

BUREAU OF INDIAN STANDARDS
DRAFT FOR COMMENTS ONLY

(Not to be reproduced without the permission of BIS or used as an Indian Standard)

Draft Indian Standard

Fixed resistors for use in electronic equipment
– Part 4: Sectional specification: Power resistors for
through hole assembly on
circuit boards (THT) or for assembly on chassis

मसौदा भारतीय मानक

इलेक्ट्रॉनिक उपस्कर में उपभोग के लिए जड़ित
प्रतिरोधक

- भाग 4: विषय विशिष्टि: सर्किट बोर्ड (टीएचटी) पर या चैसिस
पर असेंबली के लिए थ्रू-होल असेंबली हेतु शक्ति प्रतिरोधक

ICS 31.040.10

LITD 05 Semiconductor Devices Components and Electronic Assembly Technology Sectional Committee	Last date for comments: 20 October 2023
---	---

NATIONAL FOREWORD

(Formal clauses will be added later)

NATIONAL FOREWORD

This Indian Standard (Part 4) which is identical with IEC 60115-4:2022 'Fixed resistors for use in electronic equipment – Part 4: Sectional specification: Power resistors for through hole assembly on circuit boards (THT) or for assembly on chassis' issued by the International Electrotechnical Commission (IEC) was adopted by the Bureau of Indian Standards on recommendation of the Semiconductor Devices Components and Electronic Assembly

Technology Sectional Committee and approval of the Electronics and Information Technology Division Council.

IS/QC 400200 : 1992 was first published in 1988 and was largely based on IEC Pub 115-4/QC 400200: 1982. This superseding is being done to align it with the latest version of IEC 60115-4: 2022. On publication of this standard (Part 4) IS/QC 400200 : 1992 stands withdrawn.

The text of IEC Standard may be approved as suitable for publication as an Indian Standard without deviations. Certain terminologies and conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

- a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.
- b) Comma (,) has been used as a decimal marker, while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards, which are to be substituted in their respective places, are listed below along with their degree of equivalence for the editions indicated:

<i>International Standards</i>	<i>Corresponding Indian Standard</i>	<i>Degree of Equivalence</i>
IEC 60062: 2016 Marking codes for resistors and capacitors	IS 8186 : 2020 Marking Codes for Resistors and Capacitors (First Revision)	Identical
IEC 60063 Preferred number series for resistors and capacitors	IS 824 : 2021 Preferred number series for Resistors and Capacitors	-do-
IEC 60068-1:2013 Environmental testing – Part 1: General and guidance	IS/IEC 60068-1 : 2013 Environmental testing Part 1 general and guidance	-do-
IEC 60068-2-1 Environmental testing – Part 2-1: Tests – Tests A: Cold	IS/IEC 60068-2-1 : 2007 Environmental Testing Part 2 Tests Section 1 Test A: Cold	Technically Equivalent
IEC 60068-2-2 Basic environmental testing procedures – Part 2-2: Tests – Tests B: Dry heat	IS/IEC 60068-2-2 : 2007 Environmental Testing Part 2 Tests Section 2 Test B Dry Heat	-do-
IEC 60068-2-6:2007 Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)	IEC 60068-2-6 : 2007	Identical

	Environmental testing — Part 2-6: Tests – Test Fc: vibration (sinusoidal)	
IEC 60068-2-20:2021 Environmental testing – Part 2-20: Tests – Test Ta and Tb – Test methods for solderability and resistance to soldering heat of devices with leads	IEC 60068-2-20 : 2021 Environmental testing — Part 2-20 : Tests — Tests Ta and Tb: Test methods for solderability and resistance to soldering heat of devices with leads	-do-
IEC 60068-2-27 Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock	IS 9000 (Part 7/Sec 1) : 2020 Basic environmental testing procedures for electronic and electrical items: Part 7 impact test: Sec 1 shock (Test Ea) (Second Revision)	Identical with IEC 60068-2-27: 2008
IEC 60068-2-47 Environmental testing – Part 2-47: Tests – Mounting of specimens for vibration, impact and similar dynamic tests	IS/IEC 60068-2-47 : 2005 'Environmental testing — Part 2-47: Tests — Mounting of specimens for vibration, impact and similar dynamic tests	Identical
IEC 60115-1:2020 Fixed resistors for use in electronic equipment – Part 1: Generic specification	IS/IEC 60115-1 : 2020 Fixed resistors for use in electronic equipment — Part 1: Generic specification	Identical
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)	LITD 05 Doc. No. (23250) 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)	Identical with IEC 60115-2: 2023
IEC 60294:2012 Measurement of the dimensions of a cylindrical component with axial terminations	IS 13554 : 2020 Measurement of the dimensions of a cylindrical component with axial terminations (First Revision)	Identical with IEC 60294 : 2012

The technical committee has reviewed the provisions of the following International Standard referred in this adopted draft standard and has decided that it is acceptable for use in conjunction with this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies:

<i>International Standard</i>	<i>Title</i>

IEC 60286-1	Packaging of components for automatic handling – Part 1: Tape packaging of components with axial leads on continuous tapes
IEC 60286-2	Packaging of components for automatic handling – Part 2: Tape packaging of components with unidirectional leads on continuous tapes
IEC 60301	Preferred diameters of wire terminations of capacitors and resistors
IEC 61193-2:2007	Quality assessment systems – Part 2: Selection and use of sampling plans for inspection of electronic components and packages

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2:2022 ‘Rules for rounding off numerical values (*Second Revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Scope of IEC 60115-4:2022

“This part of IEC 60115 relates to resistors having a rated dissipation typically greater than 1 W up to and including 1 000 W for use in electronic equipment. This document is applicable to fixed power resistors with a maximum surface temperature (MET) higher than the preferred upper category temperature (UCT) of 200 °C.

NOTE Heat sink resistors, i.e. resistors which in their operation depend on being mounted on a dedicated heat sink, owing to their special temperature conditions, are covered by a special sectional specification (under consideration at the time of publication).

These resistors are typically described according to types (different geometric shapes) and styles (different dimensions), and product technology.

The resistive element of these resistors is typically”

- Protected by a conformal lacquer coating, or
- Cement coating, or
- Vitreous enamel, or
- A ceramic body, or
- Any other housing, which is to be described in the relevant specification.

The electrical connection of these resistors is typically achieved by means of

- Axial leads for through hole assembly (THT), or
- Vertical or radial leads or punched terminals, or
- Ferrules or lugs for chassis mount, or
- Push on terminals, or
- Screw terminals, or
- Any other termination, which is to be described in the relevant specification.

In special cases, a heat sink can be applicable but not mandatory.

The object of this document is to define 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.

NOTESMD resistors are covered by IEC 60115-8, regardless of their dissipation

Note: - The Technical content of this document has not been enclosed as these are identical with the corresponding IEC Standard. For details please refer to IEC 60115-4:2022 or kindly contact.

Head

Electronics & IT Department

Bureau of Indian Standards

9, B.S. Zafar Marg,

New Delhi-110002

Email: hltd@bis.gov.in, litd5@bis.gov.in

Tele: 011-23608401