SLOVENSKI STANDARD
SIST EN IEC 60384-22:2024

01-september-2024

Fiksni kondenzatorji za uporabo v elektronski opremi - 22. del: Področna specifikacija - Fiksni večplastni kondenzatorji za površinsko namestitev s keramičnim dielektrikom, razred 2 (IEC 60384-22:2024)

Fixed capacitors for use in electronic equipment - Part 22: Sectional specification - Fixed surface mount multilayer capacitors of ceramic dielectric, class 2 (IEC 60384-22:2024)

Festkondensatoren zur Verwendung in Geräten der Elektronik - Teil 22: Rahmenspezifikation - Oberflächenmontierbare Vielschichtkeramik-Festkondensatoren, Klasse 2 (IEC 60384-22:2024)

Condensateurs fixes utilisés dans les équipements électroniques - Partie 22: Spécification intermédiaire - Condensateurs multicouches fixes à diélectriques en céramique pour montage en surface, de classe 2 (IEC 60384-22:2024)

Ta slovenski standard je istoveten z: **EN IEC 60384-22:2024**

ICS:

31.060.10	Fiksni kondenzatorji	Fixed capacitors

SIST EN IEC 60384-22:2024 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 60384-22

August 2024

ICS 31.060.10

Supersedes EN IEC 60384-22:2019

English Version

Fixed capacitors for use in electronic equipment - Part 22: Sectional specification - Fixed surface mount multilayer capacitors of ceramic dielectric, Class 2 (IEC 60384-22:2024)

Condensateurs fixes utilisés dans les équipements électroniques - Partie 22: Spécification intermédiaire - Condensateurs multicouches fixes à diélectriques en céramique pour montage en surface, de Classe 2 (IEC 60384-22:2024)

Festkondensatoren zur Verwendung in Geräten der Elektronik - Teil 22: Rahmenspezifikation - Oberflächenmontierbare Vielschichtkeramik-Festkondensatoren, Klasse 2 (IEC 60384-22:2024)

This European Standard was approved by CENELEC on 2024-07-26. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 40/3120/FDIS, future edition 4 of IEC 60384-22, 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 60384-22:2024.

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) 2025-04-26
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2027-07-26

This document supersedes EN IEC 60384-22:2019 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 60384-22:2024 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standard indicated:

IEC 60063	NOTE Approved as EN 60063
IEC 60068-1:2013	NOTE Approved as EN 60068-1:2014 (not modified)
IEC 60384-14	NOTE Approved as EN IEC 60384-14
IEC 60384-22-1:2004	NOTE Approved as EN 60384-22-1:2004 (not modified)

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.cencenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60068-2-58	-	Environmental testing - Part 2-58: Tests - Test Td: Test methods for solderability, resistance to dissolution of metallization and to soldering heat of surface mounting devices (SMD)	EN 60068-2-58	-
IEC 60384-1	2021	Fixed capacitors for use in electronic equipment - Part 1: Generic specification	EN IEC 60384-1	2021
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

IEC 60384-22

Edition 4.0 2024-06

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Fixed capacitors for use in electronic equipment – Part 22: Sectional specification – Fixed surface mount multilayer capacitors of ceramic dielectric, Class 2

Condensateurs fixes utilisés dans les équipements électroniques – Partie 22: Spécification intermédiaire – Condensateurs multicouches fixes à diélectriques en céramique pour montage en surface, de Classe 2

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 31.060.10

ISBN 978-2-8322-8919-8

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

FIXED CAPACITORS FOR USE IN ELECTRONIC EQUIPMENT –

Part 22: Sectional specification – Fixed surface mount multilayer capacitors of ceramic dielectric, Class 2

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.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at https://patents.iec.ch. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 60384-22 has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment. It is an International Standard.

This fourth edition cancels and replaces the third edition published in 2019. 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 and to make it more useable; tables, figures and references have been revised accordingly; Annex X contains all cross-references of changes in clause/subclause numbers;

b) the requirements of reference temperature 25 °C has been added in Table 5, Table 9, Table 10, Table 12, Table 14 and Table 17;

c) the table of temperature characteristics of capacitance for the reference temperature 25 °C have been added in Table C.1, Table C.2 and Table C.3;

d) the requirement in 5.5.2 (visual examination) has been repeated in 5.9.3, 5.10.6, 5.11.4, 5.12.6, 5.13.8, 5.14.6 and 5.15.6;

e) the deflection D in the very robust designs has been added in 5.9.1;

f) Annex C has been changed informative into normative;

g) Clause D.5 (Test schedule for quality conformance inspection) has been newly added to withdraw the blank detail specification: IEC 60384-22-1.

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

Draft	Report on voting
40/3120/FDIS	40/3139/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.

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.

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, or
- revised.

FIXED CAPACITORS FOR USE IN ELECTRONIC EQUIPMENT –

Part 22: Sectional specification – Fixed surface mount multilayer capacitors of ceramic dielectric, Class 2

1 Scope

This part of IEC 60384 is applicable to fixed unencapsulated surface mount multilayer capacitors of ceramic dielectric, Class 2, for use in electronic equipment. These capacitors have metallized connecting pads or soldering strips and are intended to be mounted on printed boards, or directly onto substrates for hybrid circuits.

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

The object of this document is to specify preferred ratings and characteristics and to select from IEC 60384-1:2021 the appropriate quality assessment procedures, tests and measuring methods and to give general performance requirements for this type of capacitor. Test severities and requirements specified in detail specifications referring to this document provide specific test severities and requirements of an equal or higher performance level. Further information on the conception of generic, sectional and detail specifications can be found in the Introduction of IEC 60384-1:2021.

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 60068-2-58, *Environmental testing – Part 2-58: Tests – Test Td – Test methods for solderability, resistance to dissolution of metallization and to soldering heat of surface mounting devices (SMD)*

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

IEC 61193-2:2007, *Quality assessment system – 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 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