SLOVENSKI STANDARD
oSIST prEN IEC 62391-2:2024

01-junij-2024

Fiksni električni dvoplastni kondenzatorji za elektronsko opremo – 2. del: Področna specifikacija – Električni dvoplastni kondenzatorji za elektroenergetske aplikacije

Fixed electric double-layer capacitors for use in electronic equipment - Part 2: Sectional specfication - Electric double layer capacitors for power application

Condensateurs électriques fixes à double couche utilisés dans les équipements électroniques - Partie 2: Spécification intermédiaire - Condensateurs électriques à double couche pour application de puissance

Ta slovenski standard je istoveten z: **prEN IEC 62391-2:2024**

ICS:

31.060.10	Fiksni kondenzatorji	Fixed capacitors

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40/3122/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER: **IEC 62391-2 ED2**	
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IEC TC 40 : CAPACITORS AND RESISTORS FOR ELECTRONIC EQUIPMENT

SECRETARIAT: Netherlands	SECRETARY: Mr Ronald Drenthen
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.

FUNCTIONS CONCERNED:

☐ EMC ☐ ENVIRONMENT ☐ QUALITY ASSURANCE ☐ SAFETY

☒ SUBMITTED FOR CENELEC PARALLEL VOTING	☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING
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TITLE:

Fixed electric double-layer capacitors for use in electronic equipment - Part 2: Sectional specfication - Electric double layer capacitors for power application

PROPOSED STABILITY DATE: 2034

NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FIXED ELECTRIC DOUBLE-LAYER CAPACITORS FOR USE IN ELECTRONIC EQUIPMENT –

Part 2: Sectional specification – Electric double layer capacitors for power application

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IEC 62391-2 has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment. It is an International Standard.

This second edition cancels and replaces the first edition published in 2006. This edition constitutes a technical revision.

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

a) The document has been completely restructured to comply with the ISO/IEC Directives, Part 2; a new technical categorization of test methods has been introduced and the test methods have been reorganized according to these new categories; tables, figures and references have been revised accordingly.

b)

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

Draft	Report on voting
XX/XX/FDIS	XX/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.

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.

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.

FIXED ELECTRIC DOUBLE-LAYER CAPACITORS FOR USE IN ELECTRONIC EQUIPMENT –

Part 2: Sectional specification – Electric double-layer capacitors for power application

1 Scope

This part of IEC 62391 applies to double-layer capacitors for power application.

Electric double-layer capacitors for power are intended for applications that require discharge currents in the range from mA to A. The characteristics of the capacitors include such performance as relatively high capacitance and low internal resistance, which is applicable to Class 3 and Class 5 of the measurement classification specified in IEC 62391-1:2022.

The object of this standard is to prescribe preferred ratings and characteristics and to select from IEC 62391-1 the appropriate quality assessment procedures, tests and measuring methods and to give general performance requirements for this type of capacitor. Test severities and requirements prescribed in detail specifications referring to this sectional specification shall be of equal or higher performance level; lower performance levels are not permitted.

The definition of power density and its calculating procedure should be in accordance with Annex A.

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 60068-2-6, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

IEC 60068-2-14, *Environmental testing – Part 2-14: Tests – Test N: Change of temperature*

IEC 60068-2-20, *Environmental testing – Part 2-20: Tests – Test Ta and Tb: Test methods for solderability and resistance to soldering heat of devices of with leads*

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

IEC 62391-1:2022, *Fixed electric double-layer capacitors for use in electric and electronic equipment – Part 1: Generic specification*

IEC 62391-2-1:2006, *Fixed electric double-layer capacitors for use in electronic equipment – Part 2-1: Blank detail specification – Electric double-layer capacitors for power application – Assessment level EZ*

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62391-1 and the following apply.

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

3.1
surface mount capacitor

capacitor whose small dimensions and nature or shape of terminations make it suitable for surface mounting

3.2
electric double layer capacitors for power application

capacitors with relatively high capacitance and low internal resistance characteristics

Note 1 to entry: Capacitors intended for the applications that require discharge currents in the range from mA to A, which is applicable to Class 3 and Class 5 of the measurement classification specified in IEC 62391-1:2022.

3.3
power density

P_d

electric power that can be taken out per mass (W/kg) or volume (W/l) of a capacitor

Note 1 to entry: Refer to Annex A.

Note 2 to entry: The higher the power density is, the higher current can be taken efficiently.

4 Preferred rating and characteristics

4.1 Preferred characteristics

The values given in the detail specification shall preferably be selected from the following:

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

Unless otherwise agreed upon between manufacturer and customer, the lower and upper category temperatures and the duration of the damp-heat, steady-state test shall be chosen from the following.

Lower category temperature:	−25 °C or −40 °C
Upper category temperature:	+60 °C or +70 °C
Duration of the damp-heat, steady-state test:	10 days

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

The damp-heat steady-state test conditions shall be at a temperature of 40 °C± 2 °C, and the relative humidity shall be 93 % ± 3 %, unless otherwise specified in the relevant detail specification.

4.2 Preferred values of ratings

4.2.1 Nominal capacitance (C_N)

The nominal capacitance shall be expressed in farads (F) and as agreed between manufacturer and customer. Preferred values of rated capacitance are the values from the E24 series of IEC 60063 and their decimal multiples

4.2.2 Tolerance on nominal capacitance

The preferred values of tolerance on nominal capacitance are:

±20 % or −20 %/+80 %.

4.2.3 Rated voltage (U_R)

The rated voltage shall be as agreed between manufacturer and customer. The preferred values of the rated direct voltages are taken from the R20 series of ISO 3 and their decimal multiples.

4.2.4 Rated temperature

Unless otherwise agreed upon between manufacturer and customer, the value of the rated temperature is 60 °C or 70 °C.

4.2.5 Internal resistance

The internal resistance shall be as agreed between manufacturer and customer. The internal resistance shall be measured with the DC resistance method. However, if a coefficient can be obtained from both DC and AC resistance methods, the AC resistance method may be used for measurement.

5 Test and measurement procedures, and performance requirement

5.1 General

Test severities and requirements prescribed in detail specifications referring to this sectional specification are of equal or higher performance level, because lower performance levels are not permitted.

This clause supplements the information given in IEC 62391-1:2022, Clause 5 to Clause 10.

5.2 Preliminary drying

If prescribed in the detail specification, the conditions as given in IEC 62391-1:2022, 5.3.

5.3 Test conditions and measuring conditions

Test conditions: See IEC 62391-1:2022, 5.2.1.

Measuring conditions: See IEC 62391-1:2022, 5.2.2.