



**NSAI**  
Standards

Irish Standard  
I.S. EN 60384-2:2012

Fixed capacitors for use in electronic equipment -- Part 2: Sectional specification - Fixed metallized polyethylene terephthalate film dielectric d.c. capacitors (IEC 60384-2:2011 (EQV))

## I.S. EN 60384-2:2012

*Incorporating amendments/corrigenda issued since publication:*

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|   |  |   |
|---|--|---|
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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 60384-2**

March 2012

ICS 31.060.30

Supersedes EN 60384-2:2005

English version

**Fixed capacitors for use in electronic equipment -  
Part 2: Sectional specification -  
Fixed metallized polyethylene terephthalate film dielectric d.c. capacitors  
(IEC 60384-2:2011)**

Condensateurs fixes utilisés dans les  
équipements électroniques -  
Partie 2: Spécification intermédiaire -  
Condensateurs fixes pour courant continu  
à diélectrique en film de téréphtalate de  
polyéthylène métallisé  
(CEI 60384-2:2011)

Festkondensatoren zur Verwendung in  
Geräten der Elektronik -  
Teil 2: Rahmenspezifikation -  
Festkondensatoren mit metallisierter  
Kunststoffolie aus Polyethylen-  
Terephthalat für Gleichspannung  
(IEC 60384-2:2011)

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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

**Management Centre: Avenue Marnix 17, B - 1000 Brussels**

## I.S. EN 60384-2:2012

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### Foreword

The text of document 40/2129/FDIS, future edition 4 of IEC 60384-2, 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 60384-2:2012.

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) 2012-10-13
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2015-01-13

This document supersedes EN 60384-2:2005.

EN 60384-2:2012 includes the following significant technical changes with respect to EN 60384-2:2005:

- Table 1, Sampling plan together with numbers of permissible non-conformance for qualification approval test, has been adjusted.
- Table 3, Lot-by-lot inspection, has been changed, highlighting assessment level EZ only.
- Table 4, Periodic inspection, has been changed, highlighting assessment level EZ only.
- The preferred values of rated voltages have been updated in conformance with the basic series of preferred values R5 and R10 given in ISO 3.

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 60384-2:2011 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 60068-1   | NOTE Harmonized as EN 60068-1.   |
| IEC 60384-2-1 | NOTE Harmonized as EN 60384-2-1. |
| IEC 60384-14  | NOTE Harmonized as EN 60384-14.  |
| IEC 60384-19  | NOTE Harmonized as EN 60384-19.  |

## 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 60063<br>+ A1<br>+ A2       | 1963<br>1967<br>1977 | Preferred number series for resistors and capacitors   | -            | -           |
| IEC 60384-1<br>+ corr. November | 2008<br>2008         | Fixed capacitors for use in electronic equipment -<br>Part 1: Generic specification  | EN 60384-1   | 2009        |
| IEC 61193-2                     | 2007                 | Quality assessment systems -<br>Part 2: Selection and use of sampling plans for inspection of electronic components and packages | EN 61193-2   | 2007        |
| ISO 3                           | 1973                 | Preferred numbers - Series of preferred numbers  | -            | -           |

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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### **FIXED CAPACITORS FOR USE IN ELECTRONIC EQUIPMENT –**

#### **Part 2: Sectional specification – Fixed metallized polyethylene terephthalate film dielectric d.c. capacitors**

### 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.
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- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60384-2 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 2005 and contains the following significant technical changes with respect to the previous edition.

- Table 1, Sampling plan together with numbers of permissible non-conformance for qualification approval test, has been adjusted.
- Table 3, Lot-by-lot inspection, has been changed, highlighting assessment level EZ only.
- Table 4, Periodic inspection, has been changed, highlighting assessment level EZ only.
- The preferred values of rated voltages have been updated in conformance with the basic series of preferred values R5 and R10 given in ISO 3.

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

|              |                  |
|--------------|------------------|
| FDIS         | Report on voting |
| 40/2129/FDIS | 40/2142/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.

A list of all the parts of the IEC 60384 series, 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 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.

## **FIXED CAPACITORS FOR USE IN ELECTRONIC EQUIPMENT –**

### **Part 2: Sectional specification – Fixed metallized polyethylene terephthalate film dielectric d.c. capacitors**

#### **1 General**

##### **1.1 Scope**

This part of IEC 60384 applies to fixed capacitors for direct current, with metallized electrodes and polyethylene-terephthalate dielectric for use in electronic equipment.

These capacitors may have “self-healing properties” depending on conditions of use. They are primarily intended for applications where the a.c. component is small with respect to the rated voltage. Two performance grades of capacitors are covered, Grade 1 for long-life application and Grade 2 for general application.

Capacitors for electromagnetic interference suppression and surface mount fixed metallized polyethylene-terephthalate film dielectric d.c. capacitors are not included, but are covered by IEC 60384-14 and IEC 60384-19 respectively.

##### **1.2 Object**

The object of this standard 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 should be of equal or higher performance level, because lower performance levels are not permitted.

##### **1.3 Normative references**

The following referenced documents are indispensable for the application 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 60063:1963, *Preferred number series for resistors and capacitors*  
Amendment 1 (1967)  
Amendment 2 (1977)

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

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

ISO 3:1973, *Preferred numbers – Series of preferred numbers*

##### **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

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