

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Semiconductor devices – Mechanical and climatic test methods –  
Part 15: Resistance to soldering temperature for through-hole mounted devices**

**Dispositifs à semiconducteurs – Méthodes d'essais mécaniques  
et climatiques –  
Partie 15: Résistance à la température de brasage pour dispositifs par trous  
traversants**



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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SEMICONDUCTOR DEVICES –  
MECHANICAL AND CLIMATIC TEST METHODS –****Part 15: Resistance to soldering temperature  
for through-hole mounted devices**

## FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 60749-15 has been prepared by IEC technical committee 47: Semiconductor devices.

This third edition cancels and replaces the second edition published in 2010. This edition constitutes a technical revision.

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

- a) inclusion of new Clause 3, Terms and definitions;
- b) clarification of the use of a soldering iron for producing the heating effect;
- c) inclusion an option to use accelerated ageing.

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

FDIS	Report on voting
47/2630/FDIS	47/2639/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

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 "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

## SEMICONDUCTOR DEVICES – MECHANICAL AND CLIMATIC TEST METHODS –

### Part 15: Resistance to soldering temperature for through-hole mounted devices

#### 1 Scope

This part of IEC 60749 describes a test used to determine whether encapsulated solid state devices used for through-hole mounting can withstand the effects of the temperature to which they are subjected during soldering of their leads by using wave soldering.

In order to establish a standard test procedure for the most reproducible methods, the solder dip method is used because of its more controllable conditions. This procedure determines whether devices are capable of withstanding the soldering temperature encountered in printed wiring board assembly operations, without degrading their electrical characteristics or internal connections.

This test is destructive and may be used for qualification, lot acceptance and as a product monitor.

The heat is conducted through the leads into the device package from solder heat at the reverse side of the board. This procedure does not simulate wave soldering or reflow heat exposure on the same side of the board as the package body.

#### 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 60068-2-20, *Environmental testing – Part 2-20: Tests – Test T: Test methods for solderability and resistance to soldering heat of devices with leads*

IEC 60749-3, *Semiconductor devices – Mechanical and climatic test methods – Part 3: External visual examination*

IEC 60749-8, *Semiconductor devices – Mechanical and climatic test methods – Part 8: Sealing*

#### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>