IEC 60068-2-83

Edition 2.0 2025-05
REDLINE VERSION

INTERNATIONAL STANDARD

Environmental testing –
Part 2-83: Tests – Test Tf: Solderability testing of electronic components for surface mounting devices (SMD) by the wetting balance method using solder paste

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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Part 2-83: Tests – Test Tf: Solderability testing of electronic components for surface mounting devices (SMD) by the wetting balance method using solder paste

FOREWORD

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This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC 60068-2-83:2011. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

IEC 60068-2-83 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 2011. This edition constitutes a technical revision.

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

a) Revise Clause 5 to align with that in IEC 60068-2-20:2021.

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

Draft	Report on voting
91/2026/FDIS	91/2037/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.

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a) EU patent 0920488.4 "Synchronous test method for assessing soldering pastes"[1]

Gen3 Systems LTD

Unit B2

Armstrong Mall

Farnborough GU14 0NR

United Kingdom

b) JP Patent 2630712 "Testing method of characteristics of solder paste and the equipment for the test"

Malcom Co., Ltd

4-15-10 Honmachi, Shibuya-ku

Tokyo, 151-0071

Japan

c) Patent JP 3789041 "Solderability measuring apparatus"

Patent JP 3552061 "Solderability tester and solderability test method"

Patent JP 3498100 "Method and device for testing solderability and microcrucible for testing"

Patent JP 3153884 "Measuring device for soldering performance of cream solder"

Tarutin Kester Co., Ltd.

2-20-11 Yokokawa,

Sumida-ku

Tokyo, 130-0003

Japan

d) Sony Corporation

1-7-1 Konan Minato-ku

Tokyo 108-0075

Japan

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[1] Status of patent: Pending.

~~ISO (www.iso.org/patents) and IEC (http://patents.iec.ch) maintain on-line data bases of patents relevant to their standards. Users are encouraged to consult the data bases for the most up to date information concerning patents.~~

ENVIRONMENTAL TESTING –

Part 2-83: Tests – Test Tf: Solderability testing of electronic components for surface mounting devices (SMD) by the wetting balance method using solder paste

1 Scope

This part of IEC 60068 provides methods for comparative investigation of the wettability of the metallic terminations or metallized terminations of SMDs with solder paste.

Data obtained by these methods are not intended to be used as absolute quantitative data for pass/fail purposes.

NOTE Different solderability test methods for SMD are described in IEC 60068-2-58 and IEC 60068-2-69. IEC 60068-2-58 ~~prescribes~~ specifies visual evaluation using solder bath and reflow method, IEC 60068-2-69 ~~prescribes~~ specifies wetting balance evaluation using solder bath and solder globule method.

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, *Environmental testing – Part 1: General and guidance*

IEC 60068-2-20:~~2008~~2021, *Environmental testing – Part 2-20: Tests – Test ~~T~~ Ta and Tb: Test methods for solderability and resistance to soldering heat of devices with leads*

IEC 60068-2-58, *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 60194, *Printed board design, manufacture and assembly – Terms and definitions*~~

IEC 60194-2, *Printed boards design, manufacture and assembly – Vocabulary – Part 2: Common usage in electronic technologies as well as printed board and electronic assembly technologies*

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

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NORME INTERNATIONALE

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Essais d'environnement – Partie 2-83: Essais – Essai Tf: Essai de brasabilité des composants électroniques pour les composants montés en surface (CMS) par la méthode de la balance de mouillage utilisant de la pâte à braser

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IEC 60068-2-58, *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)*

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COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

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ESSAIS D'ENVIRONNEMENT –

Partie 2-83: Essais – Essai Tf: Essai de brasabilité des composants électroniques pour les composants montés en surface (CMS) par la méthode de la balance de mouillage utilisant de la pâte à braser

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L'IEC 60068-2-83 a été établie par le comité d'études 91 de l'IEC: Techniques d'assemblage des composants électroniques Il s'agit d'une Norme internationale.

Cette deuxième édition annule et remplace la première édition parue en 2011. Cette édition constitue une révision technique.

Cette édition inclut la modification technique majeure suivante par rapport à l'édition précédente:

a) révision de l'Article 5 pour l'aligner sur celui de l'IEC 60068-2-20:2021.

Le texte de cette Norme internationale est issu des documents suivants:

Projet	Rapport de vote
91/2026/FDIS	91/2037/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à son approbation.

La langue employée pour l'élaboration de cette Norme internationale est l'anglais.

Ce document a été rédigé selon les Directives ISO/IEC, Partie 2, il a été développé selon les Directives ISO/IEC, Partie 1 et les Directives ISO/IEC, Supplément IEC, disponibles sous www.iec.ch/members_experts/refdocs. Les principaux types de documents développés par l'IEC sont décrits plus en détail sous www.iec.ch/publications.

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ESSAIS D'ENVIRONNEMENT –

Partie 2-83: Essais – Essai Tf: Essai de brasabilité des composants électroniques pour les composants montés en surface (CMS) par la méthode de la balance de mouillage utilisant de la pâte à braser

1 Domaine d'application

La présente partie de l'IEC 60068 fournit des méthodes d'enquêtes comparatives sur la mouillabilité des terminaisons métalliques ou métallisées des composants montés en surface (CMS) avec de la pâte à braser.

Ces méthodes ne servent pas à fournir des données quantitatives absolues utilisées dans le cadre d'acceptations ou de rejets.

NOTE Différentes méthodes d'essai de brasabilité pour composants montés en surface (CMS) sont décrites dans l'IEC 60068-2-58 et dans l'IEC 60068-2-69. L'IEC 60068-2-58 spécifie une évaluation visuelle utilisant un bain de brasage et la méthode de refusion, l'IEC 60068-2-69 spécifie une évaluation par balance de mouillage utilisant la méthode du bain de brasage et des gouttelettes/globules de brasure.

2 Références normatives

Les documents suivants sont cités dans le texte de sorte qu'ils constituent, pour tout ou partie de leur contenu, des exigences du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

IEC 60068-1, *Essais d'environnement – Partie 1: Généralités et lignes directrices*

IEC 60068-2-20:2021, *Essais d'environnement – Partie 2-20: Essais – Essais Ta et Tb: Méthodes d'essai de la brasabilité et de la résistance à la chaleur de brasage des dispositifs à broches*

IEC 60068-2-58, *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 60194-2, *Printed boards design, manufacture and assembly – Vocabulary – Part 2: Common usage in electronic technologies as well as printed board and electronic assembly technologies (disponible en anglais seulement)*

IEC 61190-1-3, *Matériaux de fixation pour les assemblages électroniques – Partie 1-3: Exigences relatives aux alliages à braser de catégorie électronique et brasure solide fluxée et non fluxée pour les applications de brasage électronique*