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# INTERNATIONAL STANDARD

REDLINE VERSION

**Surface mounting technology -**
**Part 4: Classification, packaging, labelling and handling of moisture sensitive devices**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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# Surface mounting technology - Part 4: Classification, packaging, labelling and handling of moisture sensitive devices

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IEC 61760-4 has been prepared by IEC technical committee 91: Electronics assembly technology. It is an International Standard.

This second edition cancels and replaces the first edition published in 2015 and Amendment 1:2018. This edition constitutes a technical revision.

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

a) The content is updated to cover the classification conditions given in the new editions of J-STD-020F and IEC 60068-2-58.

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

| FDIS | Report on voting |
|---|---|
| 91/2101/FDIS | 91/2111/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 61760, published under the general title *Surface mounting technology*, 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– withdrawn, or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.

# INTRODUCTION

Due to the higher temperature profiles of reflow soldering processes using tin-silver-copper alloys or other lead-free solder alloys with higher melting temperatures than Sn-Pb eutectic solder, the sensitivity of components against soldering heat, when being exposed to moisture before soldering, becomes an increasingly important factor.

The currently existing standards describing the moisture sensitivity classification of devices are applicable for plastic encapsulated semiconductors and similar solid state packages (e.g. IEC 60749-20 [1]), but not for other types of components.

This part of IEC 61760 also extends the classification and packaging methods as described in J-STD-020F [2] and J-STD-033 [3]. It is intended to be used for such type of components, where J-STD-020F [2] and J-STD-033 [3] are not required or not appropriate.

It is important to note that moisture sensitivity levels existing in both J-STD-020F [2] and this document are equivalent.

## 1 Scope

This part of IEC 61760 specifies the classification of moisture sensitive device into moisture sensitivity level related to soldering heat, and provisions for packaging, labelling and handling.

It extends the classification and packaging methods to such components, where currently existing standards are not required or not appropriate. For such cases, this document introduces additional moisture sensitivity levels and an alternative method for packaging.

This document applies to devices intended for reflow soldering, like surface mount devices, including specific through-hole devices (where the device supplier has specifically documented support for reflow soldering), but not to

– semiconductor devices,

– devices for flow (wave) soldering.

NOTE Background of this document and its relation to currently existing standards, e.g. IEC 60749-20 [1] or J-STD-020F [2] and J-STD-033 [3], are described in the Introduction.

## 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 60068-1:2013, *Environmental testing - Part 1: General and guidance*

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

~~IEC 61340-5-1, *Electrostatics – Part 5-1: Protection of electronic devices from electrostatic phenomena – General requirements*~~

~~IEC 61760-2, *Surface mounting technology – Part 2: Transportation and storage conditions of surface mounting devices (SMD) – Application guide*~~

~~IPC/JEDEC J-STD-020E, January 2015, *Moisture/Reflow Sensitivity Classification for Nonhermetic Solid State Surface Mount Devices*~~

## 3 Terms and definitions

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

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

– IEC Electropedia: available at https://www.electropedia.org/

– ISO Online browsing platform: available at https://www.iso.org/obp

**3.1**
**moisture sensitive device**
MSD
device where during soldering the evaporation of absorbed moisture is likely to deteriorate its electrical or mechanical performance compared to what is given in the relevant specification

Note 1 to entry: This note applies to the French language only.