

**Harmonized system of quality
assessment for electronic components**

Sectional specification: Tantalum surface mounting capacitors

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Electronic Components Standards Policy Committee (ECL/-) to Technical Committee ECL/4, upon which the following bodies were represented:

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

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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 CECC 30800:1990 “*Sectional specification: Tantalum surface mounting capacitors*” 2nd edition, published by the European Committee for Electrotechnical Standardization (CENELEC) Electronic Components Committee (CECC). It is a harmonized specification in the CECC System for Electronic Components of Assessed Quality. It was prepared by CECC Working Group 3 “Capacitors”, and the United Kingdom participation in the drafting was provided by Technical Committee ECL/4 “Capacitors and resistors for electronic equipment”.

Cross-references

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)
IEC 68-1:1988	BS 2011 <i>Environmental testing</i> Part 1.1:1989 <i>General and guidance</i> (Identical)
IEC 62-2-20:1979	Part 2.1T:1981 <i>Test T. Soldering</i> (Identical)
IEC 68-2-45:1980	Part 2.1XA:1981 <i>Test XA and guidance. Immersion in cleaning solvents</i> (Identical)
IEC 410:1973	BS 6001 <i>Sampling procedures for inspection by attributes</i> Part 1:1991 <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)

The Technical Committee has reviewed the provisions of CECC 00200 to which reference is made in the text and has decided that they are acceptable for use in conjunction with this standard.

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.

Système Harmonisé d'Assurance de la Qualité
des Composants Electroniques

SPECIFICATION INTERMEDIAIRE:

CONDENSATEURS FIXES CHIPSES AU TANTALE MONTES EN SURFACE

Harmonized System of Quality Assessment for
Electronic Components

SECTIONAL SPECIFICATION:

TANTALUM SURFACE MOUNTING CAPACITORS

Harmonisiertes Gütebestätigungssystem für
Bauelemente der Elektronik

RAHMENSPEZIFIKATION:

OBERFLÄCHENMONTIERBARE TANTALKONDENSATOREN



2 Edition
Issue
Ausgabe

CECC 30 800

1990

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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

Tantalum surface mounting capacitors.

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 specification was prepared by CECC WG 3: “*Capacitors*”. It is a revised version of CECC 30800 (1977).

It is based, wherever possible, on the Publications of the International Electrotechnical Commission, and in particular on IEC 384-3: Sectional specification: Fixed tantalum chip capacitors (Second edition) 1989.

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

<u>Dokument</u>	<u>Date of voting</u>	<u>Report on the Voting</u>
CECC (Secretariat) 2276	September 1988	CECC (Secretariat) 2394

Effective Date:

This issue 2 of CECC 30800 shall become effective for all new qualification approvals from 1 October 1990 Issue 1 shall remain valid for existing qualification approvals until further notice.

Section 1. General

1.1 Scope

This specification applies to tantalum solid electrolyte surface mounting capacitors. These capacitors are primarily intended to be mounted directly onto substrates for hybrid circuits or onto printed boards.

Two styles are considered: Style I: protected capacitors

Style II: unprotected capacitors.

This specification 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	(1983)	<i>Generic Specification:</i>
Issue 3, Amendments 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: the Generic Specification specifies in each test section the relevant edition to be used.

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 to be stated in mm.

Normally the numerical values shall be given for the length, the width and height of the body. When necessary, for example when a number of case sizes 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.

1.3.2 Mounting

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

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 **2.2.1**.

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 the Qualified Products List (QPL), CECC 00200."

2) Particular characteristics

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

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 of this sectional specification 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

surface mounting capacitor

a capacitor whose small dimensions and nature or shape of terminations make it suitable for surface mounting in hybrid circuits and on printed boards

1.4.2

rated voltage (U_R)

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

NOTE 1 The sum of the d.c. voltage and the peak a.c. voltage applied to the capacitor shall not exceed the rated voltage.

NOTE 2 For short periods, however, the rated voltage may be exceeded (see 2.2.5 and 4.14).

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:

- 1) Polarity of the terminations (unless identified by the construction)
- 2) Rated capacitance
- 3) Rated voltage (d.c. voltage may be indicated by the symbol ——— or ———)

- 4) Tolerance on rated capacitance
- 5) Style (in accordance with 1.1)
- 6) Year and month (or week) of manufacture
- 7) Manufacturer's name or trade mark
- 8) Climatic category
- 9) Manufacturer's type designation
- 10) Reference to the detail specification.

1.5.2 Surface Mounting capacitors are generally not marked on the body. If some marking can be applied, they shall be clearly marked with as many as possible of the above items as is considered useful.

Designation of polarity is a mandatory item. Any duplication of information in the marking on the capacitor should be avoided.

1.5.3 Any marking shall be legible and not easily smeared or removed by rubbing with the finger.

1.5.4 The package containing the capacitor(s) shall be marked with all the information listed in 1.5.1, except polarity, unless this is applicable to the method of packaging.

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

Section 2. Preferred ratings and characteristics

2.1 Preferred climatic categories

The capacitors covered by this specification are classified into climatic categories according to the general rules given in IEC 68-1.

The lower and upper category temperature and the duration of the damp heat, steady state test shall be chosen from the following:

Lower category temperature: $-55\text{ }^{\circ}\text{C}$

Upper category temperature: $+85\text{ }^{\circ}\text{C}$ and $+125\text{ }^{\circ}\text{C}$

Duration of the damp heat, steady state test: Style I: 21 and 56 days

Style II: ---.

The severities for the cold and dry heat tests are the lower and the upper category temperatures respectively.

2.2 Preferred values of ratings

2.2.1 Rated capacitance (C_R)

Preferred values of rated capacitance are 1 – 1,5 – 2,2 – 3,3 – 4,7 – 6,8 and their decimal multiples.

These values conform to the E6 series of preferred values given in IEC 63: Preferred number series for resistors and capacitors.

2.2.2 Tolerances on rated capacitance

Preferred tolerances on rated capacitance are $\pm 10\%$ and $\pm 20\%$.

2.2.3 Rated voltage (U_R)

The preferred values of rated voltage taken from the R5 series of ISO standard 3 are 1,0 – 1,6 – 2,5 – 4,0 – 6,3 V and their decimal multiples.

If other values are required they shall preferably be chosen from the R 10 series.

2.2.4 Category voltage (U_C)

For capacitors having an upper category temperature of $125\text{ }^{\circ}\text{C}$ category voltages are given in the following table:

U_R (V)	2,5	4	6,3	10	16	25	40	63	100
U_C (V)	1,6	2,5	4	6,3	10	16	25	40	63

2.2.5 Surge voltage

The surge voltage shall be 1,3 times the rated voltage or 1,3 times the category voltage rounded off to the nearest volt.

2.2.6 Rated temperature

The standard value of rated temperature is $85\text{ }^{\circ}\text{C}$.