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Standards

Irish Standard
I.S. EN 60115-8:2012

Fixed resistors for use in electronic equipment -- Part 8: Sectional specification - Fixed surface mount resistors (IEC 60115-8:2009 (MOD))

I.S. EN 60115-8:2012

Incorporating amendments/corrigenda issued since publication:

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I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

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NSAI 1 Swift Square, Northwood, Santry Dublin 9	T +353 1 807 3800 F +353 1 807 3838 E standards@nsai.ie W NSAI.ie	Sales: T +353 1 857 6730 F +353 1 857 6729 W standards.ie
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EUROPEAN STANDARD

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EUROPÄISCHE NORM

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Supersedes EN 140400:2003

English version

**Fixed resistors for use in electronic equipment -
Part 8: Sectional specification -
Fixed surface mount resistors
(IEC 60115-8:2009, modified)**

Résistances fixes utilisées dans les
équipements électroniques -
Partie 8 : Spécification intermédiaire -
Résistances fixes pour montage en
surface
(CEI 60115-8:2009, modifiée)

Festwiderstände zur Verwendung in
Geräten der Elektronik -
Teil 8: Rahmenspezifikation -
Oberflächenmontierbare (SMD)
Festwiderstände
(IEC 60115-8:2009, modifiziert)

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Management Centre: Avenue Marnix 17, B - 1000 Brussels

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Foreword

This document EN 60115-8:2012 consists of the text of IEC 60115-8:2009, prepared by IEC/TC 40 "Capacitors and resistors for electronic equipment", together with the common modifications prepared by the Technical Committee CLC/TC 40XB "Resistors".

The following dates are fixed:

- latest date by which this document has to be implemented (dop) 2013-08-13
at national level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2015-08-13

This document supersedes EN 140400:2003.

Preceding documents on the subject covered by this specification have been:

- EN 140400:1996-11
- CECC 40 400:1989-00,

EN 60115-8:2012 includes the following significant technical changes with respect to EN 140400:2003:

- introduction of a product classification based on application requirements;
- extension of the list of styles and dimensions;
- introduction of the code letters for temperature coefficient as given in EN 60062;
- introduction of description and test methods for lead-free soldering;
- introduction of a new system of test severities for the shear test;
- introduction of new test severities for the single-pulse high-voltage overload test;
- introduction of a test on the resistance to electrostatic discharge;
- amendment of the prescriptions for mounting of components;
- adoption of the IECQ rules of procedure, QC 001002-3:2005;
- separation of the test schedule into separate tables for qualification approval and for quality conformance inspection;
- consolidation of the prescription for 0 Ω resistors in a new annex;
- editorial revision.

In this document, the common modifications to IEC 60115-8:2009 are indicated by a vertical line in the left margin of the text.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

1 General

1.1 Scope

This part of EN 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). They have metallized terminations and are primarily intended to be mounted directly on to a circuit board.

1.2 Object

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

Test severities and requirements prescribed in detail specifications referring to this sectional specification shall be of equal or higher performance level, because lower performance levels are not permitted.

1.3 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.

EN 60062:2005 + corrigendum 2007, *Marking codes for resistors and capacitors* (IEC 60062:2004)

EN 60068-1:1994, *Environmental testing – Part 1: General and guidance* (IEC 60068-1:1988 + A1:1992 + corrigendum Oct. 1988)

EN 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* (IEC 60068-2-20:2008)

EN 60068-2-58:2004 + corrigendum 2004, *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 60068-2-58:2004)

EN 60115-1:2011, *Fixed resistors for use in electronic equipment – Part 1: Generic specification* (IEC 60115-1:2008, modified)

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

EN 61340-3-1, *Electrostatics – Part 3-1: Methods for simulation of electrostatic effects – Human body model (HBM) electrostatic discharge test waveforms* (IEC 61340-3-1)

EN 61760-1:2006, *Surface mounting technology – Part 1: Standard method for the specification of surface mounting components (SMDs)* (IEC 61760-1:2006)

1.4 Information to be specified in a detail specification

Detail specifications shall be derived from the relevant blank detail specification.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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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International Standard IEC 60115-8 has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment.

This second edition cancels and replaces the first edition, published in 1989, and its Amendment 1 (2000). This second edition constitutes a technical revision and includes test conditions and requirements for lead-free soldering and assessment procedures meeting the requirements of a "zero defect" approach.

The major technical changes with regard to the first edition are the following:

- introduction of a product classification based on application requirements;
- extension of the list of styles and dimensions;
- use of an extended scope of stability class definitions;
- extension of the lists of preferred values of ratings
- inclusion of test conditions and requirements for lead-free soldering, for periodic overload and for resistance to electrostatic discharge (ESD);

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– 5 –

- inclusion of a new set of severities for a shear test;
- inclusion of definitions for a test board;
- replacement of assessment level E and possible others by the sole assessment level EZ, meeting the requirements of a “zero defect” approach;
- inclusion of an extended endurance test, a flammability test, a temperature rise test, vibration tests, an extended rapid change of temperature test, and a single pulse high-voltage overload test;
- inclusion of requirements applicable to 0 Ω resistors (jumpers).

The text of this standard is based on the following documents:

FDIS	Report on voting
40/1933/FDIS	40/1970/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

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

A list of all the parts of the IEC 60115 series, 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 publication will remain unchanged until the maintenance result 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.

A bilingual version of this publication may be issued at a later date.

FIXED RESISTORS FOR USE IN ELECTRONIC EQUIPMENT –

Part 8: Sectional specification – Fixed surface mount resistors

1 General

1.1 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). They have metallized terminations and are primarily intended to be mounted directly on to a circuit board.

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1.3 Normative references

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IEC 60062:2004, *Marking codes for resistors and capacitors*

IEC 60068-1:1988, *Environmental testing – Part 1: General and guidance*
Amendment 1(1992)

IEC 60068-2-58:2004, *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 60115-1:2008, *Fixed resistors for use in electronic equipment – Part 1: Generic specification*

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

IEC 61340-3-1, *Electrostatics – Part 3-1: Methods for simulation of electrostatic effects – Human body model (HBM) electrostatic discharge test waveforms*

IEC 61760-1:2006, *Surface mounting technology – Part 1: Standard method for the specification of surface mounting components (SMDs)*

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