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IEC 60068-2-20

Edition 6.0 2021-03
REDLINE VERSION

INTERNATIONAL STANDARD

colour inside

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

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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ENVIRONMENTAL TESTING –

Part 2-20: Tests – ~~Test T~~ Tests Ta and Tb: Test methods for solderability and resistance to soldering heat of devices with leads

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a) update of and clarification of pre-conditioning (former "aging") and its relation to natural aging.

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

Draft	Report on voting
91/1701/FDIS	91/1711/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/standardsdev/publications.

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ENVIRONMENTAL TESTING –

Part 2-20: Tests – ~~Test T~~ Tests Ta and Tb: Test methods for solderability and resistance to soldering heat of devices with leads

1 Scope ~~and object~~

This part of IEC 60068 outlines ~~Test T~~ Tests Ta and Tb, applicable to devices with leads and leads themselves. Soldering tests for surface mounting devices (SMD) are described in IEC 60068-2-58.

This document provides procedures for determining the solderability 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.

The procedures in this document include the solder bath method and soldering iron method.

The objective of this document is to ensure that component lead or termination solderability meets the applicable solder joint requirements of IEC 61191-3 and IEC 61191-4. In addition, test methods are provided to ensure that the component body can ~~resist against~~ be resistant to the heat load to which it is exposed during soldering.

NOTE Information about wetting time and wetting force can be obtained by test methods using a wetting balance. ~~See IEC 60068-2-54 (solder bath method) and~~ IEC 60068-2-69 (solder bath and solder globule method ~~for SMDs~~) can be consulted.

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.

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IEC 60068-2-66, *Environmental testing – Part 2: Test methods – Test Cx: Damp heat, steady state (unsaturated pressurized vapour)*

IEC 60068-2-78, *Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state*

~~IEC 60194, *Printed board design, manufacture and assembly – Terms and definitions*~~

IEC 61191-3, *Printed board assemblies – Part 3: Sectional specification – Requirements for through-hole mount soldered assemblies*

IEC 61191-4, *Printed board assemblies – Part 4: Sectional specification – Requirements for terminal soldered assemblies*

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Environmental testing –
Part 2-20: Tests – Tests Ta and Tb: Test methods for solderability and resistance to soldering heat of devices with leads

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 60068-2-20:2021-03(en-fr)

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ENVIRONMENTAL TESTING –

Part 2-20: Tests – Tests Ta and Tb: Test methods for solderability and resistance to soldering heat of devices with leads

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ENVIRONMENTAL TESTING –

Part 2-20: Tests – Tests Ta and Tb: Test methods for solderability and resistance to soldering heat of devices with leads

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IEC 60068-2-78, *Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state*

IEC 61191-3, *Printed board assemblies – Part 3: Sectional specification – Requirements for through-hole mount soldered assemblies*

IEC 61191-4, *Printed board assemblies – Part 4: Sectional specification – Requirements for terminal soldered assemblies*

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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

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Cette sixième édition annule et remplace la cinquième édition parue en 2008. Cette sixième édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

a) mise à jour et clarification du préconditionnement (auparavant "vieillissement") et sa relation au vieillissement naturel.

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

La langue utilisée pour l'élaboration de la présente Norme internationale est l'anglais.

Le présent document a été rédigé selon les Directives ISO/IEC, Partie 2 et élaboré conformément aux directives ISO/IEC, Partie 1 et Supplément IEC, qui sont disponibles à l'adresse www.iec.ch/members_experts/refdocs. Les principaux types de documents élaborés par l'IEC sont décrits de manière détaillée à l'adresse www.iec.ch/standardsdev/publications.

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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

1 Domaine d'application

La présente partie de l'IEC 60068 décrit les essais Ta et Tb qui s'appliquent aux dispositifs à broches et aux broches elles-mêmes. Les essais de brasage des composants pour montage en surface (CMS) sont décrits dans l'IEC 60068-2-58.

Le présent document fournit des procédures pour déterminer la brasabilité et la résistance à la chaleur de brasage des dispositifs dans les applications qui utilisent des alliages de brasure, qui sont soit des brasures étain plomb (Pb) eutectique ou quasi eutectique, soit des alliages de brasure sans plomb.

Les procédures du présent document incluent les méthodes dites de bain de brasage et de fer à braser.

Le but du présent document est d'assurer que les broches des composants ou la brasabilité de leurs bornes sont en mesure de satisfaire aux exigences applicables aux joints de brasures de l'IEC 61191-3 et de l'IEC 61191-4. De plus, des méthodes d'essai sont fournies pour assurer que le corps du composant peut résister à la charge calorifique à laquelle il est exposé pendant le brasage.

NOTE Des informations concernant le temps et la force de mouillage peuvent être obtenues par des méthodes d'essai qui emploient une balance de mouillage. L'IEC 60068-2-69 (bain de brasage et méthode de gouttelette de brasure) peut être consultée.

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 60068-2-2, *Essais d'environnement – Partie 2-2: Essais – Essai B: Chaleur sèche*

IEC 60068-2-66, *Essais d'environnement – Partie 2: Méthodes d'essai – Essai Cx: Essai continu de chaleur humide (vapeur pressurisée non saturée)*

IEC 60068-2-78, *Essais d'environnement – Partie 2-78: Essais – Essai Cab: Chaleur humide, essai continu*

IEC 61191-3, *Ensembles de cartes imprimées – Partie 3: Spécification intermédiaire – Exigences relatives à l'assemblage par brasage de trous traversants*

IEC 61191-4, *Printed board assemblies – Part 4: Sectional specification – Requirements for terminal soldered assemblies* (disponible en anglais seulement)