
Nespremenljivi kondenzatorji za elektronsko opremo - 20. del: Področna specifikacija - Nespremenljivi kondenzatorji za enosmerni tok za površinsko montažo z dielektrikom iz metaliziranega polifenil sulfidnega filma

Fixed capacitors for use in electronic equipment - Part 20: Sectional specification - Fixed metallized polyphenylene sulfide film dielectric surface mount d.c. capacitors

Festkondensatoren zur Verwendung in Geräten der Elektronik – Teil 20: Rahmenspezifikation – Oberflächenmontierbare Festkondensatoren für Gleichspannung mit metallisierter Polyphenyl-Sulfid-Folie als Dielektrikum

Condensateurs fixes utilisés dans les équipements électroniques - Partie 20: Spécification intermédiaire - Condensateurs fixes pour montage en surface pour courant continu à diélectrique en film de sulfure de polyphénulène métallisé

Ta slovenski standard je istoveten z: prEN IEC 60384-20:2022

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FUNCTIONS CONCERNED: <input type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> QUALITY ASSURANCE <input type="checkbox"/> SAFETY	
<input checked="" type="checkbox"/> SUBMITTED FOR CENELEC PARALLEL VOTING Attention IEC-CENELEC parallel voting The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting. The CENELEC members are invited to vote through the CENELEC online voting system.	<input type="checkbox"/> NOT SUBMITTED FOR CENELEC PARALLEL VOTING

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TITLE:

Fixed capacitors for use in electronic equipment - Part 20: Sectional specification - Fixed metallized polyphenylene sulfide film dielectric surface mount d.c. capacitors

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

FIXED CAPACITORS FOR USE IN ELECTRONIC EQUIPMENT –

**Part 20: Sectional specification:
Fixed metallized polyphenylene sulfide film
dielectric surface mount DC capacitors**

FOREWORD

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International Standard IEC 60384-20 has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment.

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

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

- a) revision of all parts of the document based on the ISO/IEC Directives, Part 2:2021, and harmonization with other similar kinds of documents;
- b) the document structure has been organized to follow new sectional specification structure decided in TC 40;
- c) revised tables and Clause 5 so as to prevent duplications and contradictions.

- d) tangent of loss angle measurement has been added to resistance to soldering heat test.
- e) lot-by-lot and periodical inspection tables including requirements are moved to Annex A
- f) revised Inspection Level (IL) of A1 subgroup.

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

FDIS	Report on voting
XX/XX/FDIS	XX/XX/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2:2021.

The list of all parts of the IEC 60384 series, under the (new) general title *Fixed capacitors for use in electronic equipment*, can be found on the IEC web site.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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

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FIXED CAPACITORS FOR USE IN ELECTRONIC EQUIPMENT –

Part 20: Sectional specification: Fixed metallized polyphenylene sulfide film dielectric surface mount DC capacitors

1 Scope

This part of IEC 60384 is applicable to fixed surface mount capacitors for direct current, with metallized electrodes and polyphenylene sulfide dielectric for use in electronic equipment. These capacitors have metallized connecting pads or soldering strips and are intended to be mounted directly onto printed boards or onto substrates for hybrid circuits. These capacitors can have "self-healing properties" depending on conditions of use. They are primarily intended for applications where the AC component is small with respect to the rated voltage.

This part of IEC 60384 specifies preferred ratings and characteristics, selects from IEC 60384-1:2021 the appropriate quality assessment procedures, tests and measuring methods and gives general performance requirements for this type of capacitor. Test severities and requirements specified in detail specifications referring to this sectional specification are of an equal or higher performance level. Lower performance levels are not permitted.

Capacitors for electromagnetic interference suppression are not included, but are covered by IEC 60384-14.

2 Normative references

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.

IEC 60062, *Marking codes for resistors and capacitors*

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

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

IEC 60384-1:2021, *Fixed capacitors for use in electronic equipment – Part 1: Generic specification*

IEC 60417, *Graphical symbols for use on equipment*
(available at <http://www.graphicalsymbols.info/equipment>)

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

ISO 3, *Preferred numbers – Series of preferred numbers*

3 Terms and definitions

For the purposes of this document, the terms and definitions of IEC 60384-1:2021, 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>

3.1

grade 1 capacitors

<long-life> capacitors for long-life applications with stringent requirements for the electrical parameters

3.2

grade 2 capacitors

<general purpose> capacitors for general applications where the stringent requirements for grade 1 capacitors are not necessary

3.3

grade 3 capacitors

<low temperature, miniature type> miniature type capacitors having a rated voltage of less than 63 V and for which less stringent requirements than for grade 2 capacitors are acceptable

4 Preferred ratings and characteristics

4.1 Preferred climatic categories

The values given in detail specifications should be selected from the following.

The surface mount capacitors covered by this document are classified into climatic categories according to the general rules given in IEC 60068-1:2013, Annex A.

The lower and upper category temperature and the duration of the damp heat, steady-state test shall be chosen from the following:

Lower category temperature: –55 °C, –40 °C and –25 °C.

Upper category temperature: +100 °C, +105 °C, +125 °C and +155 °C.

Duration of the damp heat, steady state test: 21 days and 56 days.

At continuous operation at 155 °C beyond the endurance test time, accelerated ageing shall be carried out (see detail specification).

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 shall be taken from the E6 series of IEC 60063:

1,0 – 1,5 – 2,2 – 3,3 – 4,7 and 6,8 and their decimal multiples ($\times 10^n$, n = integer).

If other values are required they should be chosen from the E12 series.

4.2.2 Tolerance on nominal capacitance

The preferred tolerances on the nominal capacitance are $\pm 2\%$, $\pm 5\%$, $\pm 10\%$ and $\pm 20\%$.

4.2.3 Rated voltage (U_R)

The preferred values of rated voltage taken from R 10 series of ISO 3 are:

1,0 – 1,6 – 2,5 – 4,0 – 5,0 – 6,3 and their decimal multiples ($\times 10^n$, n : integer).

The sum of the DC voltage and the peak AC voltage applied to the capacitor shall not exceed the rated voltage.

The value of the peak AC voltage shall not exceed the percentages of the rated voltage at the frequencies stated in Table 1 and should not be greater than 280 V, unless otherwise specified in the detail specification.

Table 1 – Percentage limit of the rated voltage at AC voltage frequency

AC voltage frequency Hz	Percentage limit of the rated voltage %
50	20
100	15
1 000	3
10 000	1

4.2.4 Category voltage (U_C)

The category voltage for capacitors is given in Table 2 and Table 3.

Table 2 – Category voltages for upper category temperature 125 °C

Dimensions in volt

	Upper category temperature 125 °C / rated temperature 100 °C									
U_R	10	16	25	40	50	63	100	160	250	400
$U_C = 0,80 U_R$	8,0	13	20	32	40	50	80	130	200	320

Table 3 – Category voltages for upper category temperature 155 °C

Dimensions in volt

	Upper category temperature 155 °C / rated temperature 100 °C									
U_R	10	16	25	40	50	63	100	160	250	400
$U_C = 0,50 U_R$	5,0	8,0	13	20	25	32	50	80	130	200

4.2.5 Rated temperature

The standard value of rated temperature is 100 °C.