

**Fixed capacitors for use in electronic equipment --
Part 17: Sectional specification: Fixed metallized
polypropylene film dielectric a.c. and pulse
capacitors**

Fixed capacitors for use in electronic equipment -- Part
17: Sectional specification: Fixed metallized
polypropylene film dielectric a.c. and pulse capacitors

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 60384-17:2008 sisaldab Euroopa standardi EN 60384-17:2005 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 24.07.2008 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 09.12.2005.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 60384-17:2008 consists of the English text of the European standard EN 60384-17:2005.

This standard is ratified with the order of Estonian Centre for Standardisation dated 24.07.2008 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

Date of Availability of the European standard text 09.12.2005.

The standard is available from Estonian standardisation organisation.

ICS 31.060.30

Võtmesõnad:

Standardite reprodutseerimis- ja levitamiseõigus kuulub Eesti Standardikeskusele

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

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

English version

Fixed capacitors for use in electronic equipment
Part 17: Sectional specification:
Fixed metallized polypropylene film dielectric a.c. and pulse capacitors
(IEC 60384-17:2005)

Condensateurs fixes utilisés
dans les équipements électroniques
Partie 17: Spécification intermédiaire:
Condensateurs fixes pour tension
alternative et pour impulsions à
diélectrique en film de polypropylène
métallisé
(CEI 60384-17:2005)

Festkondensatoren zur Verwendung in
Geräten der Elektronik
Teil 17: Rahmenspezifikation:
Festkondensatoren mit metallisierter
Polypropylen-Folie als Dielektrikum für
Wechselspannungs- und Impulsbetrieb
(IEC 60384-17:2005)

This European Standard was approved by CENELEC on 2005-11-01. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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

CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 40/1597/FDIS, future edition 2 of IEC 60384-17, prepared by IEC TC 40, Capacitors and resistors for electronic equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60384-17 on 2005-11-01.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2006-08-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2008-11-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60384-17:2005 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 60065	NOTE	Harmonized as EN 60065:2002 (modified).
IEC 60384-14	NOTE	Harmonized as EN 60384-14:2005 (not modified).

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 Where 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	1963	Preferred number series for resistors and capacitors	-	-
A1	1967		-	-
A2	1977		-	-
IEC 60068-1	- ¹⁾	Environmental testing Part 1: General and guidance	EN 60068-1	1994 ²⁾
IEC 60384-1 (mod)	- ¹⁾	Fixed capacitors for use in electronic equipment Part 1: Generic specification	EN 60384-1 + corr. October	2001 ²⁾ 2001
IEC 60384-17-1	- ¹⁾	Part 17-1: Blank detail specification - Fixed metallized polypropylene film dielectric a.c. and pulse capacitors - Assessment levels E and EZ	EN 60384-17-1	2005 ²⁾
IEC 60410	- ¹⁾	Sampling plans and procedures for inspection by attributes	-	-
ISO 3	- ¹⁾	Preferred numbers - Series of preferred numbers	-	-

1) Undated reference.

2) Valid edition at date of issue.

CONTENTS

FOREWORD.....	4
1 General.....	7
1.1 Scope.....	7
1.2 Object.....	7
1.3 Normative references.....	7
1.4 Information to be given in a detail specification.....	8
1.5 Terms and definitions.....	9
1.6 Marking.....	10
2 Preferred ratings and characteristics.....	11
2.1 Preferred characteristics.....	11
2.2 Preferred values of ratings.....	11
3 Quality assessment procedures.....	12
3.1 Primary stage of manufacture.....	12
3.2 Structurally similar components.....	12
3.3 Certified records of released lots.....	13
3.4 Qualification approval.....	13
3.5 Quality conformance inspection.....	20
4 Test and measurement procedures.....	22
4.1 Visual examination and check of dimensions.....	22
4.2 Electrical tests.....	22
4.3 Robustness of terminations.....	25
4.4 Resistance to soldering heat.....	25
4.5 Solderability.....	25
4.6 Rapid change of temperature.....	25
4.7 Vibration.....	25
4.8 Bump.....	26
4.9 Shock.....	26
4.10 Climatic sequence.....	27
4.11 Damp heat, steady state.....	28
4.12 Endurance.....	28
4.13 Charge and discharge.....	30
4.14 Component solvent resistance.....	30
4.15 Solvent resistance of the marking.....	30
Bibliography.....	31
Table 1 – Preferred values.....	10
Table 2 – Preferred combinations.....	12
Table 3 – Sampling plan together with numbers of permissible defectives for qualification approval tests for a.c. and pulse capacitors.....	14
Table 4 – Test schedule for qualification approval.....	15
Table 5 – Lot-by-lot inspection.....	21

Table 6 – Periodic inspection 21

Table 7 – Tangent of loss angle 23

Table 8 – Insulation resistance requirements 23

Table 9 – Correction factors 24

Table 10 – Characteristics at lower category temperature 24

Table 11 – Characteristics at upper category temperature 24

Table 12 – Preferred severities 26

This document is a preview generated by EVS

FIXED CAPACITORS FOR USE IN ELECTRONIC EQUIPMENT –

Part 17: Sectional specification: Fixed metallized polypropylene film dielectric a.c. and pulse capacitors

1 General

1.1 Scope

This part of IEC 60384 applies to fixed capacitors with metallized electrodes and polypropylene dielectric for use in electronic equipment.

NOTE Capacitors which have mixed foil and metallized electrodes are also within the scope of this standard.

These capacitors may have "self-healing" properties depending on conditions of use.

Capacitors covered by this specification are mainly intended for use with alternating voltage and/or for pulse applications. The maximum reactive power applicable is 10 000 var and the maximum peak voltage is 3 000 V.

Capacitors for reactive power exceeding 500 var and to which a maximum peak voltage of 2 500 V at 50 Hz can be applied are not covered by this standard, except when they are the highest part of a range of reactive power mainly situated below 500 var at 50 Hz.

This standard is not intended to cover capacitance values higher than 20 μ F.

Two performance grades of capacitors are covered, Grade 1 for long-life application and Grade 2 for general application.

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

Capacitors for electrical shock hazard protection (covered by IEC 60065) and fluorescent lamp and motor capacitors (covered by IEC technical committee 33, and IEC technical committee 34) are also excluded.

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 shall be of an 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, *Fixed capacitors for use in electronic equipment – Part 1: Generic specification*

IEC 60384-17-1, *Fixed capacitors for use in electronic equipment – Part 17: Blank detail specification: Fixed metallized polypropylene film dielectric a.c. and pulse capacitors. Assessment level E*

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

ISO 3, *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 listed in 1.9 of the detail specification and indicated in the test schedules, for example by an asterisk.

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

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

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.

Normally, the numerical values shall be given for the length of the body, the 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 items (capacitance values/voltage ranges) are covered by a detail specification, the dimensions and their associated tolerances shall be placed in a table below the drawing.

When the configuration is other than 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 and the 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 are required in its use. In this case, the detail specification shall describe the mounting fixtures and they shall be used in the application of the vibration and bump or shock tests.

1.4.3 Ratings and characteristics

The ratings and characteristics shall be in accordance with the relevant clauses of this specification, together with the following: