Fixed resistors for use in electronic equipment - Part 8-1: Blank detail specification: Fixed surface mount (SMD) low power film resistors for general electronic equipment, classification level G

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 60115-8-1:2015 sisaldab Euroopa standardi EN 60115-8-1:2015 ingliskeelset teksti.	This Estonian standard EVS-EN 60115-8-1:2015 consists of the English text of the European standard EN 60115-8-1:2015.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 22.05.2015.	Date of Availability of the European standard is 22.05.2015.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 31.040.10

EUROPEAN STANDARD

NORME EUROPÉENNE

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EN 60115-8-1

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English Version

Fixed resistors for use in electronic equipment - Part 8-1: Blank detail specification: Fixed surface mount (SMD) low power film resistors for general electronic equipment, classification level G (IEC 60115-8-1:2014 , modified)

Résistances fixes utilisées dans les équipements électroniques - Partie 8-1: Spécification particulière cadre: Résistances fixes à couche et à faible dissipation pour montage en surface (CMS), pour les équipements électroniques universels, niveau G de classification (IEC 60115-8-1:2014 , modifiée)

Festwiderstände zur Verwendung in Geräten der Elektronik - Teil 8-1: Vordruck für Bauartspezifikation - Oberflächenmontierbare (SMD) Schicht-Festwiderstände niedriger Belastbarkeit für Geräte der Elektronik, Klassifikationsstufe G (IEC 60115-8-1:2014 , modifiziert)

This European Standard was approved by CENELEC on 2015-03-30. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Foreword

The text of document 40/2297/FDIS, future edition 2 of IEC 60115-8-1, prepared by IEC/TC 40 "Capacitors and resistors for electronic equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60115-8-1:2015.

A draft amendment, which covers common modifications to IEC 60115-8-1 (40/2297/FDIS), was prepared by CLC/TC 40XB "Resistors" and approved by CENELEC.

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2016-03-30
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2018-03-30

Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 60115-8-1:2014 are prefixed “Z”.

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.

Endorsement notice

The text of the International Standard IEC 60115-8-1:2014 was approved by CENELEC as a European Standard with agreed common modifications.

1 Modification to the Introduction

After the comment, ***add*** the following note:

NOTE The readers of this European Standard are advised of the corresponding European documents listed in the normative Annex ZA, which take precedence over the International Standards listed in this clause. The precedence also applies to all informative and normative references made within this document.

2 Modification to 0.1

At the end of the 2nd paragraph, ***replace*** "to level P." by "to level P or to level R.".

3 Modification to 0.2

At the end of the 1st paragraph, ***replace*** "IEC specifications" by "CENELEC specifications".

4 Modifications to 0.3

In list item [1], ***replace*** "International Electrotechnical Commission" by "CENELEC".

In list item [2], ***replace*** "IEC" by "CENELEC".

5 Modification to Clause 2

After the 1st paragraph, ***add*** the following note:

NOTE The readers of this European Standard are advised of the corresponding European documents listed in the normative Annex ZA, which take precedence over the International Standards listed in this clause. The precedence also applies to all normative references made within this document.

6 Modification to Clause 3

After the 1st paragraph, ***add*** the following entry and note to entry:

3.1
nominal resistance
R_n
resistance value for which the resistor has been designed, and which is generally used for denomination of the resistor

Note 1 to entry: The definition of nominal resistance, R_n, is identical to the definition of rated resistance, R_r, in EN 60115-1:2011. Therefore nominal resistance, R_n, may be applied wherever rated resistance, R_r, is required, e.g. in a quality assessment scheme.

Replace the comment by

COMMENT Any further terms and definitions may be added, if required by the drafted detail specification.

7 Modification to 4.3

Replace the 2nd paragraph by

The upper category temperature (UCT), which is used for test procedures, shall be the same as the maximum element temperature (MET).

8 Modification to 5.13

Replace the entry for the solvent temperature by

$\vartheta_{bath} = (50^{0}_{-5})\,°C$

9 Modification to 5.14

Replace the entry for solvent temperature by

$\vartheta_{bath} = (50^{0}_{-5})\,°C$

10 Modification to 6.4

Replace the explanation for MET by

MET is the maximum element temperature, MET = UCT.

11 Modifications to Table 12

In Group 11, Test 4.29, ***replace*** "T_{bath} = (23 ± 5) °C" by "$\vartheta_{bath} = (50^{0}_{-5})\,°C$"

In Group 11, Test 4.30,

replace "T_{bath} = (23 ± 5) °C" by "$\vartheta_{bath} = (50^{0}_{-5})\,°C$"

replace "cotton wool" by "…"

12 Modifications to Table 13

In Group E, Test 4.29, ***replace*** "T_{bath} = (23 ± 5) °C" by "$\vartheta_{bath} = (50^{0}_{-5})\,°C$"

In Group E, Test 4.30:

replace "T_{bath} = (23 ± 5) °C" by "$\vartheta_{bath} = (50^{0}_{-5})\,°C$"

replace "cotton wool" by "…"

13 Modifications to B.1

In the list of letter symbol explanations, ***add*** the new entry after the entry for R_n:

R_r	Rated resistance, $R_r = R_n$	Ω

In the list of letter symbol explanations, ***replace*** the respective entries for temperature by

ϑ	Temperature, e.g. as an atmospheric condition for testing (also written as T)	°C
ϑ_A	Low temperature of a change of temperature test (also written as T_A)	°C
ϑ_B	High temperature of a change of temperature test (also written as T_B)	°C
ϑ_{amb}	Ambient temperature (also written as T_{amb})	°C
ϑ_{bath}	Bath temperature, e.g. in solvent resistance or solder bath tests (also written as T_{bath})	°C
ϑ_{max}	Maximum temperature, maximum element temperature (also written as T_{max})	°C
$\Delta\vartheta$	Temperature rise (also written as ΔT)	K
$\Delta\vartheta_{max}$	Maximum permissible temperature rise (also written as ΔT_{max})	K

14 Modifications to Annex X

Delete Annex X "Cross-reference for references to the prior revision of this specification".

***Add** the following Annex ZA on correspondences for normative references.*

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60062	2004	Marking codes for resistors and capacitors	EN 60062 + corrigendum Jan.	2005 2007
IEC 60063	-	Preferred number series for resistors and capacitors	EN 60063	-
IEC 60068-2-1	-	Environmental testing - Part 2-1: Tests - Test A: Cold	EN 60068-2-1	-
IEC 60068-2-2	-	Environmental testing - Part 2-2: Tests - Test B: Dry heat	EN 60068-2-2	-
IEC 60115-1 (mod) -	2008 -	Fixed resistors for use in electronic equipment - Part 1: Generic specification	EN 60115-1 + A11	2011 2015
IEC 60115-8 (mod)	2009	Fixed resistors for use in electronic equipment - Part 8: Sectional specification - Fixed surface mount resistors	EN 60115-8	2012
IEC 60286-3	-	Packaging of components for automatic handling - Part 3: Packaging of surface mount components on continuous tapes	EN 60286-3	-
IEC 60286-6	-	Packaging of components for automatic handling - Part 3: Bulk case packaging for surface mount components	EN 60286-6	-
IEC 61193-2	2007	Quality assessment systems - Part 2: Selection and use of sampling plans for inspection of electronic components and packages	EN 61193-2	2007
IEC 61760-1	-	Surface mounting technology - Part 1: Standard method for the specification of surface mounting components (SMDs)	EN 61760-1	-

Replace *the Bibliography by the following Bibliography providing references to European Standards.*

Bibliography

The following referenced documents are useful for the application of this document, in addition to those listed in Clause 2 as normative references. Many of the documents listed in this bibliography are normative references to a document referenced in this specification; hence a possible dated reference therein takes precedence over the undated entry in this bibliography. When there is no such requirement for a dated reference, the latest edition of the referenced document (including any amendment) applies.

EN 60027-1, *Letter symbols to be used in electrical technology - Part 1: General* (IEC 60027-1)

EN 60060-1, *High-voltage test techniques - Part 1: General definitions and test requirements* (IEC 60060-1)

EN 60068-1, *Environmental testing - Part 1: General and guidance* (IEC 60068-1)

EN 60068-2-1:1993 [1)], *Environmental testing - Part 2: Tests - Tests A: Cold* (IEC 60068-2-1:1990)

EN 60068-2-2:1993 [2)], *Basic environmental testing procedures - Part 2: Tests - Tests B: Dry heat* (IEC 60068-2-2:1974 + IEC 60068-2-2A:1976)

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

EN 60068-2-13, *Environmental testing - Part 2: Tests - Test M: Low air pressure* (IEC 60068-2-13)

EN 60068-2-14, *Environmental testing - Part 2-14: Tests - Test N: Change of temperature* (IEC 60068-2-14)

EN 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 60068-2-20)

EN 60068-2-21, *Environmental testing - Part 2-21: Tests - Test U: Robustness of terminations and integral mounting devices* (IEC 60068-2-21)

EN 60068-2-30, *Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)* (IEC 60068-2-30)

EN 60068-2-45, *Environmental testing - Part 2: Tests - Test Xa and guidance: Immersion in cleaning solvents* (IEC 60068-2-45)

EN 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 60068-2-58)

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

EN 60195 [3)], *Method of measurement of current noise generated in fixed resistors* (IEC 60195 [4)])

EN 60440, *Method of measurement of non-linearity in resistors* (IEC 60440)

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1) Replaced by EN 60068-2-1:2007 (IEC 60068-2-1:2007, sixth edition).

2) Replaced by EN 60068-2-2:2007 (IEC 60068-2-2:2007, fifth edition).

3) At draft stage.

EN 60617, *Graphical symbols for diagrams* (IEC 60617)

EN 60695-11-5, *Fire hazard testing - Part 11-5: Test flames - Needle-flame test method - Apparatus, confirmatory test arrangement and guidance* (IEC 60695-11-5)

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)

IECQ 03-3, *IEC Quality Assessment System for Electronic Components (IECQ System) - Rules of Procedure - Part 3: IECQ Approved Component Products, Related Materials & Assemblies Scheme*

IECQ 03-3-1, *IEC Quality Assessment System for Electronic Components (IECQ System) - Rules of Procedure - Part 3-1: IECQ Approved Component Products, Related Materials & Assemblies Scheme, IECQ Approved Component - Technology Certification (IECQ AC-TC)*

EN 80000 (series), *Quantities and units* (IEC 80000, series)

EN ISO 80000 (series), *Quantities and units* (ISO 80000, series)

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