

**Fixed capacitors for use in electronic equipment - Part
13: Sectional specification - Fixed polypropylene film
dielectric metal foil d.c. capacitors**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 60384-13:2012 sisaldab Euroopa standardi EN 60384-13:2012 ingliskeelset teksti.	This Estonian standard EVS-EN 60384-13:2012 consists of the English text of the European standard EN 60384-13:2012.
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 30.03.2012.	Date of Availability of the European standard is 30.03.2012.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 31.060.30

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:
Aru 10, 10317 Tallinn, Eesti; www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:
Aru 10, 10317 Tallinn, Estonia; www.evs.ee; phone 605 5050; e-mail info@evs.ee

**Fixed capacitors for use in electronic equipment -
Part 13: Sectional specification -
Fixed polypropylene film dielectric metal foil d.c. capacitors
(IEC 60384-13:2011)**

Condensateurs fixes utilisés dans les
équipements électroniques -
Partie 13: Spécification intermédiaire -
Condensateurs fixes pour courant continu
à diélectrique en film de polypropylène à
armatures en feuilles métalliques
(CEI 60384-13:2011)

Festkondensatoren zur Verwendung in
Geräten der Elektronik -
Teil 13: Rahmenspezifikation -
Festkondensatoren mit einem
Dielektrikum aus Polypropylen und
Belägen aus Metallfolien für
Gleichspannung
(IEC 60384-13:2011)

This European Standard was approved by CENELEC on 2012-01-13. 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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 40/2130/FDIS, future edition 4 of IEC 60384-13, 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 60384-13:2012.

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 60384-13:2006 + corr. nov. 2006.

EN 60384-13:2012 includes the following significant technical changes with respect to EN 60384-13:2006:

- Table 3, Sampling plan together with numbers of permissible non-conformance for qualification approval test, has been adjusted.
- Table 5, Lot-by-lot inspection, has been changed, highlighting assessment level EZ only.
- Table 6, Periodic inspection, has been changed, highlighting assessment level EZ only.

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 60384-13:2011 was approved by CENELEC as a European Standard without any modification.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

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 + A1 + A2	1963 1967 1977	Preferred number series for resistors and capacitors	-	-
IEC 60068-1	-	Environmental testing - Part 1: General and guidance	EN 60068-1	-
IEC 60384-1 + corr. November	2008 2008	Fixed capacitors for use in electronic equipment - Part 1: Generic specification	EN 60384-1	2009
IEC 60384-13-1	-	Fixed capacitors for use in electronic equipment - Part 13-1: Blank detail specification - Fixed polypropylene film dielectric metal foil d.c. capacitors - Assessment level E and EZ	EN 60384-13-1	-
IEC 60384-14	-	Fixed capacitors for use in electronic equipment - Part 14: Sectional specification - Fixed capacitors for electromagnetic interference suppression and connection to the supply mains	EN 60384-14	-
IEC 60410	1973	Sampling plans and procedures for inspection - by attributes		-
IEC 61193-2	-	Quality assessment systems - Part 2: Selection and use of sampling plans for inspection of electronic components and packages	EN 61193-2	-
ISO 3	-	Preferred numbers - Series of preferred numbers	-	-

CONTENTS

FOREWORD.....	4
1 General	6
1.1 Scope.....	6
1.2 Object	6
1.3 Normative references	6
1.4 Information to be given in a detail specification	7
1.5 Terms and definitions	8
1.6 Marking	8
2 Preferred ratings and characteristics	9
2.1 Preferred characteristics	9
2.2 Preferred values of ratings	9
3 Quality assessment procedures	10
3.1 Primary stage of manufacture.....	10
3.2 Structurally similar components	11
3.3 Certified records of released lots	11
3.4 Qualification approval.....	11
3.5 Quality conformance inspection.....	17
4 Test and measurement procedures.....	19
4.1 Visual examination and check of dimensions	19
4.2 Electrical tests.....	19
4.3 Robustness of terminations	22
4.4 Resistance to soldering heat	22
4.5 Solderability	22
4.6 Rapid change of temperature	23
4.7 Vibration.....	23
4.8 Bump	23
4.9 Shock.....	24
4.10 Climatic sequence	24
4.11 Damp heat, steady state.....	25
4.12 Endurance.....	26
4.13 Component solvent resistance.....	26
4.14 Solvent resistance of marking.....	26
Table 1 – Preferred tolerances.....	9
Table 2 – Preferred values and combinations	10
Table 3 – Sampling plan together with numbers of permissible non-conformance for qualification approval test	12
Table 4 – Test schedule for qualification approval.....	13
Table 5 – Lot-by-lot inspection	18
Table 6 – Periodic inspection	18
Table 7 – Test points and voltages	19
Table 8 – Insulation resistance requirements	21
Table 9 – Correction factors.....	21

Table 10 – Preferred severities 24

Table 11 – Test conditions 26

This document is a preview generated by EVS

FIXED CAPACITORS FOR USE IN ELECTRONIC EQUIPMENT –

Part 13: Sectional specification – Fixed polypropylene film dielectric metal foil d.c. capacitors

1 General

1.1 Scope

This part of IEC 60384 applies to fixed direct current capacitors, using as dielectric a polypropylene film with electrodes of thin metal foils. The capacitors covered by this standard are intended for use in electronic equipment.

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

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 are of at least 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 60068-1, *Environmental testing – Part 1: General and guidance*

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

IEC 60384-13-1, *Fixed capacitors for use in electronic equipment – Part 13-1: Blank detail specification – Fixed polypropylene film dielectric metal foil d.c. capacitors – Assessment level E and EZ*

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

IEC 60410:1973, *Sampling plans and procedures for inspection by attributes*

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

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