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Semiconductor devices - Mechanical and climatic test methods - Part 21: Solderability

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IEC 60749-21 has been prepared by IEC technical committee 47: Semiconductor devices. It is an International Standard.

This third edition cancels and replaces the second edition published in 2011. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) revision to certain operating conditions in line with current working practices.

The text of this International Standard is based on the following documents:

Draft	Report on voting
47/2961/FDIS	47/2982/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 60749 series, published under the general title *Semiconductor devices - Mechanical and climatic test methods* can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

– reconfirmed,
– withdrawn, or
– revised.

1 Scope

This part of IEC 60749 establishes a standard procedure for determining the solderability of device package terminations that are intended to be joined to another surface using tin-lead (SnPb) or lead-free (Pb-free) solder for the attachment.

This test method provides a procedure for “dip and look” solderability testing of through hole, axial and surface mount devices (SMDs) as well as an optional procedure for a board mounting solderability test for SMDs for the purpose of allowing simulation of the soldering process to be used in the device application. The test method also provides optional conditions for ageing.

This test is considered destructive unless otherwise detailed in the relevant specification.

~~NOTE 1 This test method is in general accord with IEC 60068, but due to specific requirements of semiconductors, the following text is applied.~~

NOTE ~~2~~1 This test method does not assess the effect of thermal stresses which ~~may~~ can occur during the soldering process. ~~Reference should be made~~ More details can be found in IEC 60749-15 or IEC 60749-20.

NOTE 2 If a qualitative test method is preferred, the Wetting balance test method can be found in IEC 60068-2-69.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61190-1-2:~~2007~~2014, *Attachment materials for electronic assembly - Part 1-2: Requirements for soldering pastes for high-quality interconnects in electronics assembly*

IEC 61190-1-3:~~2007~~2017, *Attachment materials for electronic assembly - Part 1-3: Requirements for electronic grade solder alloys and fluxed and non-fluxed solid solders for electronic soldering applications*

Bibliography

~~IEC 60068 (all parts), *Environmental testing*~~

IEC 60068-2-69~~:2007~~, *Environmental testing -~~ Test Te: Solderability testing of electronic components for surface mounting devices (SMD) by the wetting balance method~~ Part 2-69: Test Te/Tc: Solderability testing of electronic components and printed boards by the wetting balance (force measurement) method*

~~IEC 60749 (all parts), *Semiconductor devices – Mechanical and climatic test methods*~~

IEC 60749-15~~:2003~~, *Semiconductor devices - Mechanical and climatic test methods - Part 15: Resistance to soldering temperature for through-hole mounted devices*

IEC 60749-20~~:2008~~, *Semiconductor devices - Mechanical and climatic test methods - Part 20: Resistance of plastic-encapsulated SMDs to the combined effect of moisture and soldering heat*

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