IEC 60115-8

Edition 3.0 2023-08

INTERNATIONAL STANDARD

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Fixed resistors for use in electronic equipment – Part 8: Sectional specification: Fixed surface mount resistors

Résistances fixes utilisées dans les équipements électroniques – Partie 8: Spécification intermédiaire: Résistances fixes pour montage en surface

IEC 60115-8:2023-08

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FIXED RESISTORS FOR USE IN ELECTRONIC EQUIPMENT –

Part 8: Sectional specification: Fixed surface mount resistors

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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IEC 60115-8 has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment. It is an International Standard.

This third edition cancels and replaces the second edition published in 2009. This edition constitutes a technical revision.

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

a) definitions of product technologies and product classification levels of the generic specification, IEC 60115 1:2020, have been adopted;
b) new style of transverse (RT) resistors has been added in 3.1.5 and 4.2.2 to cover resistors with wide terminals, which have become common in market;
c) recommended test boards in 5.2.2 have been revised to fit the demands from the market for higher rated dissipation in resistors;

d) test boards have been revised so that they can be set vertically instead of horizontally during specified tests to optimize the temperature rise stability, area and spacing inside the test chamber;

e) 'Periodic-pulse high-voltage overload test' of IEC 60115-1:2020, 8.3 has been added to the default test method in 5.3.8, however, the legacy test 'periodic-pulse overload test' of IEC 60115-1:2020, 8.4 is still maintained for historical products;

f) revised solderability test of IEC 60115-1:2020, 11.1 has been adopted in 5.3.21 and 5.3.22;

g) combined solvent resistance test of IEC 60115-1:2020, 11.3 has been adopted in 5.3.24;

h) 'Single-pulse high-voltage overload test' of IEC 60115-1:2020, 8.2, applied with the pulse shape 10/700 in 5.3.7, is complemented with the optional alternative provided by the pulse shape 1,2/50 in 5.4.1;

i) climatic tests for 'operation at low temperature' of IEC 60115-1:2020, 10.2, and for 'damp heat, steady state, accelerated' of IEC 60115-1:2020, 10.5, have been adopted as optional tests in 5.4.3 and 5.4.4, respectively;

j) new guidance is provided in 6.2 on the presentation of stability requirements with their permissible absolute and relative deviations;

k) acceptance criteria for the visual examination have been added in 6.5 and in Annex B;

l) visual examination for the primary and proximity packaging has been added in 6.5.3 and in 7.2;

m) periodical evaluation of termination plating has been added as a new topic of quality assessment in 9.8;

n) revised test clause numbering of IEC 60115-1:2020 has been applied;

o) normative Annex A has been moved from Annex B of the old version to stay in line with other sectional specifications;

p) normative Annex B has been added to show the criteria for general visual examinations;

q) informative Annex C has been added to summarize workmanship requirements for the assembly;

r) normative Annex D has been moved from Annex A of the old version to stay in line with other sectional specifications;

s) informative Annex E has been added to show guidance for optional and/or additional tests;

t) informative Annex F has been added to show typical temperature rise of recommended test boards in the endurance test at the rated temperature 70 °C;

u) informative Annex G has been added to explain why some recommended test boards have extremely wide copper patterns;

v) informative Annex X has been added to show the cross reference for the prior revision of this document.

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

Draft	Report on voting
40/2973/CDV	40/3031/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/publications.

A list of all parts in the IEC 60115 series, published under the general title *Fixed resistors for use in electronic equipment*, 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.

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FIXED RESISTORS FOR USE IN ELECTRONIC EQUIPMENT –

Part 8: Sectional specification: Fixed surface mount resistors

1 Scope

This part of IEC 60115 is applicable to fixed surface mount resistors for use in electronic equipment.

These resistors are typically described according to types (different geometric shapes) and styles (different dimensions) and product technology. These resistors have metallized terminations and are primarily intended to be mounted directly onto a circuit board.

The object of this document is to specify preferred ratings and characteristics and to select from IEC 60115-1, the appropriate quality assessment procedures, tests and measuring methods and to give general performance requirements for this type of resistor.

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 60062:2016, *Marking codes for resistors and capacitors*

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

IEC 60068-2-6:2007, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

IEC 60068-2-58:2015, *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 60115-1:2020, *Fixed resistors for use in electronic equipment – Part 1: Generic specification*

IEC 60286-3, *Packaging of components for automatic handling – Part 3: Packaging of surface mount components on continuous tapes*

IEC 61193-2:2007, *Quality assessment systems – Part 2: Selection and use of sampling plans for inspection of electronic components and packages*

IEC 61760-1:2020, *Surface mounting technology – Part 1: Standard method for the specification of surface mounting components (SMDs)*

IEC 60294:2012, *Measurement of the dimensions of a cylindrical component with axial terminations*