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Fixed resistors for use in electronic equipment - Part 2: Sectional specification: Low-power film resistors with leads for through-hole assembly on circuit boards (THT)

Festwiderstände zur Verwendung in Geräten der Elektronik - Teil 2:
Rahmenspezifikation: Niedrigbelastbare Schichtwiderstände mit Drahtanschlüssen für Durchsteckmontage auf Leiterplatten (THT)

Résistances fixes utilisées dans les équipements électroniques - Partie 2: Spécification intermédiaire: Résistances à couches et à faible dissipation équipées de broches pour assemblage par trous traversants sur circuits imprimés (THT)

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**Fixed resistors for use in electronic equipment - Part 2: Sectional
specification: Low-power film resistors with leads for through-
hole assembly on circuit boards (THT)
(IEC 60115-2:2023)**

To be completed
(IEC 60115-2:2023)

Festwiderstände zur Verwendung in Geräten der Elektronik
- Teil 2: Rahmenspezifikation: Niedrigbelastbare
Schichtwiderstände mit Drahtanschlüssen für
Durchsteckmontage auf Leiterplatten (THT)
(IEC 60115-2:2023)

This draft European Standard is submitted to CENELEC members for enquiry.
Deadline for CENELEC: 2024-12-27.

The text of this draft consists of the text of IEC 60115-2:2023 (40/2943/CDV).

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

prEN IEC 60115-2:2024 (E)

European foreword

This document (prEN IEC 60115-2:2024) consists of the text of document IEC 60115-2:2023, prepared by IEC/TC 40 "Capacitors and resistors for electronic equipment".

This document is currently submitted to the Enquiry.

The following dates are proposed:

- latest date by which the existence of this document (doa) dor + 6 months has to be announced at national level
- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) dor + 12 months
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) dor + 36 months (to be confirmed or modified when voting)

This document will supersede EN 60115-2:2015 and all of its amendments and corrigenda (if any).

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

- a) this edition employs a new document structure of the generic specification EN 60115-1:2023, where the tests of prior Clause 4 are given in Clauses 6 to 12 now;
- b) the definitions of product technologies and product classification levels of the generic specification, EN 60115-1:2023, have been adopted;
- c) the preferred dimensions given in Table 1 have been reviewed, and the legacy style RA-0922 has been removed;
- d) a basis for the optional specification of the lead eccentricity of axial leaded resistors has been amended in 4.2;
- e) the 'periodic-pulse high-voltage overload test' of EN 60115-1:2023, 8.3 has been adopted as default test method in 5.3.8, thereby replacing the legacy test 'periodic-pulse overload test' of EN 60115-1:2023, 8.4;
- f) the revised solderability test of EN 60115-1:2023, 11.1 has been adopted in 5.3.19 and 5.3.20;
- g) the combined solvent resistance test of EN 60115-1:2023, 11.3 has been adopted in in 5.3.22;
- h) the 'endurance at room temperature test' of EN 60115-1:2023, 7.2 (prior Annex C of EN 60115-2:2015) has been adopted as an optional test in 5.4.1;
- i) the 'single-pulse high-voltage overload test' of EN 60115-1:2023, 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 5.4.2;
- j) climatic tests for 'operation at low temperature' of EN 60115-1:2023, 10.2, and for 'damp heat, steady state, accelerated' of EN 60115-1:2023, 10.5, have been adopted as optional tests in 5.4.4. and 5.4.5, respectively;

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- k) new guidance is provided in 6.2 on the presentation of stability requirements with their permissible absolute and relative deviations;
- l) acceptance criteria for the visual examination have been added in 6.5 and in Annex B;
- m) visual examination for the primary and proximity packaging has been added in 6.5.2 and in 7.2
- n) the periodical evaluation of termination platings has been added as a new topic of quality assessment in 9.8;
- o) a new Annex C has been added to summarize workmanship requirements for the assembly of leaded film resistors, e.g. as given in the prior IEC 61192 series of standards;
- p) the informative Annex F (prior Annex B) on radial formed styles has been amended with details on a formed Z-bend style for surface-mount assembly.

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

- EN 60115-2:2015
- EN 140100:2008, EN 140100:1996 + EN 140100:1996/A1:2001
- CECC 40 100:1980-00, 1973-00

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INTERNATIONAL STANDARD

**Fixed resistors for use in electronic equipment –
Part 2: Sectional specification: Low-power film resistors with leads for through-hole assembly on circuit boards (THT)**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

FIXED RESISTORS FOR USE IN ELECTRONIC EQUIPMENT –**Part 2: Sectional specification: Low-power film resistors with leads
for through-hole assembly on circuit boards (THT)**

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 60115-2 has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment. It is an International Standard.

This fourth edition cancels and replaces the third edition published in 2014. This edition constitutes a technical revision.

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

- a) the definitions of product technologies and product classification levels of the generic specification, IEC 60115-1:2020, have been adopted;
- b) the preferred dimensions given in Table 1 have been reviewed, and the legacy style RA_0922 has been removed;
- c) a basis for the optional specification of the lead eccentricity of axial leaded resistors has been amended in 4.2;

- d) the 'period-pulse high-voltage overload test' of IEC 60115-1:2020, 8.3 has been adopted as default test method in 5.3.8, thereby replacing the legacy test 'periodic-pulse overload test' of IEC 60115-1:2020, 8.4;
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- f) the combined solvent resistance test of IEC 60115-1:2020, 11.3 has been adopted in 5.3.22;
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- h) the '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 5.4.2;
- 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 5.4.4 and 5.4.5, 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 6.5.2 and in 7.2;
- m) the periodical evaluation of termination platings has been added as a new topic of quality assessment in 9.8;
- n) the revised test clause numbering of IEC 60115-1:2020 has been applied;
- o) a new Annex C has been added to summarize workmanship requirements for the assembly of leaded film resistors, e.g. as given in the prior IEC 61192 series of standards;
- p) the informative Annex F (prior Annex B) on radial formed styles has been amended with details on a formed Z-bend style for surface-mount assembly.

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

Draft	Report on voting
40/2943/CDV	40/3001/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.

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.

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.

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