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Interested committees:

Title: Draft BS EN 60115-2-20 Ed.1.0 BS EN 60115-2-20 Fixed resistors for use in electronic equipment. Part 2-20: Blank detail specification: Low-power film resistors with leads for through-hole assembly on circuit boards (THT), for high-performance and high-reliable electronic equipment, classification level P and R.

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- i) has any issues related to 3rd party IPR, patent or copyright
- ii) affects other national standard(s)
- iii) requires additional national guidance or information

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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at <https://standardsdevelopment.bsigroup.com/>. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



40/3216/CD

COMMITTEE DRAFT (CD)

PROJECT NUMBER:
IEC 60115-2-20 ED1

DATE OF CIRCULATION:
2025-03-21

CLOSING DATE FOR COMMENTS:
2025-05-16

SUPERSEDES DOCUMENTS:
40/3134/NP, 40/3164/RVN

IEC TC 40 : CAPACITORS AND RESISTORS FOR ELECTRONIC EQUIPMENT

SECRETARIAT:
Netherlands

SECRETARY:
Mr Ronald Drenthen

OF INTEREST TO THE FOLLOWING COMMITTEES:

HORIZONTAL FUNCTION(S):

ASPECTS CONCERNED:

This document is still under study and subject to change. It should not be used for reference purposes.

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

Recipients of this document are invited to submit, with their comments, notification of any local regulations or technical reasons that may exist and should be considered should this proposal proceed, recognizing that failure to address such requirements could result in the need for new or existing "In Some Countries" clauses. (SEE [AC/22/2007](#) OR [NEW GUIDANCE DOC](#)).

TITLE:

Fixed resistors for use in electronic equipment - Part 2-20: Blank detail specification: Low-power film resistors with leads for through-hole assembly on circuit boards (THT), for high-performance and high-reliable electronic equipment, classification level P and R

NOTE FROM TC/SC OFFICERS:

Target dates have been updated as follows: CDV: 2025-09-30 , FDIS: 2026-03-31, IS: 2026-09-30.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

FIXED RESISTORS FOR USE IN ELECTRONIC EQUIPMENT –**Part 2-20: Blank detail specification: Low-power film resistors with leads
for through-hole assembly on circuit boards (THT),
for high-performance and high-reliable electronic equipment,
classification level P and R**

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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- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 60115-2-20 has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment. It is an International Standard.

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

Draft	Report on voting
40/XX/FDIS	40/XX/RVD

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.

169 A list of all parts in the IEC 60115 series, published under the general title *Fixed resistors for*
170 *use in electronic equipment*, can be found on the IEC website.

171 This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in
172 accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available
173 at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are
174 described in greater detail at www.iec.ch/publications.

175 The committee has decided that the contents of this document will remain unchanged until the
176 stability date indicated on the IEC website under webstore.iec.ch in the data related to the
177 specific document. At this date, the document will be

- 178 • reconfirmed,
- 179 • withdrawn,
- 180 • replaced by a revised edition, or
- 181 • amended.

182

0 Introduction to the template provided by this blank detail specification

COMMENT This introduction is not intended to be copied into the drafted detail specification. Therefore, it is positioned in front of the conventional document structure and clause numbering range. It nevertheless contains normative requirements to the drafted detail specification.

0.1 Scope of this blank detail specification

This part of IEC 60115-2 is applicable to the drafting of detail specifications for low-power film resistors with leads, classified to level P or to level R, based on the definition of the product classification levels in IEC 60115-1:2020, 3.4.

Another part of IEC 60115-2 provides a separate blank detail specification for the drafting of detail specifications for low-power film resistors with leads, classified to level G.

Yet other parts of IEC 60115-2 may be issued to provide blank detail specifications for the drafting of detail specifications for low-power film resistors with leads, of other technologies or of other classification levels.

0.2 Function of this blank detail specification

A blank detail specification is a supplementary document to the sectional specification and contains requirements for style, layout and minimum contents of detail specifications. Detail specifications not complying with these requirements shall not be accepted as being in accordance with IEC specifications nor shall they be described as such.

Detail specifications complying with the requirements of this blank detail specification are a legitimate basis for the quality assessment of leaded fixed low-power film resistors under an adequate quality assessment system, e.g. the IEC Quality Assessment System for Electronic Components (IECQ System), whereas the plain blank detail specification is not a suitable basis.

The detail specification should contain a table of contents prior the first page of the actual specification.

In the preparation of the detail specification, the content of IEC 60115-2:2023, 8.2 shall be taken into account. The detail specification should be written by using the preferred values given in IEC 60115-2.

Units, graphical symbols and letter symbols shall, whenever possible, be taken from those prescribed by the following standards:

- IEC 60027-1, *Letter symbols to be used in electrical technology – Part 1: General*
- IEC 60617, *Graphical symbols for diagrams*
- IEC 80000 (all parts), *Quantities and units*
- ISO 80000 (all parts), *Quantities and units*

This blank detail specification uses for its purpose two different kinds of notes:

- NOTE For notes which give additional information intended to assist the understanding or use of the resulting document and therefore shall be copied as NOTE into the drafted detail specification. As outlined in the ISO/IEC directives, these notes shall not contain any requirement, instruction, recommendation or permission.

- COMMENT For editorial notes which are intended to aid and direct the specification writer and therefore shall not be copied into the drafted detail specification. In order to accomplish their function, editorial notes require the use of instructions, recommendations and permissions addressed to the writer of the detail specification.

0.3 Identification of the detail specification and the resistor

The first page of the detail specification should have a layout starting with a title block as recommended on the following page.

The numbers in square brackets are editorial references, which are not intended to be copied into the drafted detail specification, and which correspond to the following information on the contents which shall be inserted in the indicated fields.

[1] The name of the standardisation organisation under whose authority the detail specification is published and, if applicable, the organization from whom the detail specification is available.

[2] The number allocated to the detail specification by the IEC or by the responsible standardisation organisation, together with the date of issue and issue number, as applicable. Further reference details required by the responsible standardisation organisation or quality assessment system may be given here, including an established mark of conformity, as applicable.

[3] The number and issue date and number, as applicable, of the relevant generic specification, sectional specification and blank detail specification, where the referenced issues shall be the most recent issues of the respective specifications.

[4] The title of the detail specification, providing a short description of the type of resistors.

This entry should support the discrimination between similar specifications and should be suitable for an entry in a register of approvals or in a catalogue of standards. It may duplicate information given in fields [6] and [7] and in the textual scope in Clause 1.

[5] An outline drawing or illustration of the products. This entry should aid the easy recognition of the specified resistors and, if possible, support the discrimination between similar specifications. It may duplicate information given in Figure 1.

[6] Information on the typical construction of the resistors (where applicable), information of the specified resistors being insulated or non-insulated (see IEC 60115-1:2020, 3.1.7), and information on compatibility with a specific soldering process (if applicable, see 8.4). This entry may duplicate information given in the textual scope in Clause 1.

[7] The classification level of the resistors covered by this detail specification, the level of quality assessment (Assessment level EZ), and the general level of stability requirements at performance tests (Stability class).

This information may duplicate information given in the textual scope in Clause 1.

[8] Optional field for table notes.

[9] Statement(s) about the availability of information on components qualified to this detail specification, if applied within a full quality assessment system.

Example for the use within the IECQ system:

Information about components qualified to this detail specification is available in the approvals section of the website <http://www.iecq.org>.

Specification available from:	IEC 60115-2-20xx:20yy
[1]	[2]
Electronic components of assessed quality in accordance with:	
Generic specification:	IEC 60115-1:2020 [3]
Sectional specification:	IEC 60115-2:2023
Blank detail specification:	IEC 60115-2-20:202x
FIXED RESISTORS FOR USE IN ELECTRONIC EQUIPMENT – Part 2-20xx: Detail specification – Low-power film resistors with leads for through-hole assembly on circuit boards (THT), ..., for high-performance electronic equipment, classification level P and/or for high-performance and high-reliable electronic equipment, classification levels P and R	
[4]	
[5]	Technology ... [6]
	Insulated / Non-insulated
	Termination plating ,,,
	Product classification level P; Product classification level R with assessed failure rate level Assessment level EZ [7] Stability classes ...
[8]	

268

269 COMMENT The remainder of this page is intentionally left empty in order to start Clause 1 on top of the next page.

270

Information about components qualified to this detail specification is available

[9]

271

FIXED RESISTORS FOR USE IN ELECTRONIC EQUIPMENT –

Part 2-20: Detail specification: Low-power film resistors with leads for through-hole assembly on circuit boards (THT), ..., for high-performance electronic equipment, classification level P and/or for high-performance high-reliable electronic equipment, classification level R

COMMENT The above title without the introductory word “blank” is to become the title of the intended detail specification, which is drafted on the basis of this blank detail specification.

The actual title of the intended detail specification should hold some wording descriptive for the particular kind of components covered therein, where indicated by “...”, in order to support the differentiation between parallel detail specification on the same level. An example for such descriptive wording would be: “stability classes 0,1; 0,25”.

The statement on the applied classification level(s) should be modified as required by the intended detail specification..

1 Scope

COMMENT The text of this clause may repeat information already given in some fields of the above title block. Essential information on the special type of components covered by the drafted detail specification may be added, preferably at the place marked with “...”.

This detail specification specifies the characteristics and ratings of low-power film resistors with leads for use in electronic equipment, which are typically assembled in through-hole technology (THT) on circuit boards.

...

The resistors covered herein are classified to level P or to levels P and R.

Classification level P is defined in IEC 60115-1:2020, 3.4 for high-performance electronic equipment, typically operated under harsh environmental conditions, typically built for an extended lifetime, where uninterrupted performance is desired or mandatory. Examples for level P include professional equipment, telecommunication transmission systems, industrial control and measurement systems and most automotive applications operated outside the passenger compartment.

Classification level R is defined in IEC 60115-1:2020, 3.4 for high-performance and high-reliable electronic equipment, with the same operating conditions and requirements as given for level P, with the additional requirement for established reliability and a formally assessed failure rate level. Examples for Level R include military and defense equipment, avionics and aerospace applications.

This detail specification is based upon the blank detail specification IEC 60115-2-20:202X.

This detail specification establishes test schedules and performance requirements permitting the quality assessment of the resistors covered herein according to the quality assessment procedures prescribed by IEC 60115-1:2020, Annex Q.

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, *Marking codes for resistors and capacitors*

IEC 60063, *Preferred number series for resistors and capacitors*

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

IEC 60115-2:2023, *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 60115-2-20:202x, *Fixed resistors for use in electronic equipment – Part 2-20: Blank detail specification – Low-power film resistors with leads for through-hole assembly on circuit boards (THT), for high-performance and high-reliable electronic equipment, classification levels P and R*

IEC 60286-1, *Packaging of components for automatic handling – Part 1: Tape packaging of components with axial leads on continuous tapes*

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

IEC 60301, *Preferred diameters of wire terminations of capacitors and resistors*

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

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

...

COMMENT 1 The above list of normative references provides an example and needs to be adapted to the actual requirements of the drafted detail specification, indicated by the space marked with "...", which however does not preclude from sorting in proper numerical order.

COMMENT 2 According to the ISO/IEC directives, dated references are required when reference is made to a specific part of the referenced standard and generally should be applied only in such cases.

COMMENT 3 It is recommended to update any dated references to the most recent revision of the referenced standard when drafting a detail specification. This involves updating of the dated normative references within the text of the drafted detail specification.

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60115-1 and in IEC 60115-2, as well as the following, apply.

...

...

COMMENT Any terms and their respective definitions specifically required for the scope of the drafted detail specification may be inserted in the space marked with "...", using the prescribed numbering and format. Otherwise, the above statement should be reduced to "For the purposes of this document, the terms and definitions given in IEC 60115-1 and in IEC 60115-2 apply." if no further terms or definitions are required in the drafted detail specification.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

4 Characteristics and ratings

4.1 General

Various parameters of this component are precisely defined in this specification. Unspecified parameters can vary from one component to another.

4.2 Dimensions

The shape and dimensions of the resistors covered by this specification are shown in Figure 1, with the specific styles and their respective dimensions given in Table 1. Other shapes are permissible within the given dimensions.

A large rectangular box with a thin black border. Inside the box, the text "Placeholder for outline drawing" is centered in a large, light gray, sans-serif font. The text is arranged in two lines: "Placeholder for" on the top line and "outline drawing" on the bottom line.

IEC

Figure 1 – Outline and dimensions

COMMENT 1 See IEC 60115-2:2023, 8.2.1.

COMMENT 2 The details shown in Figure 1 may repeat information already given in some fields of the title block above. Figure 1 in particular needs to define all dimensions intended to be verified by measurements, which generally includes those dimensions to be prescribed in Table 1.

376

Table 1 – Styles and dimensions

Style		Dimensions					Mass ^f
Metric	X ^a	D ^b	L ^c	d ^d	Y	l _{min} ^e	m
		mm	mm	mm		mm	mg
^a Historical style code, for information only. ^b The body diameter of the resistor D shall be gauged as prescribed in IEC 60294 (see IEC 60115-2:2023, 5.3.11). ^c The body length of the resistor L shall be gauged and measured in accordance with IEC 60294 (see IEC 60115-2:2023, 5.3.11 and 5.3.12). ^d Nominal diameter of the lead wires d, with permissible tolerances in accordance with IEC 60301. ^e The minimum lead length l _{min} for products in tape packaging in accordance with IEC 60286-1 applies to the length of the free sections of lead wire between the resistor body and each tape. For untaped resistors, it applies to the length of each lead wire. ^f For information only.							

377

378 COMMENT 3 See IEC 60115-2:2023, 8.2.2.

379 COMMENT 4 The metric style designation is the normative designation used in all other places throughout this
380 detail specification, see IEC 60115-2:2023, 4.2.1. Column X is an optional column for additional style information,
381 e.g. for traditional alphabetic designations, which generally need to be marked with a respective footnote, e.g. as
382 "Historical style code, for information only".

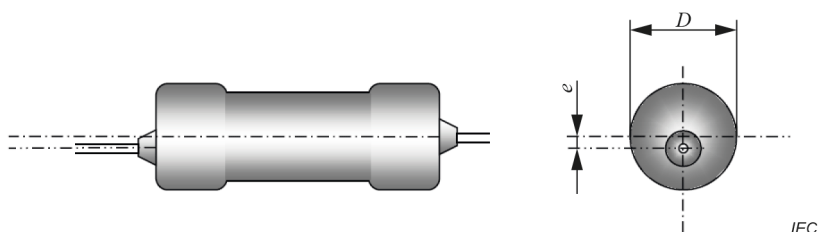
383 COMMENT 5 The dimensions for body diameter D, body length L, lead wire diameter d and minimum free lead
384 length l_{min} are given as examples based on the requirements for axial leaded resistors with cylindrical bodies and
385 need to correspond to the dimensions identified in Figure 1. The choice of prescribed dimensions needs to be adapted
386 to the actual requirements of the drafted detail specification and the shape of products covered therein. The
387 dimensions may be given in the format of nominal values plus tolerance, or by stating permissible minimum and
388 maximum values. Columns for additional dimensions may be inserted as required.

389 COMMENT 6 Column Y represents one or more optional column(s) for the prescription of an additional dimension,
390 e.g. the permissible lead eccentricity and/or the permissible length of excessive coating on the leads, as required.

391 COMMENT 7 The prescribed minimum lead length should take account of the variety of inside tape spacing
392 prescribed as dimension B by IEC 60286-1, plus the permissible window for the lateral resistor body location, given
393 there as dimension K.

394 COMMENT 8 The component mass is not intended to be verified by an inspection procedure. It should be given as
395 the maximum mass of a single component and should be marked with a respective footnote as "For information only".

396 The wire terminations of the resistor shall emerge concentrically from the end faces of the
397 resistor body; see IEC 60115-2:2023, 4.2.4 with IEC 60115-2:2023, Figure 6. The real
398 eccentricity e, as shown in below Figure 2, shall not exceed the limit given in Table 1. For
399 gauging of the lead eccentricity, the effective eccentricity e' should be used; see
400 IEC 60115-2:2023, 4.2.4.



401

402

Figure 2 – Lead eccentricity of the wire terminations

COMMENT 9 The above paragraph and figure are optional and given as an example for the specification of a permissible lead eccentricity. If this specification is used in the drafted detail specification, a suitable method for gauging and/or measuring of the lead eccentricity needs to be described, e.g. in the respective subclauses of Clause 5. Alternatively, the deletion of this paragraph and figure will result in the need to update the numbering of subsequent figures accordingly.

The resistor shall be properly coated in order to provide a suitable protection against mechanical, electrical and climatic influences, e.g. by means of a conformal lacquer coating. It is typical for such coating to also cover the end faces of the resistor body, which can lead for some amount of excessive coating to spread onto the leads; see IEC 60115-2:2023, 4.2.2 with IEC 60115-2:2023, Figure 4. The length of excessive coating c , as shown in below Figure 3, shall not exceed the limit given in Table 1.

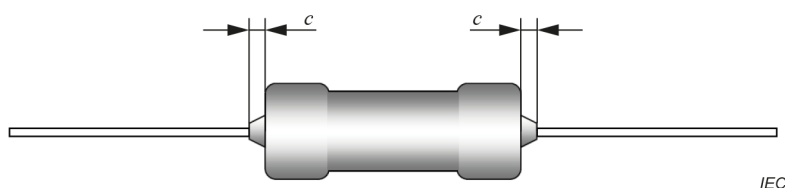


Figure 3 – Length of excessive coating on the wire terminations

COMMENT 10 The above paragraph and figure are optional and given as an example for the specification of a permissible length of excessive coating on the wire terminations. If this specification is used in the drafted detail specification, a suitable method for gauging and/or measuring of the length of excessive coating needs to be described, e.g. in the respective subclauses of Clause 5. Alternatively, the deletion of this paragraph and figure will result in the need to update the numbering of subsequent figures accordingly.

4.3 Ratings

The climatic categories applied in this detail specification are given in Table 2.

Table 2 – Climatic categories

Climatic category
LCT / UCT / duration
... / ... / ...
... / ... / ...

COMMENT 1 See IEC 60115-2:2023, 8.2.3.

COMMENT 2 Table 2 may be amended with a column showing the key parameter to which different climatic categories are allocated for the purpose of discrimination, e.g. the applied stability classes.

The upper category temperature (UCT), which is used for test procedures, should be based on the maximum element temperature (MET).

430

Table 3 – Ratings

Style	Rated dissipation P_{70} mW	X	Limiting element voltage DC or AC r.m.s. $U_{\max}$ V	Insulation voltage DC or AC peak U_{ins} V

NOTE For insulated resistors, the insulation voltage U_{ins} is verified with a test duration of one minute. However, long-term insulation properties can be affected by the influence of moisture, organic material and electrical field across the insulating layer(s).

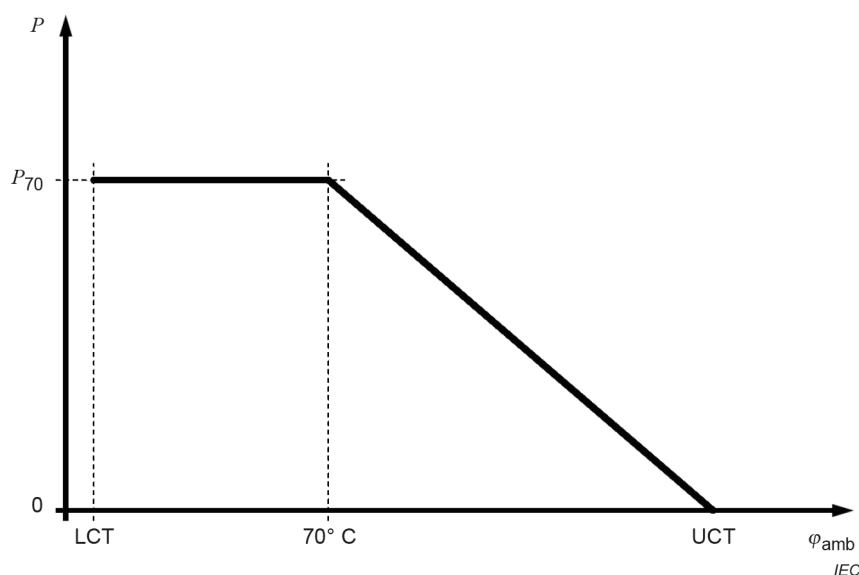
431 COMMENT 3 See IEC 60115-2:2023, 8.2.6, IEC 60115-2:2023, 8.2.7 and IEC 60115-2:2023, 8.2.8.

432 COMMENT 4 Column X is an optional column for additional information, e.g. an additional rated dissipation at
 433 another ambient temperature than the rated temperature 70 °C. Such information should however only be presented
 434 if it is traditionally well-established information.

435 COMMENT 5 The insulation voltage for insulated resistors shall not be specified lower than the peak value of the
 436 AC voltage that can be applied continuously to the resistors and therefore shall not be rated less than
 437 $U_{\text{ins}} = 1,42 \times U_{\max}$. The insulation voltage is not an applicable rating for non-insulated resistors, therefore the entry
 438 in this column shall be “n/a” and the note of Table 3 shall be omitted in detail specifications drafted for non-insulated
 439 resistors.

440 COMMENT 6 Different sets of ratings may be assigned to variations of another parameter, e.g. climatic categories
 441 or stability classes. Then such different sets of ratings should be given in separate tables which need to be clearly
 442 assigned to the relevant parameter(s). According to the ISO/IEC directives, such duplicate tables need to be titled
 443 with subsequent numbers as required, which will result in the need to update the numbering of subsequent tables
 444 accordingly.

445 The permissible dissipation of resistors covered by this detail specification is the rated
 446 dissipation as given in Table 3, which is derated for an ambient temperature above the rated
 447 temperature 70 °C according to the diagram in Figure 4.



448

Figure 4 – Derating curve

450 COMMENT 7 See IEC 60115-2:2023, 8.2.6.

451 COMMENT 8 The scale of derated dissipation may be given as absolute value in watts or relative in percent as a
 452 fraction of the rated dissipation P_{70} .

453 COMMENT 9 A larger area of operation or permissible temperature rise may be given by the detail specification
 454 provided it includes all the area given in Figure 4.

4.4 Resistance range and tolerance on resistance

4.4.1 Resistance ranges for qualification to level P

Table 4 gives the combinations of temperature coefficient, tolerance on resistance and resistance range which can be approved to classification level P in climatic category ... / ... / ... in accordance with this detail specification.

COMMENT 1 The above paragraph needs to be adapted to the actual requirements if more than one climatic category is applied in the drafted detail specification; see also COMMENT 5 below.

Products from the extent given in Table 4 shall be used for the initial product qualification approval in accordance with 9.2, and for the quality conformance inspection in accordance with 9.3.1.

The qualification of resistances below or above the specified resistance ranges is permissible if they fulfil the requirements of the stability class required for the closest resistance within a specified range; e.g. resistors of Style ... , ... · 10⁻⁶/K, ... %, ... Ω shall fulfil the requirements of stability class

COMMENT 2 The above paragraph should be deleted if individual extension of the approvable resistance ranges is not accepted as being suitable for the scope of the drafted detail specification.

Table 4 – Temperature coefficients, tolerances and resistance ranges for climatic category ... / ... / ...

Style	Temperature coefficient		Tolerance		Resistance range Ω	E series ^b	Stability class
	10 ⁻⁶ /K	Code ^a	%	Code ^a			
^a Code letters in accordance with those stated in IEC 60062. ^b Resistance values within the given range are (recommended/required) to be selected from of the given E series of IEC 60063.							

COMMENT 3 See IEC 60115-2:2023, 8.2.4.

COMMENT 4 The column for the prescription of an E series is optional and may be deleted together with its related footnote if the explicit recommendation of or limitation to resistance values of a particular E series is not suitable for the drafted detail specification. If used, the respective footnote needs to describe the recommendation or limitation associated with the given E series.

COMMENT 5 Different sets of resistance ranges may be assigned to different climatic categories, which should be given in separate tables, which then need to be clearly assigned to the respective climatic category. According to the ISO/IEC directives, such duplicate tables need to be titled with subsequent numbers as required, which will result in the need to update the numbering of subsequent tables accordingly.

The range of resistors approved in each style, together with the associated temperature coefficient and tolerance, shall be given in the register of approvals, as available for example on the website <http://www.iecq.org>.

4.4.2 Resistance ranges for qualification to level R

Table 5 gives the combinations of temperature coefficient, tolerance on resistance and resistance range and E-series which can be approved to classification level R in climatic category ... / ... / ... according to this detail specification.

COMMENT 1 The above paragraph needs to be adapted to the actual requirements if more than one climatic category is applied in the drafted detail specification, see also COMMENT 3 below.