BS EN 60068-2-58:2015+A1:2018

BSI Standards Publication

Environmental testing

Part 2-58: Tests - Test Td: Test methods for solderability, resistance to dissolution of metallization and to soldering heat of surface mounting devices (SMD)

bsi.

National foreword

This British Standard is the UK implementation of EN 60068-2-58:2015+A1:2018. It is identical to IEC 60068-2-58:2015, incorporating amendment 1:2017. It supersedes BS EN 60068-2-58:2015, which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to IEC text carry the number of the IEC amendment. For example, text altered by IEC amendment A1 is indicated by ⟨A1⟩ ⟨/A1⟩.

The UK participation in its preparation was entrusted to Technical Committee EPL/501, Electronic Assembly Technology.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Amendments/corrigenda issued since publication

Date	Text affected
31 May 2018	Implementation of IEC amendment 1:2017 with CENELEC endorsement A1:2018

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60068-2-58:2015 +A1

April 2018

ICS 19.040; 31.190

English Version

Environmental testing – Part 2-58: Tests – Test Td: Test methods for solderability, resistance to dissolution of metallization and to soldering heat of surface mounting devices (SMD) (IEC 60068-2-58:2015)

Essais d'environnement – Partie 2-58: Essais – Essai Td: Méthodes d'essai de la soudabilité, résistance de la métallisation à la dissolution et résistance à la chaleur de brasage des composants pour montage en surface (CMS) (IEC 60068-2-58:2015)

Umweltprüfungen – Teil 2-58: Prüfungen – Prüfung Td: Prüfverfahren für Lötbarkeit, Widerstandsfähigkeit gegenüber Auflösen der Metallisierung und Lötwärmebeständigkeit bei oberflächenmontierbaren Bauelementen (SMD) (IEC 60068-2-58:2015)

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European foreword

The text of document 91/1222/FDIS, future edition 4 of IEC 60068-2-58, prepared by IEC/TC 91 "Electronics assembly technology" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60068-2-58:2015.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2016-02-01
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2018-05-01

This document supersedes EN 60068-2-58:2004.

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Endorsement notice

The text of the International Standard IEC 60068-2-58:2015 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60068-2-54 NOTE Harmonized as EN 60068-2-54.

IEC 60068-2-69 NOTE Harmonized as EN 60068-2-69.

IEC 60749-20 NOTE Harmonized as EN 60749-20.

IEC 61760-3 NOTE Harmonized as EN 61760-3.

IEC 61760-4 NOTE Harmonized as EN 61760-4[1)].

Foreword to amendment A1

The text of document 91/1445/FDIS, future edition 1 of IEC 60068-2-58:2015/A1, prepared by IEC/TC 91 "Electronics assembly technology" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60068-2-58:2015/A1:2018.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2018-10-13
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2021-04-13

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1) To be published.

Endorsement notice

The text of the International Standard IEC 60068-2-58:2015/A1:2017 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60068-1	—	Environmental testing - Part 1: General and guidance	EN 60068-1	—
IEC 60068-2-20	2008	Environmental testing — Part 2-20: Tests — Test T: Test methods for solderability and resistance to soldering heat of devices with leads	EN 60068-2-20	2008
IEC 60194	—	Printed board design, manufacture and assembly - Terms and definitions	EN 60194	—
IEC 61190-1-1	—	Attachment materials for electronic assembly — Part 1-1: Requirements for soldering fluxes for high-quality interconnections in electronics assembly	EN 61190-1-1	—
IEC 61190-1-2	2014	Attachment materials for electronic assembly — Part 1-2: Requirements for soldering pastes for high-quality interconnects in electronics assembly	EN 61190-1-2	2014
IEC 61190-1-3	2007	Attachment materials for electronic	EN 61190-1-3	2007
+ A1	2010	assembly — Part 1-3: Requirements for electronic grade solder alloys and fluxed and non-fluxed solid solders for electronic soldering applications	+ A1	2010
IEC 61191-2	—	Printed board assemblies — Part 2: Sectional specification — Requirements for surface mount soldered assemblies	EN 61191-2	—
IEC 61249-2-22	—	Materials for printed boards and other interconnecting structures — Part 2-22: Reinforced base materials, clad and unclad — Modified non-halogenated epoxide woven E-glass laminated sheets of defined flammability (vertical burning test), copper-clad	EN 61249-2-22	—

IEC 61249-2-35	—	Materials for printed boards and other interconnecting structures — Part 2-35: Reinforced base materials, clad and unclad — Modified epoxide woven E-glass laminate sheets of defined flammability (vertical burning test), copper-clad for lead-free assembly	EN 61249-2-35	—
IEC 61760-1	—	Surface mounting technology — Part 1: Standard method for the specification of surface mounting components (SMDs)	EN 61760-1	—
ISO 9454-2	1998	Soft soldering fluxes — Classification and requirements — Part 2: Performance requirements	EN ISO 9454-2	2000

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FOREWORD

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International Standard IEC 60068-2-58 has been prepared by IEC technical committee 91: Electronics assembly technology.

This fourth edition constitutes a technical revision.

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

— the addition of Sn-Bi low temperature solder alloy;

— the addition of several reflow test conditions in Table 7 – Resistance to soldering heat – Test conditions and severity, reflow method;

— introduction of reflow test method for Test Td**3**: Dewetting and resistance to dissolution of metallization;

— implementation of guidance for the choice of a test severity in Clause B.3.

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

A list of all parts in the IEC 60068, published under the general title *Environmental testing*, can be found on the IEC website.

The committee has decided that the contents of the base publication and its amendment will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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

Environmental testing —

Part 2-58:
Tests - Test Td: Test methods for solderability, resistance to dissolution of metallization and to soldering heat of surface mounting devices (SMD)

1 Scope

This part of IEC 60068 outlines test Td, applicable to surface mounting devices (SMD).

〈A1〉 This document provides procedures for determining the solderability, resistance to dissolution of metallization and resistance to soldering heat of devices in applications using solder alloys, which are eutectic or near eutectic tin lead (Pb), or lead-free alloys. 〈A1〉

The procedures use either a solder bath or reflow method and are applicable only to specimens or products designed to withstand short term immersion in molten solder or limited exposure to reflow systems.

The solder bath method is applicable to SMDs designed for flow soldering and SMDs designed for reflow soldering when the solder bath (dipping) method is appropriate.

The reflow method is applicable to the SMD designed for reflow soldering, to determine the suitability of SMDs for reflow soldering and when the solder bath (dipping) method is not appropriate.

The objective of this standard is to ensure solderability of component lead or termination. In addition, test methods are provided to ensure that the component body can resist against the heat load to which it is exposed during soldering.

This standard covers tests Td_1, Td_2 and Td_3 as listed below:

Number of Td	Test	Method
Td_1	Solderability of terminations	Method 1: Solder bath Method 2: Reflow
Td_2	Resistance to soldering heat	Method 1: Solder bath Method 2: Reflow
Td_3	Dewetting and resistance to dissolution of metallization	Method 1: Solder bath Method 2: Reflow

NOTE 1 For specific components other test methods may exist.

NOTE 2 Test Td does not apply to printed wiring board (PWB), see IEC 61189-3.

NOTE 3 Specific through-hole devices (where the device supplier has specifically documented support for reflow soldering) are also included in this standard.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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, *Environmental testing — Part 1: General and guidance*