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**Pritrjeni kondenzatorji za uporabo v elektronski opremi – 21. del: Področna  
specifikacija: pritrjeni večplastni kondenzatorji za površinsko namestitev s  
keramičnim dielektrikom, razred 1 (IEC 60384-21:2004 + popravek 2004)**

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

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English version

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

Condensateurs fixes utilisés dans  
les équipements électroniques  
Partie 21: Spécification intermédiaire:  
Condensateurs multicouches fixes  
pour montage en surface pour  
diélectriques en céramique, classe 1  
(CEI 60384-21:2004 + corrigendum 2004)

Festkondensatoren zur Verwendung  
in Geräten der Elektronik  
Teil 21: Rahmenspezifikation:  
Oberflächenmontierbare  
Vielschichtkeramik-Festkondensatoren,  
Klasse 1  
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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.

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# 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 40/1420/FDIS, future edition 1 of IEC 60384-21, 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 on 2004-09-01.

This European Standard, together with EN 60384-22:2004, supersedes EN 132100:1996.

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 60384-21:2004 + 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 60063	1963	Preferred number series for resistors and capacitors	-	-
A1	1967		-	-
A2	1977		-	-
IEC 60068-1	1988	Environmental testing Part 1: General and guidance	EN 60068-1	1994 <sup>1)</sup>
IEC 60068-2-58	1999	Part 2-58: Tests - Test Td: Test methods for solderability, resistance to dissolution of metallization and to soldering heat of surface mounting devices (SMD)	EN 60068-2-58	1999 <sup>2)</sup>
IEC 60384-1 (mod)	1999	Fixed capacitors for use in electronic equipment Part 1: Generic specification	EN 60384-1 + corr. October	2001 2001
IEC 60410	1973	Sampling plans and procedures for inspection by attributes	-	-
ISO 3	1973	Preferred numbers - Series of preferred numbers	-	-

<sup>1)</sup> EN 60068-1 includes corrigendum October 1988 + A1:1992 to IEC 60068-1.

<sup>2)</sup> EN 60068-2-58:1999 is superseded by EN 60068-2-58:2004, which is based on IEC 60068-2-58:2004.

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# INTERNATIONAL STANDARD

# IEC 60384-21

First edition  
2004-06

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## Fixed capacitors for use in electronic equipment –

### Part 21:

### Sectional specification:

### Fixed surface mount multilayer capacitors

of ceramic dielectric, Class 1

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

FIXED CAPACITORS FOR USE IN ELECTRONIC EQUIPMENT –

Part 21: Sectional specification:  
Fixed surface mount multilayer capacitors  
of ceramic dielectric, Class 1

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 has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment.

This standard and its related publications (CEI 60384-21-1, 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
40/1420/FDIS	40/1451/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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## FIXED CAPACITORS FOR USE IN ELECTRONIC EQUIPMENT –

### Part 21: Sectional specification: Fixed surface mount multilayer capacitors of ceramic dielectric, Class 1

#### 1 General

##### 1.1 Scope

This sectional specification is applicable to fixed unencapsulated surface mount multilayer capacitors of ceramic dielectric, Class 1, for use in electronic equipment. These capacitors have metallized connecting pads or soldering strips and are intended to be mounted on printed boards, or directly onto substrates for hybrid circuits.

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 60384-1:1999 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 equal or higher performance level, lower performance levels are not permitted.

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

IEC 60068-2-58:1999, *Environmental testing – Part 2-58: Tests – Test Td – Test methods for solderability, resistance to dissolution of metallization and to soldering heat of surface mounting devices (SMD)*

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

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

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

## 1.4 Information to be given in a detail specification

Detail specification 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 capacitors as an aid to easy recognition and for comparison of the capacitors 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. When necessary, for example when a number of items (sizes and capacitance/voltage ranges) are covered by a detail specification, the dimensions and their associated tolerances shall be placed in a table below the drawing.

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When the configuration is other than described above, the detail specification shall state such dimensional information as will adequately describe the capacitors.

### 1.4.2 Mounting

The detail specification shall give guidance on methods of mounting for normal use. Mounting for test and measurement purposes (when required) shall be in accordance with 4.3 of this sectional specification.

### 1.4.3 Rating and characteristics

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

#### 1.4.3.1 Rated capacitance range

See 2.2.4.1

NOTE When products approved to the detail specification have different ranges, the following statement should be added: "The range of capacitance values available in each voltage range is given in IECQ 001005".

#### 1.4.3.2 Particular characteristics

Additional characteristics may be listed, when they are considered necessary to specify adequately the component for design and application purposes.

#### 1.4.3.3 Soldering

The detail specification shall prescribe the test methods, severities and requirements applicable for the solderability and the resistance to soldering heat tests.