SLOVENSKI STANDARD
oSIST prEN IEC 60384-14:2022

01-april-2022

Nespremenljivi kondenzatorji za uporabo v elektronskih napravah - 14. del: Področna specifikacija - Nespremenljivi kondenzatorji za dušenje elektromagnetnega motenja in za povezovanje z omrežnim napajanjem

Fixed capacitors for use in electronic equipment - Part 14: Sectional specification - Fixed capacitors for electromagnetic interference suppression and connection to the supply mains

Festkondensatoren zur Verwendung in Geräten der Elektronik - Teil 14: Rahmenspezifikation - Festkondensatoren zur Unterdrückung elektromagnetischer Störungen, geeignet für Netzbetrieb

Condensateurs fixes utilisés dans les équipements électroniques - Partie 14: Spécification intermédiaire - Condensateurs fixes d'antiparasitage et raccordement à l'alimentation

Ta slovenski standard je istoveten z: **prEN IEC 60384-14:2022**

ICS:

31.060.10	Fiksni kondenzatorji	Fixed capacitors

oSIST prEN IEC 60384-14:2022 **en**

40/2917/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER:	
IEC 60384-14 ED5	
DATE OF CIRCULATION:	CLOSING DATE FOR VOTING:
2022-02-11	**2022-05-06**
SUPERSEDES DOCUMENTS:	
40/2856/CD, 40/2902/CC	

IEC TC 40 : CAPACITORS AND RESISTORS FOR ELECTRONIC EQUIPMENT

SECRETARIAT:	SECRETARY:
Netherlands	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
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.	

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

TITLE:

Fixed capacitors for use in electronic equipment - Part 14: Sectional specification - Fixed capacitors for electromagnetic interference suppression and connection to the supply mains

PROPOSED STABILITY DATE: 2030

NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FIXED CAPACITORS FOR USE IN ELECTRONIC EQUIPMENT –

Part 14: Sectional specification – Fixed capacitors for electromagnetic interference suppression and connection to the supply mains

FOREWORD

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International Standard IEC 60384-14 has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment.

This fifth edition is based on the consolidated IEC 60384-14, Ed. 4.1 and constitutes both an editorial and a technical revision. The document structure has been organized to follow new sectional specification structure decided in TC 40.

Most important technical changes are:

a) In damp heat steady state test all capacitor types are tested both with and without rated voltage. The number of test pieces has been increased;

b) Tangent of loss angle is added In Group 0 tests, in safety tests only testing;

c) Qualification approval based on safety and performance tests has been removed from the main text to a normative Annex;

d) The range of rated voltages is given instead of exact rated voltage values;

e) Normative annex for description of capacitor styles and of creepage/clearance distance measurement has been added;

f) The importance of mechanical failures (cracks) in component encapsulation as a safety feature is highlighted in handling instructions and requirements after all relevant tests.

A list of all the parts of the IEC 60384 series, published under the general title *Fixed capacitors for use in electronic equipment,* can be found on the IEC website.

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

The committee has decided that the contents of the base publication and its amendment 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.

FIXED CAPACITORS FOR USE IN ELECTRONIC EQUIPMENT –

Part 14: Sectional specification – Fixed capacitors for electromagnetic interference suppression and connection to the supply mains

1 Scope

This part of IEC 60384 applies to capacitors and resistor-capacitor combinations which will be connected to an AC mains or other supply with nominal voltage not exceeding 1 000 V AC (RMS) or 1 500 V DC, and with a nominal frequency not exceeding 100 Hz.

The principal object of this part of IEC 60384 is to prescribe preferred ratings and characteristics and to select from IEC 60384-1, 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 will be of equal or higher performance level; lower performance levels are not permitted.

This document also provides a schedule of safety tests to be used by national testing stations in countries where approval by such stations is required.

The overvoltage categories in combination with the AC mains voltages for the capacitors classified in this document should be taken from IEC 60664-1.

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 60060-1:2010, *High-voltage test techniques – Part 1: General definitions and test requirements*

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

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

IEC 60068-2-17:1994, *Basic environmental testing procedures – Part 2-17: Tests – Test Q: Sealing*

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

IEC 60417:2002, *Graphical symbols for use on equipment*

IEC 60664-1:2020, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements, and tests*

IEC 60695-11-10:2013, *Fire hazard testing – Part 11-10: Test flames – 50 W horizontal and vertical flame test methods*

IEC 60940, *Guidance information on the application of capacitors, resistors, inductors, and complete filter units for radio interference suppression*

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

IEC 61210:2010, *Connecting devices – Flat quick-connect terminations for electrical copper conductors – Safety requirements*

IEC 62368-1:2018+COR1:2020, *Audio/video, information, and communication technology equipment - Part 1: Safety requirements*

CISPR 17:2011, *Methods of measurement of the suppression characteristics of passive EMC filtering devices*

ISO 7000:2004, *Graphical symbols for use on equipment – Index and synopsis*

3 Terms and definitions and classification

3.1 Terms and definitions

For the purposes of this document, the terms and definitions of IEC 60384-1, as well as 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

NOTE Some definitions of IEC 60384-1 have been expanded, as is indicated by a note.

3.1.1
AC capacitor
capacitor designed essentially for application with a power-frequency alternating voltage

Note 1 to entry: AC capacitors may be used on DC supplies having the same voltage as the AC RMS rated voltage of the capacitor. For use of capacitors with rated DC voltage greater than the rated AC voltage, see Annex H.

3.1.2
electromagnetic interference suppression capacitor
radio interference suppression capacitor
AC capacitor used for the reduction of electromagnetic interference caused by electrical or electronic apparatus, or other sources

3.1.3
capacitor of Class X
RC unit of Class X
capacitor or RC unit of a type suitable for use in situations where failure of the capacitor or RC unit would not lead to danger of electrical shock but could result in a risk of fire

3.1.4
capacitor of Class Y
RC unit of Class Y
capacitor or RC unit of a type suitable for use in situations where failure of the capacitor could lead to danger of electric shock

3.1.5
two-terminal capacitor
electromagnetic interference suppression capacitor having two terminals

Note1 to entry: See Figure 1.

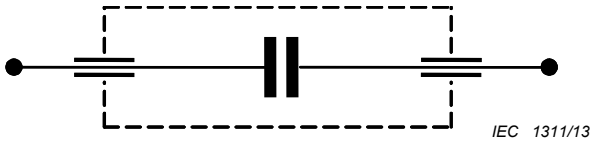


Figure 1 – Two-terminal EMI suppression capacitor

3.1.6
series RC unit
functional combination of a resistor in series with a capacitor of Class X or Y

Note 1 to entry: See Figure 2.

Figure 2 – RC unit

Note 2 to entry: In this document, where the word "capacitor" appears, the words "capacitor or RC unit" should be understood where the context permits.

3.1.7
lead-through capacitor
<coaxial> capacitor with a central current-carrying conductor surrounded by a capacitor element which is symmetrically bonded to the central conductor and to the outer casing to form a coaxial construction; it is coaxially mounted

Note1 to entry: See Figure 3.

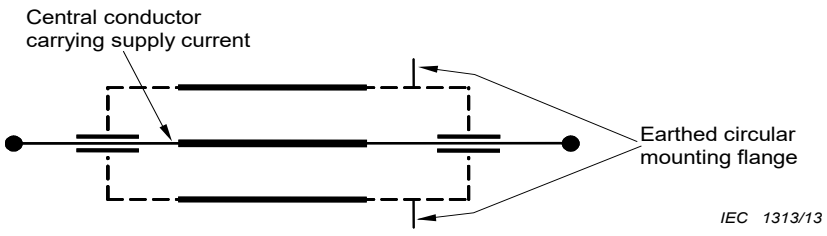
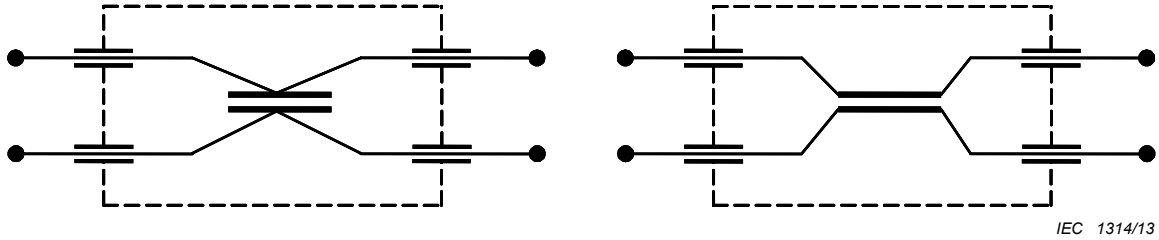


Figure 3 – Lead-through capacitor (coaxial)

3.1.8
lead-through capacitor
<non-coaxial> capacitor in which the supply currents flow through or across the electrodes

Note1 to entry: See Figures 4 a), 4 b), 4 c) and 4 d).



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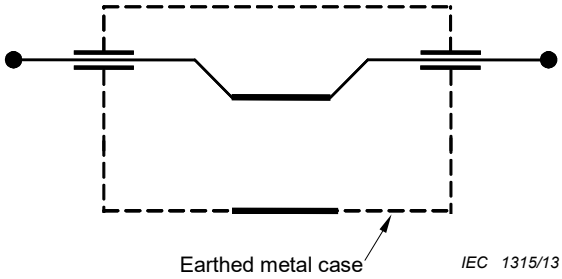
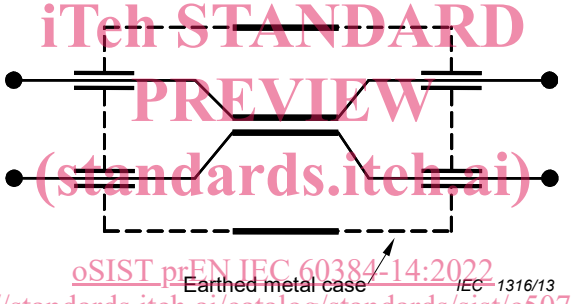
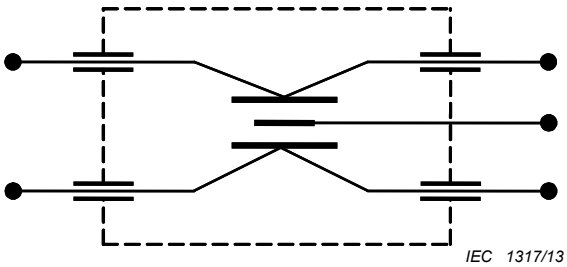
a) – Lead-through capacitor for symmetrical use (non-coaxial)



b) – Lead-through capacitor for asymmetrical use (non-coaxial)



c) – Multiple unit lead-through capacitor (non-coaxial) for symmetrical and asymmetrical use



IEC 1317/13

d) – Multiple unit lead-through capacitor

Figure 4 – Lead-through capacitors

3.1.9
by-pass capacitor

capacitor where radiofrequency interference currents are by-passed

Note 1 to entry: There are three common forms: single, delta and T-connected. The single capacitor consists of a capacitor in a metal case with one termination connected to the case as in Figure 5 a); the delta form consists of an X-capacitor and two Y2-capacitors arranged in a delta network as in Figure 5 b); the T-connected form consists of three capacitors C_A, C_B and C_C connected in T as shown in Figure 5 c).