IEC 61189-5-502

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INTERNATIONAL STANDARD

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colour inside

Test methods for electrical materials, printed board and other interconnection structures and assemblies – Part 5-502: General test methods for materials and assemblies – Surface Insulation Resistance (SIR) testing of assemblies

Méthodes d'essai pour les matériaux électriques, les cartes imprimées et autres structures d'interconnexion et ensembles – Partie 5-502: Méthodes d'essai générales pour les matériaux et les ensembles – Essais de résistance d'isolement en surface (RIS) des ensembles

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TEST METHODS FOR ELECTRICAL MATERIALS, PRINTED BOARD AND OTHER INTERCONNECTION STRUCTURES AND ASSEMBLIES –

Part 5-502: General test methods for materials and assemblies – Surface Insulation Resistance (SIR) testing of assemblies

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IEC 61189-5-502 has been prepared by IEC technical committee 91: Electronics assembly technology. It is an International Standard.

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

Draft	Report on voting
91/1646/CDV	91/1673/RVC

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.

A list of all parts in the IEC 61189 series, published under the general title *Test methods for electrical materials, printed board and other interconnection structures and assemblies*, can be found on the IEC website.

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TEST METHODS FOR ELECTRICAL MATERIALS, PRINTED BOARD AND OTHER INTERCONNECTION STRUCTURES AND ASSEMBLIES –

Part 5-502: General test methods for materials and assemblies – Surface Insulation Resistance (SIR) testing of assemblies

1 Scope

This part of IEC 61189 is used for evaluating the changes to the surface insulation resistance of a pre-selected material set on a representative test coupon and quantifies the deleterious effects of improperly used materials and processes that can lead to decreases in electrical resistance.

An assembly process involves a number of different process materials including solder flux, solder paste, solder wire, underfill materials, adhesives, staking compounds, temporary masking materials, cleaning solvents, conformal coatings and more. The test employs two different test conditions of 85 °C and 85 % relative humidity (RH), preferred for a process that includes cleaning, or 40 °C and 90 % relative humidity (RH), preferred for processes where no cleaning is involved.

NOTE 40 °C and 93 % RH can be used as an alternative to 40 °C and 90 % RH. Additional information is provided in 5.4 and A.5.2.

Testing is material (set) and process / equipment specific. Qualifications are to be performed using the production intent equipment, processes and materials.

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, *Environmental testing – Part 2-20: Tests – Test T: 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 60068-2-67, *Environmental testing – Part 2-67: Tests – Test Cy: Damp heat, steady state, accelerated test primarily intended for components*

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 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*