BS EN IEC 60384-25:2021
Incorporating corrigendum May 2023

BSI Standards Publication

Fixed capacitors for use in electronic equipment

Part 25: Sectional specification — Fixed aluminium electrolytic surface mount capacitors with conductive polymer solid electrolyte

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Full document details: BS EN IEC 60384-25:2021

National foreword

This British Standard is the UK implementation of EN IEC 60384-25:2021. It is identical to IEC 60384-25:2021, incorporating corrigendum May 2023. It supersedes BS EN 60384-25:2015, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee W/-, Consumer Products and Services Sector Policy and Strategy Committee.

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Amendments/corrigenda issued since publication

Date	Text affected
30 September 2023	Implementation of IEC corrigendum May 2023: Subclauses 4.2.5 and 5.15.3 amended

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 60384-25

September 2021

ICS 31.060.40; 31.060.50

Supersedes EN 60384-25:2015 and all of its amendments and corrigenda (if any)

English Version

Fixed capacitors for use in electronic equipment - Part 25: Sectional specification: Fixed aluminium electrolytic surface mount capacitors with conductive polymer solid electrolyte (IEC 60384-25:2021)

Condensateurs fixes utilises dans les équipements électroniques - Partie 25: Spécification intermédiaire - Condensateurs fixes électrolytiques en aluminium pour montage en surface à électrolyte solide en polymère conducteur (IEC 60384-25:2021)

Festkondensatoren zur Verwendung in Geräten der Elektronik - Teil 25: Rahmenspezifikation - Oberflächenmontierbare Aluminium-Elektrolyt-Kondensatoren mit leitfähigem Polymerfestkörper-Elektrolyten (IEC 60384-25:2021)

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
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European foreword

The text of document 40/2850/FDIS, future edition 3 of IEC 60384-25, 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 IEC 60384-25:2021.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2022–05–18
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024–08–18

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Endorsement notice

The text of the International Standard IEC 60384-25:2021 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 60384-18 NOTE Harmonized as EN 60384-18

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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where 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 60063	-	Preferred number series for resistors and capacitors	EN 60063	-
IEC 60068-1	2013	Environmental testing - Part 1: General and guidance	EN 60068-1	2014
IEC 60384-1	2016	Fixed capacitors for use in electronic equipment - Part 1: Generic specification	EN 60384-1	2016
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

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

FIXED CAPACITORS FOR USE IN ELECTRONIC EQUIPMENT –

Part 25: Sectional specification – Fixed aluminium electrolytic surface mount capacitors with conductive polymer solid electrolyte

FOREWORD

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International Standard IEC 60384-25 has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment.

This third edition cancels and replaces the second edition published in 2015. This edition constitutes a technical revision.

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

a) Revision of the structure in accordance with ISO/IEC Directives, Part 2:2018, to the extent practicable, and harmonization between other similar kinds of documents.
b) In addition, Clause 5 and all the tables have been reviewed in order to prevent duplications and contradictions.

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

FDIS	Report on voting
40/2850/FDIS	40/2861/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.

A list of all parts in the IEC 60384 series, published under the general title *Fixed capacitors 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 http://www.iec.ch/standardsdev/publications.

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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FIXED CAPACITORS FOR USE IN ELECTRONIC EQUIPMENT –

Part 25: Sectional specification – Fixed aluminium electrolytic surface mount capacitors with conductive polymer solid electrolyte

1 Scope

This part of IEC 60384 applies to fixed aluminium electrolytic surface mount capacitors with conductive polymer solid electrolyte, primarily intended for DC applications for use in electronic equipment.

Fixed aluminium electrolytic surface mount capacitors with solid (MnO_2) are not included but are covered by IEC 60384-18.

These capacitors are primarily intended for use in electronic equipment to be mounted directly on substrates for hybrid circuits or to printed boards.

Capacitors for special-purpose applications can need additional requirements.

The object of this document is to prescribe preferred ratings and characteristics and to select from IEC 60384-1:2016, the appropriate quality assessment procedures, tests and measuring methods and to give general performance requirements for this type of capacitor.

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 60063, *Preferred number series for resistors and capacitors*

IEC 60068-1:2013, *Environmental testing – Part 1: General and guidance*

IEC 60384-1:2016, *Fixed capacitors 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*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60384-1:2016 and the following apply.

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

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

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3.1
capacitance
<electrolytic capacitor> capacitance of an equivalent circuit whose capacitance and resistance in series is measured with an alternating current having an approximately sinusoidal waveform at a specified frequency

4 Preferred ratings and characteristics

4.1 Preferred characteristics

Preferred climatic categories only shall be given in the preferred characteristics.

The capacitors covered by this sectional specification are classified into categories in accordance with the general rules given in IEC 60068-1:2013, Annex A.

The lower and upper category temperatures shall be taken from the following:

– lower category temperature: −55 °C;
– upper category temperature: +105 °C and +125 °C.

The severities for the cold and dry heat tests are the lower and upper category temperatures respectively.

4.2 Preferred values of ratings

4.2.1 Nominal capacitance (C_N)

Preferred values of nominal capacitance are indicated in microfarad (µF).

Preferred values of nominal capacitance shall be taken from the E 12 series of IEC 60063 as follows:

1,0 – 1,2 – 1,5 – 1,8 – 2,2 – 2,7 – 3,3 – 3,9 – 4,7 – 5,6 – 6,8 – 8,2;

and their decimal multiples (× 10^n, n: integer).

4.2.2 Tolerance on nominal capacitance

Preferred value of tolerance on nominal capacitance is:

±20 %.

4.2.3 Rated voltage (U_R)

The preferred values of rated DC voltages taken from the R10 and R20 series of ISO 3 are:

– from R 10: 1,0 – 1,25 – 1,6 – 2,0 – 2,5 – 3,15 – 4,0 – 5,0 – 6,3 – 8,0;
– from R 20: 3,5[1] – 4,5;
– and their decimal multiples (× 10^n, n: integer).

4.2.4 Category voltage (U_C)

The category voltage is equal to the rated voltage.

[1] ISO 3 indicates the value 3,55 for R20.

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