

# SLOVENSKI STANDARD

# SIST EN 60384-20:2002

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september 2002

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Fixed capacitors for use in electronic equipment - Part 20: Sectional specification: Fixed metallized polyphenylene sulfide film dielectric surface mount d.c. capacitors (IEC 60384-20:1996)

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ICS 31.060.10

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Referenčna številka  
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EUROPEAN STANDARD

EN 60384-20

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 1999

ICS 31.060.10

Descriptors: Fixed capacitors, surface mount d.c. capacitors, metallized polyphenylene sulfide film dielectric, sectional specification, preferred ratings and characteristics, quality assessment procedures, test and measurement procedures

English version

**Fixed capacitors for use in electronic equipment**  
**Part 20: Sectional specification:**  
**Fixed metallized polyphenylene sulfide**  
**film dielectric surface mount d.c. capacitors**  
(IEC 60384-20:1996)

Condensateurs fixes utilisés dans  
les équipements électroniques  
Partie 20: Spécification intermédiaire:  
Condensateurs fixes pour montage  
en surface pour courant continu à  
diélectrique en film de sulfure de  
polyphénylène métallisé  
(CEI 60384-20:1996)

Festkondensatoren zur Verwendung  
in Geräten der Elektronik  
Teil 20: Rahmenspezifikation:  
Oberflächenmontierbare  
Festkondensatoren mit metallisierter  
Polyphenyl-Sulfid-Folie als Dielektrikum  
für Gleichspannung  
(IEC 60384-20:1996)

This European Standard was approved by CENELEC on 1999-01-01. 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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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 the International Standard IEC 60384-20:1996, prepared by IEC TC 40, Capacitors and resistors for electronic equipment, was submitted to the formal vote and was approved by CENELEC as EN 60384-20 on 1999-01-01 without any modification.

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) 2000-01-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2000-01-01

Annexes designated "normative" are part of the body of the standard.  
In this standard, annex ZA is normative.  
Annex ZA has been added by CENELEC.

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### Endorsement notice

The text of the International Standard IEC 60384-20:1996 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**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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 60062	1992	Marking codes for resistors and capacitors	EN 60062	1993
IEC 60063	1963	Preferred number series for resistors and capacitors	-	-
A1	1967		-	-
A2	1977		-	-
IEC 60068	series	Environmental testing	EN 60068 HD 323	series series
IEC 60384-1	1982	Fixed capacitors for use in electronic equipment Part 1: Generic specification	-	-
A2	1987		-	-
A3	1989		-	-
A4	1992		-	-
IEC 60410	1973	Sampling plans and procedures for inspection by attributes	-	-
IEC QC 001001	1986	Basic rules of the IEC Quality Assessment System for Electronic Components (IECQ)	-	-
A1	1992		-	-
IEC QC 001002	1986	Rules of procedure of the IEC Quality Assessment System for Electronic Components (IECQ)	-	-
A1	1992		-	-
ISO 3	1973	Preferred numbers - Series of preferred numbers	-	-

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**Condensateurs fixes utilisés  
dans les équipements électroniques –**

**Partie 20:  
Spécification intermédiaire:  
Condensateurs fixes chipsets pour courant continu  
à diélectrique en film de sulfure de polyphénylène  
métallisé**

**Fixed capacitors for use in electronic equipment –**

**Part 20:  
Sectional specification:  
Fixed metallized polyphenylene sulfide film  
dielectric chip d.c. capacitors**

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Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

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● Pour prix, voir catalogue en vigueur  
For price, see current catalogue

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FIXED CAPACITORS FOR USE IN ELECTRONIC EQUIPMENT**  
**PART 20: SECTIONAL SPECIFICATION:**  
**FIXED METALLIZED POLYPHENYLENE SULFIDE FILM DIELECTRIC**  
**D.C. CHIP CAPACITORS**

## FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a world-wide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international cooperation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters, prepared by technical committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus on the subjects dealt with.
- 3) They have the form of recommendations for international use published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and their corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 384-20 has been prepared by IEC technical committee 40: Capacitors and Resistors for Electronic Equipment.

This standard is intended for use in the IEC Quality Assessment System for Electronic Components (IECQ).

The operation of the IECQ is governed by IEC QC 001001 and IEC QC 001002. Specifications written for the components assessed under this scheme, and their use in the scheme, are the subject of IEC Guide 102.

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

DIS	Report on Voting
40/782/FDIS	40/821/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.

The QC number that appears on the front cover of this publication is the specification number in the IECQ System.

**FIXED CAPACITORS FOR USE IN ELECTRONIC EQUIPMENT**  
**PART 20: SECTIONAL SPECIFICATION:**  
**FIXED METALLIZED POLYPHENYLENE SULFIDE FILM DIELECTRIC CHIP**  
**D.C. CAPACITORS**

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**SECTION ONE - GENERAL**

**1. General**

**1.1 Scope**

This standard is applicable to fixed chip capacitors for direct current, with metallized electrodes and polyphenylene sulfide dielectric for use in electronic equipment. These capacitors have metallized connecting pads or soldering strips and are intended to be mounted directly onto substrates for hybrid circuits or onto printed boards. 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.

Capacitors for radio interference suppression are not included, but are covered by IEC 384-14.

**1.2 Object**

The object of this standard is to prescribe preferred ratings and characteristics and to select from IEC 384-1 (1982), 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.

**1.3 Normative references**

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

For the tests in the IEC 68 series of publication, the editions referenced in the applicable test clauses of the generic specification shall be used.

IEC 62 (1992):                    Marking codes for resistors and capacitors.

IEC 63 (1963):	Preferred number series for resistors and capacitors. Amendment No. 1 (1967) Amendment No. 2 (1977)
IEC 68:	Environmental Testing.
IEC 384-1 (1982):	Fixed Capacitors for Use in Electronic Equipment. Part 1: Generic Specification. Amendment No. 2 (1987) Amendment No. 3 (1989) Amendment No. 4 (1992)
IEC 410 (1973):	Sampling Plans and Procedures for Inspection by Attributes.
IEC QC 001001 (1986):	Basic Rules of the IEC Quality Assessment System for Electronic Components (IECQ). Amendment No. 1 (1992)
IEC QC 001002 (1986):	Rules of Procedure of the IEC Quality Assessment System for Electronic Components (IECQ). Amendment No. 1 (1992)
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 listed in Subclause 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, 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) is 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.

#### 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 4.1.

#### 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:

##### 1.4.3.1 **Rated capacitance range**

See 2.2.1.

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 IEC QC 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.

##### 1.4.4 **Marking**

The detail specification shall specify the content of the marking on the capacitor and on the package. Deviations from 1.6 shall be specifically stated.

#### 1.5 **Terminology**

In addition to the applicable terms and definitions of IEC 384-1 the following definitions apply: