size to contain at least 2 pounds (4.4 kg) of solder shall be used. The apparatus shall be capable of maintaining the solder at the specified temperature within +/- 5°C.

2.2 Dipping device

A mechanical dipping device capable of controlling the rates of immersion and emersion of the terminations and providing a dwell time (time of total immersion to the required depth) in the solder bath as specified shall be used.

2.3 Optical equipment

An optical microscope capable of providing magnification inspection from 10x to 20x shall be used.

2 Apparatus (cont'd)

2.4 Steam aging equipment

A noncorrodible container and cover of sufficient size to allow the placement of specimens inside the vessel shall be used. The specimens shall be placed such that the lowest portion of the specimen is a minimum of 1.5 inches (38 mm) above the surface of the water. A suitable method of supporting the specimens shall be improvised using noncontaminating material.

2.5 Lighting equipment

A lighting system shall be used that will provide a uniform, nonglare, nondirectional illumination of the specimen.

2.6 Materials

2.6.1 Flux

The flux shall conform to type ROL of J-STD-004, "Requirements for Soldering Fluxes". (25 percent by weight Gum Rosin in a 99 percent Isopropyl Alcohol solvent.) The specific gravity of the flux shall be maintained within the range of 0.838 to 0.913 at 25°C.

2.6.2 Solder

The solder shall conform to type Sn6337A or Sn60Pb40A of J-STD-006, "Requirements for Electronic Grade Solder Alloys and Fluxed and Non-Fluxed Solid Solders for Electronic Soldering Applications".

2.7 SMD reflow equipment

2.7.1 Stencil or screen

A stencil or screen with pad geometry opening that is appropriate for the terminals being tested. Unless otherwise agreed upon between vendor and user, nominal stencil thickness should be 0.102 mm (0.004 in) for terminals with less than 0.508 mm (0.020 in) component lead pitch, 0.152 mm (0.006 in) for a component with lead pitch of 0.508 mm to 0.635 mm (0.020 in to 0.025 in), and 0.203 mm (0.008 in) for a component with lead pitch greater than 0.635 mm (0.025 in).

2.7.2 Rubber squeegee or metal spatula

2.7.3 Ceramic substrate

e.g., 0.889 mm (0.035 in) thick.