

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

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

| | |
|---|--|
| See Eesti standard EVS-EN 60384-14:2013 sisaldab Euroopa standardi EN 60384-14:2013 ingliskeelset teksti. | This Estonian standard EVS-EN 60384-14:2013 consists of the English text of the European standard EN 60384-14:2013. |
| Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. | This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation. |
| Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 30.08.2013. | Date of Availability of the European standard is 30.08.2013. |
| Standard on kättesaadav Eesti Standardikeskusest. | The standard is available from the Estonian Centre for Standardisation. |

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ICS 31.060.10

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English version

**Fixed capacitors for use in electronic equipment -
Part 14: Sectional specification -
Fixed capacitors for electromagnetic interference suppression and
connection to the supply mains
(IEC 60384-14:2013)**

Condensateurs fixes utilisés dans les
équipements électroniques -
Partie 14: Spécification intermédiaire -
Condensateurs fixes d'antiparasitage et
raccordement à l'alimentation
(CEI 60384-14:2013)

Festkondensatoren zur Verwendung in
Geräten der Elektronik -
Teil 14: Rahmenspezifikation -
Festkondensatoren zur Unterdrückung
elektromagnetischer Störungen, geeignet
für Netzbetrieb
(IEC 60384-14:2013)

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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.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 40/2199/FDIS, future edition 4 of IEC 60384-14, 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 60384-14:2013.

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) 2014-04-10
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2016-07-10

This document supersedes EN 60384-14:2005.

EN 60384-14:2013 includes the following significant technical changes with respect to EN 60384-14:2005:

All changes that have been agreed upon can be categorized as minor revisions.

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

Endorsement notice

The text of the International Standard IEC 60384-14:2013 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 standards indicated:

| | | |
|----------------|------|------------------------------|
| IEC 60335-1 | NOTE | Harmonised as EN 60335-1. |
| IEC 60384-14-3 | NOTE | Harmonised as EN 60384-14-3. |
| IEC 60950-1 | NOTE | Harmonised as EN 60950-1. |
| IEC 61140 | NOTE | Harmonised as EN 61140. |

Annex ZA
(normative)
Normative references to international publications
with their corresponding European publications

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> |
|--------------------|-------------|--|-----------------------------|-------------|
| IEC 60060-1 | 2010 | High-voltage test techniques - Part 1: General definitions and test requirements | EN 60060-1 | 2010 |
| IEC 60063 | | Preferred number series for resistors and capacitors | - | - |
| IEC 60065 (mod) | 2001 | Audio, video and similar electronic apparatus | EN 60065 | 2002 |
| + corr. August | 2002 | - Safety requirements | + corr. August | 2007 |
| + A1 (mod) | 2005 | | + A1 | 2006 |
| + A2 (mod) | 2010 | | + A2 | 2010 |
| - | - | | + A11 | |
| - | - | | + A12 | |
| IEC 60068-1 | 1988 | Environmental testing - | EN 60068-1 ¹⁾ | 1994 |
| + corr. October | 1988 | Part 1: General and guidance | | |
| IEC 60068-2-17 | | Environmental testing - Part 2: Tests - Test Q: Sealing | EN 60068-2-17 | |
| IEC 60384-1 | 2008 | Fixed capacitors for use in electronic equipment - | EN 60384-1 | 2009 |
| + corr. November | 2008 | Part 1: Generic specification | | |
| IEC 60417 | Data base | Graphical symbols for use on equipment | HD 243 S12 ^{2) 3)} | |
| IEC 60664-1 | | Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests | EN 60664-1 ^{4) 5)} | |
| IEC 60695-11-10 | | Fire hazard testing - Part 11-10: Test flames - 50 W horizontal and vertical flame test methods | EN 60695-11-10 | |
| IEC 60940 | | Guidance information on the application of capacitors, resistors, inductors and complete filter units for radio interference suppression | - | - |
| IEC 61193-2 | | Quality assessment systems - Part 2: Selection and use of sampling plans for inspection of electronic components and packages | EN 61193-2 | |

¹⁾ EN 60068-1 includes A1 to IEC 60068-1 + corr. October .

²⁾ HD 243 S12 includes supplement(s) M to K to IEC 60417.

³⁾ HD 243 S12 is superseded by EN 60417-2:1999, which is based on IEC 60417-2:1998.

⁴⁾ EN 60664-1 includes A1 + A2 to IEC 60664-1.

⁵⁾ EN 60664-1 is superseded by EN 60664-1:2007, which is based on IEC 60664-1:2007.

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> |
|--------------------|-------------|---|--------------|-------------|
| IEC 61210 (mod) | | Connecting devices - Flat quick-connect terminations for electrical copper conductors - Safety requirements | EN 61210 | |
| CISPR 17 | | Methods of measurement of the suppression characteristics of passive EMC filtering devices | EN 55017 | |
| ISO 7000 | | Graphical symbols for use on equipment - Registered symbols | - | - |

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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

1 General

1.1 Scope

This part of IEC 60384 applies to capacitors and resistor-capacitor combinations which will be connected to an a.c. mains or other supply with nominal voltage not exceeding 1 000 V a.c. (r.m.s.) or 1 000 V d.c. and with a nominal frequency not exceeding 100 Hz.

1.2 Object

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 standard 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 a.c. mains voltages for the capacitors classified in this standard should be taken from IEC 60664-1.

1.3 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 60060-1:2010, *High-voltage test techniques – Part 1: General definitions and test requirements*

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

IEC 60065:2001, *Audio, video and similar electronic apparatus – Safety requirements*
Amendment 1:2005
Amendment 2:2010

IEC 60068-1:1988, *Environmental testing – Part 1: General and guidance*

IEC 60068-2-17, *Environmental testing – Part 2-17: Tests – Test Q: Sealing*

IEC 60384-1:2008, *Fixed capacitors for use in electronic equipment – Part 1: Generic specification*

IEC 60417, *Graphical symbols for use on equipment*

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

IEC 60695-11-10, *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, *Quality assessment systems – Part 2: Selection and use of sampling plans for inspection of electronic components and packages*

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

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

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

1.4 Information to be given in a detail specification

Detail specifications shall be derived from the relevant blank detail specification.

Detail specifications shall not specify requirements inferior to those of the generic, sectional or blank detail specification. When more severe requirements are included, they shall be listed in 1.9 of the detail specification, and indicated in the test schedules, for example, by an asterisk.

The following information shall be given in each detail specification and the values quoted shall preferably be selected from the appropriate clause of this sectional specification.

NOTE The information given in 1.4.1 may, for convenience, be presented in tabular form.

1.4.1 Outline drawing and dimensions

There shall be an illustration of the capacitor as an aid to easy recognition and for comparison of the capacitor with others. Dimensions and their associated tolerances, which affect interchangeability and mounting, shall be given in the detail specification. All dimensions shall preferably be stated in millimetres; however, when the original dimensions are given in inches, the converted metric dimensions in millimetres shall be added.

Normally, the numerical values shall be given for the length, width and height of the body and the wire spacing, or for cylindrical types, the body diameter and the length and diameter of the terminations. When necessary, for example when a number of capacitance values/voltage ranges are covered by a detail specification, their dimensions and their associated tolerances shall be placed in a table below the drawing.

When the configuration is other than that described above, the detail specification shall state such dimensional information as will adequately describe the capacitor. When the capacitor is not designed for use on printed boards, this shall be clearly stated in the detail specification.

1.4.2 Mounting

The detail specification shall specify the method of mounting to be applied for normal use and for the application of the vibration, bump or shock tests. The capacitors shall be mounted by their normal means. The design of the capacitor may be such that special mounting fixtures