

**Fixed capacitors for use in electronic equipment  
Part 21-1: Blank detail specification: Fixed surface  
mount multilayer capacitors of ceramic dielectric,  
Class 1 Assessment level EZ**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 60384-21-1:2004 sisaldab Euroopa standardi EN 60384-21-1:2004 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 14.12.2004 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 09.11.2004.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 60384-21-1:2004 consists of the English text of the European standard EN 60384-21-1:2004.

This standard is ratified with the order of Estonian Centre for Standardisation dated 14.12.2004 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 09.11.2004.

The standard is available from Estonian standardisation organisation.

ICS 31.060.10

Võtmesõnad:

### Standardite reprodutseerimis- ja levitamisoigus 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.

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Aru 10 Tallinn 10317 Eesti; [www.evs.ee](http://www.evs.ee); Telefon: 605 5050; E-post: [info@evs.ee](mailto:info@evs.ee)

English version

**Fixed capacitors for use in electronic equipment**  
**Part 21-1: Blank detail specification:**  
**Fixed surface mount multilayer capacitors of ceramic dielectric, Class 1 –**  
**Assessment level EZ**  
(IEC 60384-21-1:2004 + corrigendum 2004)

Condensateurs fixes utilisés dans les équipements électroniques  
Partie 21-1: Spécification particulière cadre: Condensateurs multicouches fixes pour montage en surface pour diélectriques en céramique, classe 1 – Niveau d'évaluation EZ  
(CEI 60384-21-1:2004 + corrigendum 2004)

Festkondensatoren zur Verwendung in Geräten der Elektronik  
Teil 21-1: Vordruck für Bauartspezifikation: Oberflächenmontierbare Vielschichtkeramik-Festkondensatoren, Klasse 1 –  
Bewertungsstufe EZ  
(IEC 60384-21-1:2004 + corrigendum 2004)

This European Standard was approved by CENELEC on 2004-09-01. 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 40/1421/FDIS, future edition 1 of IEC 60384-21-1, 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 60384-21-1 on 2004-09-01.

This European Standard, together with EN 60384-22-1:2004, supersedes EN 132101:1996.

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) 2005-06-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2007-09-01

Annex ZA has been added by CENELEC.

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### Endorsement notice

The text of the International Standard IEC 60384-21-1:2004 + corrigendum September 2004 was approved by CENELEC as a European Standard without any modification.

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**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 60384-1 (mod)	1999	Fixed capacitors for use in electronic equipment Part 1: Generic specification	EN 60384-1	2001
IEC 60384-21 + corr. September	2004 2004	Part 21: Sectional specification: Fixed surface mount multilayer capacitors of ceramic dielectric, Class 1	EN 60384-21	2004
IEC 60410	1973	Sampling plans and procedures for inspection by attributes	-	-

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INTERNATIONAL  
STANDARD

IEC  
60384-21-1

First edition  
2004-06

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Fixed capacitors for use in electronic equipment –

Part 21-1:

Blank detail specification:

Fixed surface mount multilayer capacitors  
of ceramic dielectric, Class 1 –

Assessment level EZ

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Reference number  
IEC 60384-21-1:2004(E)

## Publication numbering

As from 1 January 1997 all IEC publications are issued with a designation in the 60000 series. For example, IEC 34-1 is now referred to as IEC 60034-1.

## Consolidated editions

The IEC is now publishing consolidated versions of its publications. For example, edition numbers 1.0, 1.1 and 1.2 refer, respectively, to the base publication, the base publication incorporating amendment 1 and the base publication incorporating amendments 1 and 2.

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# INTERNATIONAL STANDARD

# IEC 60384-21-1

First edition  
2004-06

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## Fixed capacitors for use in electronic equipment – Part 21-1: Blank detail specification: Fixed surface mount multilayer capacitors of ceramic dielectric, Class 1 – Assessment level EZ

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Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

PRICE CODE

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*For price, see current catalogue*

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

**Part 21-1: Blank detail specification:  
Fixed surface mount multilayer capacitors  
of ceramic dielectric, Class 1 –  
Assessment level EZ**

## 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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International Standard IEC 60384-21-1 has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment.

This standard and its related publications (CEI 60384-21, IEC 60384-22 and IEC 60384-22-1) cancel and replace IEC 60384-10 (1989) and its Amendments 1 (1993) and 2 (2000) as well as IEC 60384-10-1 (1989) and its Amendment 1 (1993).

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

FDIS	Report on voting
40/1421/FDIS	40/1452/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.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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.

A bilingual version of this standard may be issued at a later date.

The contents of the corrigendum of September 2004 have been included in this copy.

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## INTRODUCTION

### **Blank detail specification**

A blank detail specification is a supplementary document to the sectional specification and contains requirements for style, layout and minimum content of detail specifications. Detail specifications not complying with these requirements may not be considered as being in accordance with IEC specifications nor shall they so be described.

In the preparation of detail specifications the content of 1.4 of the sectional specification shall be taken into account.

The numbers between square brackets on the first page of the detail specification correspond to the following information, which shall be inserted in the position indicated.

### **Identification of the detail specification**

- (1) The “International Electrotechnical Commission” or the National Standards Organization under whose authority the detail specification is drafted.
- (2) The IEC or National Standards number of the detail specification, date of issue and any further information required by the national system.
- (3) The number and issue number of the IEC or national generic specification.
- (4) The IEC number of the blank detail specification.

### **Identification of the capacitor**

- (5) A short description of the type of capacitor.
- (6) Information on typical construction (when applicable).
- (7) Outline drawing with main dimensions which are of importance for interchangeability and/or reference to the national or international documents for outlines. Alternatively, this drawing may be given in an annex to the detail specification.
- (8) Application or group of applications covered and/or assessment level.
- (9) Reference data on the most important properties, to allow comparison between the various capacitor types.

	(1)	IEC 60384-21-1-ZZZ QC 30XXXX-ZZZ	(2)
ELECTRONIC COMPONENTS OF ASSESSED QUALITY IN ACCORDANCE WITH :	(3)	IEC 60384-21-1 QC 30 XXXX	(4)
Outline drawing : (see Table 1) (...angle projection)  (Other shapes are permitted within the dimensions given)	(7)	FIXED SURFACE MOUNT MULTILAYER CAPACITORS OF CERAMIC DIELECTRIC, CLASS 1	(5)
			(6)
		Assessment level: EZ	(8)

Information on the availability of components qualified to this detail specification is given in the IEC QC 001005.

(9)

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## FIXED CAPACITORS FOR USE IN ELECTRONIC EQUIPMENT –

### Part 21-1: Blank detail specification: Fixed surface mount multilayer capacitors of ceramic dielectric, Class 1 – Assessment level EZ

#### 1 General data

##### 1.1 Recommended method(s) of mounting (to be inserted)

(See 1.4.2 of IEC 60384-21).

##### 1.2 Dimensions

Table 1 – Case size reference and dimensions

Case size reference	Dimension (mm)						
	$L_1$	$W$	$H$	$L_2$	$L_3$	$L_4$	---

When there is no case size reference, Table 1 may be omitted and the dimensions shall be given in Table 2, which then become Table 1.

The dimensions shall be given as maximum dimensions or as nominal dimensions with a tolerance.

##### 1.3 Ratings and characteristics

Rated capacitance range (see Table 2)

Tolerance on rated capacitance

Rated voltage (see Table 2)

Category voltage (if applicable) (see Table 2)

Climatic category

Rated temperature

Category temperature (if applicable)

Tangent of loss angle

Insulation resistance

Temperature coefficient  $\alpha$ : ... $10^{-6}/K$

Table 2 – Values of capacitance and of voltage related to case sizes

Rated voltage				
Category voltage <sup>1)</sup>				
Rated capacitance (in pF and/or nF)	Case size	Case size	Case size	Case size

<sup>1)</sup> If different from the rated voltage.

#### 1.4 Normative references

IEC 60384-1:1999, *Fixed capacitors for use in electronic equipment – Part 1: Generic specification*

IEC 60384-21:2004, *Fixed capacitors for use in electronic equipment – Part 21: Sectional specification: Fixed surface mount multilayer capacitors of ceramic dielectric, Class 1*

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

#### 1.5 Marking

The marking of the capacitor, if applied, and the package shall be in accordance with the requirements of 1.6 of IEC 60384-21.

NOTE The details of the marking of the component and package shall be given in full in the detail specification.

#### 1.6 Ordering information

Orders for capacitors covered by this specification shall contain, in clear or in coded form, the following minimum information:

- a) Rated capacitance.
- b) Tolerance on rated capacitance.
- c) Rated d.c. voltage.
- d) Temperature coefficient.
- e) Number and issue reference of the detail specification and style reference.

#### 1.7 Certified records of released lots

Required/not required.

#### 1.8 Additional information (not for inspection purposes)

#### 1.9 Additional or increased severities or requirements to those specified in the generic and/or sectional specification

NOTE Additions or increased requirements should be specified only when essential.

**Table 3 – Other characteristics**

This table is to be used for defining characteristics which are additional to or more severe than those given in the sectional specification.
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