

Harmonized system of quality assessment for electronic components: Sectional specification: Fixed capacitors of ceramic dielectric, class 2

Committees responsible for this British Standard

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- British Telecommunications plc
- EEA (The Association of the Electronics, Telecommunications and Business Equipment Industries)
- Electronic Components Industry Federation
- Ministry of Defence
- National Supervising Inspectorate
- Society of British Aerospace Companies Limited
- Telecommunication Engineering and Manufacturing Association

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National foreword

This British Standard has been prepared under the direction of the Electronic Components Standards Policy Committee. It is identical with CENELEC Electronic Components Committee (CECC) 30700:1989 “*Harmonized system of quality assessment for electronic components. Sectional specification: Fixed capacitors of ceramic dielectric, Class 2*”, including Amendment 2 (1991).

This standard is a harmonized specification within the CECC system.

It supersedes BS CECC 30700:1980, which is withdrawn. It should be noted that the withdrawal of BS CECC 30700:1980 does not affect the validity of approvals which make reference to that standard.

Cross-references. The British Standard which implements the CECC system is BS 9000 “*General requirements for a system for electronic components of assessed quality*” Part 2:1991 “*Specification for the national implementation of the CECC system*”.

International Standard	Corresponding British Standard
ISO 3:1973	BS 2045:1965 <i>Preferred numbers</i> (Technically equivalent)
IEC 62:1974	BS 1852:1975 <i>Specification for marking codes for resistors and capacitors</i> (Identical)
IEC 63:1963	BS 2488:1966 <i>Schedule of preferred numbers for the resistance of resistors and the capacitance of capacitors for telecommunication equipment</i> (Technically equivalent)
	BS 2011 <i>Environmental testing</i>
*IEC 68-1:1982	*Part 1.1:1983 <i>General and guidance</i> (Identical)
IEC 384-9:1988	^a BS QC 300700 <i>Sectional specification: Fixed capacitors of ceramic dielectric, class 2</i> (Identical)
	BS 6001 <i>Sampling procedures for inspection by attributes</i>
IEC 410:1973	Part 1:1972 <i>Specification for sampling plans indexed by acceptable quality level (AQL) for lot-by-lot inspection</i> (Technically equivalent)
CECC 30000:1983	BS CECC 30000:1984 <i>Harmonized system of quality assessment for electronic components. Generic specification: Fixed capacitors</i> (Identical)

NOTE The publications marked with an asterisk have been withdrawn. They have been superseded as follows:

IEC 68-1:1988	BS 2011-1.1:1989 (Identical)
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^a In preparation.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the CECC title page, pages ii to iv, pages 1 to 26, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Förderverein für Elektrotechnische Normung (FEN) e. V.
Cenelec Electronic Components Committee

CECC

Système Harmonisé d'Assurance de la Qualité
des Composants Electroniques

SPECIFICATION INTERMEDIAIRE:
**CONDENSATEURS FIXES A
DIELECTRIQUE EN CERAMIQUE,
CLASSE 2**

Harmonized System of Quality Assessment for
Electronic Components

SECTIONAL SPECIFICATION:
**FIXED CAPACITORS OF
CERAMIC DIELECTRIC,
CLASS 2**

Harmonisiertes Gütebestätigungssystem für
Bauelemente der Elektronik

RAHMENSPEZIFIKATION:
**FESTKONDENSATOREN MIT
KERAMISCHEM DIELEKTRIKUM,
KLASSE 2**



2 Edition
Issue
Ausgabe

CECC 30 700

1989

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Foreword

The CENELEC Electronic Components Committee (CECC) is composed of those member countries of the European Committee for Electrotechnical Standardization (CENELEC) who wish to take part in a harmonized System for electronic components of assessed quality.

The object of the System is to facilitate international trade by the harmonization of the specifications and quality assessment procedures for electronic components, and by the grant of an internationally recognized Mark, or Certificate, of Conformity. The components produced under the System are thereby acceptable in all member countries without further testing.

This specification has been formally approved by the CECC, and has been prepared for those countries taking part in the System who wish to issue national harmonized specifications for FIXED CAPACITORS OF CERAMIC DIELECTRIC, CLASS 2. It should be read in conjunction with the current regulations for the CECC System.

At the date of printing of this specification the member countries of the CECC are Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom, and copies of it can be obtained from the addresses shown on the blue fly-sheet.

Preface

This sectional specification was prepared by CECC WG 3: "Capacitors", and it is an editorially revised version of CECC 30700 Issue 1.

It is based, wherever possible, on the Publications of the International Electrotechnical Commission and in particular on IEC 384-9: Part 9: Sectional specification: Fixed capacitors of ceramic dielectric, Class 2. Selection of methods of test and general requirements.

The text of this sectional specification was circulated to the CECC for voting in the documents listed below and was ratified by the President of the CECC for printing as a CECC Specification.

Document	Voting Date	Report on the Voting
CECC(Secretariat)2096	September 1987	CECC(Secretariat)2203

This second issue of CECC 30700 shall become effective for all new qualification approvals on 15 December 1989. Issue 1 will continue to remain effective to cover all past approvals.

Section 1. General

1.1 Scope

This specification applies to fixed capacitors of ceramic dielectric with a high permittivity (dielectric Class 2), intended for use in electronic equipment, including leadless capacitors but excluding multilayer ceramic chip capacitors.

It prescribes preferred ratings and characteristics and selects from CECC 30000 the appropriate quality assessment procedures, tests and measuring methods and gives 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, because lower performance levels are not permitted.

1.2 Related documents

ISO 3	(1973)	<i>Preferred numbers — Series of preferred numbers</i>
IEC 62	(1974)	<i>Marking codes for resistors and capacitors</i>
IEC 63	(1963)	<i>Preferred number series for resistors and capacitors</i>
Amendment No. 1	(1967)	
Amendment No. 2	(1977)	
IEC 68		<i>Basic environmental testing procedures</i>
CECC 30000 Issue 3	(1983)	<i>Generic specification:</i>
Amendment 1 to 6		<i>Fixed capacitors</i>
IEC 410	(1973)	<i>Sampling plans and procedures for inspection by attributes</i>

NOTE The above references apply to the current editions except for IEC 68.

1.3 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 **1.3.1** 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.

1.3.1 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 are preferably to be stated in mm.

Normally the numerical values shall be given for the length, 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.

1.3.2 Mounting

The detail specification shall specify the method of mounting to be applied for the application of the vibration and the bump or shock tests. 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.

NOTE If recommendations for mounting for “normal” use are made, they shall be included in the detail specification under “1.8 Additional information (Not for inspection purposes)”. If they are included a warning can be given that the full vibration, bump and shock performance may not be available if mounting methods other than those specified in sub-clause **1.1** of the detail specification are used.

1.3.3 Ratings and characteristics

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

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 values available in each voltage rang is given in the Qualified Products List".

2) Particular characteristics

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

3) Soldering

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

1.3.4 Marking

The detail specification shall specify the content of the marking on the capacitor and on the package. Deviations from 1.5 shall be specifically stated.

1.4 Terminology

In addition to the applicable terms and definitions of CECC 30000 the following definitions apply:

1.4.1

fixed capacitors of ceramic dielectric, Class 2

a capacitor which has a dielectric with a high permittivity and is suitable for by-pass and coupling applications or for frequency discriminating circuits where low losses and high stability of capacitance are not of major importance. The ceramic dielectric is characterized by the non linear change of capacitance over the category temperature range (see Table 2 in 2.2.5)

1.4.2

sub-class

the sub-class is defined by the maximum percentage change of capacitance within the category temperature range with respect to the capacitance at 20 °C

the sub-class may be expressed in code form (see Table 2 in 2.2.5)

1.4.3

rated voltage (U_R)

the rated voltage is the maximum d.c. voltage which may be applied continuously to the terminations of a capacitor at the rated temperature

NOTE The sum of the d.c. voltage and the peak a.c. voltage applied to the capacitor shall not exceed the rated voltage. The value of the peak alternating voltage shall not exceed the value determined by the permissible reactive power.

1.5 Marking

See 2.4 of CECC 30000 with the following details:

1.5.1 The information given in the marking is normally selected from the following list; the relative importance of each item is indicated by its position in the list:

- a) rated capacitance;
- b) rated voltage¹⁾ (d.c. voltage may be indicated by the symbol — or —);
- c) tolerance on rated capacitance;
- d) the dielectric sub-class, see Table 2 in 2.2.5¹⁾;
- e) year and month (or week) of manufacture;
- f) manufacturer's name or trade mark;

¹⁾ Information required under 1.5.1 b) and 1.5.1 d) may be given in code form under manufacturer's, or national, type or style designation.

- g) climatic category;
- h) manufacturer's type designation;
- i) reference to the detail specification.
- j) CECC mark

1.5.2 If the rated capacitance, capacitance tolerance and date of manufacture are expressed in code form, this must be according to IEC 62.

1.5.3 The capacitor shall be clearly marked with a), b) and c) above and with as many as possible of the remaining items as is considered necessary. Any duplication of information in the marking on the capacitor should be avoided.

1.5.4 The package containing the capacitor(s) shall be clearly marked with all the information listed in Sub-clause **1.5.1**.

1.5.5 Any additional marking shall be so applied that no confusion can arise.