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British Standard

**Harmonized system of quality  
assessment for electronic components  
Sectional specification: Fixed polypropylene film  
dielectric metal foil d.c. capacitors**

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Système harmonisé d'assurance de la qualité des composants électroniques  
Spécification intermédiaire: Condensateurs fixes pour courant continu à diélectrique en film  
de polypropylène et à armatures en feuilles métalliques

Harmonisiertes Gütebestätigungssystem für Bauelemente der Elektronik  
Rahmenspezifikation: Gleichspannungs-Festkondensatoren mit einem Dielektrikum aus  
Polypropylen-Folien und Belägen aus dünnen Metallfolien (KP)

## National foreword

This British Standard has been prepared under the direction of the Electronic Components Standards Committee. It is identical with CENELEC Electronic Components Committee (CECC) 31800 : 1985 'Harmonized system of quality assessment for electronic components. Sectional specification: Fixed polypropylene film dielectric metal foil d.c. capacitors'.

This standard is a harmonized specification within the CECC system.

**Terminology and conventions.** The text of the CECC specification has been approved as suitable for publication as a British Standard without deviation. Some terminology and certain conventions are not identical with those used in British Standards; attention is drawn especially to the following.

The comma has been used as a decimal marker. In British Standards it is current practice to use a full point on the baseline as the decimal marker.

**Cross-references.** The British Standard which implements CECC 00100 is BS 9000 'General requirements for a system for electronic components of assessed quality' Part 2 : 1983 'Specification for national implementation of CECC basic rules and rules of procedure'.

| International standard | Corresponding British Standard                                                                                                                                                                                           |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CECC 30000 : 1983      | BS CECC 30000 : 1984 Harmonized system of quality assessment for electronic components: generic specification: fixed capacitors<br>(Identical)                                                                           |
| ISO 3-1973             | BS 2045 : 1965 Preferred numbers<br>(Technically equivalent)                                                                                                                                                             |
| IEC 62 : 1974          | BS 1852 : 1975 Specification for marking codes for resistors and capacitors<br>(Identical)                                                                                                                               |
| IEC 63 : 1963          | BS 2488 : 1966 Schedule of preferred numbers for the resistance of resistors and the capacitance of capacitors for telecommunication equipment<br>(Technically equivalent)                                               |
| IEC 68-1 : 1982        | BS 2011 Basic environmental testing procedures<br>Part 1.1 : 1983 General and guidance<br>(Identical)                                                                                                                    |
| IEC 384-14 : 1981      | BS 6201 Fixed capacitors for use in electronic equipment<br>Part 3 : 1982 Specification for fixed capacitors for radio interference suppression.<br>Selection of methods of test and general requirements<br>(Identical) |
| IEC 410 : 1973         | BS 6001 Sampling procedures for inspection by attributes<br>Part 1 : 1972 Specification for sampling plans indexed by acceptable quality level (AQL)<br>for lot-by-lot inspection<br>(Technically equivalent)            |

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

English version

Harmonized System of Quality Assessment for  
Electronic Components

## SECTIONAL SPECIFICATION:

FIXED POLYPROPYLENE FILM  
DIELECTRIC METAL FOIL D. C.  
CAPACITORS

Système Harmonisé d'Assurance de la Qualité  
des Composants Electroniques

## SPECIFICATION INTERMEDIAIRE:

CONDENSATEURS FIXES POUR COURANT  
CONTINU A DIELECTRIQUE EN FILM  
DE POLYPROPYLENE ET A ARMATURES  
EN FEUILLES METALLIQUES

Harmonisiertes Gütebestätigungssystem für  
Bauelemente der Elektronik

## RAHMENSPEZIFIKATION:

GLEICHSPANNUNGS-FESTKONDENSATOREN  
MIT EINEM DIELEKTRIKUM  
AUS POLYPROPYLEN-FOLIEN  
UND BELÄGEN AUS DÜNNEN  
METALLFOLIEN (KP)



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## CONTENTS

|                                                       | <u>Page</u> |
|-------------------------------------------------------|-------------|
| FOREWORD                                              | 2           |
| PREFACE                                               | 2           |
| Clause                                                |             |
| SECTION 1 - GENERAL                                   | 3           |
| 1.1 Scope                                             | 3           |
| 1.2 Related documents                                 | 3           |
| 1.3 Information to be given in a detail specification | 3           |
| 1.4 Terminology                                       | 5           |
| 1.5 Marking                                           | 6           |
| SECTION 2 - PREFERRED RATINGS AND CHARACTERISTICS     | 7           |
| 2.1 Preferred climatic categories                     | 7           |
| 2.2 Preferred values of ratings                       | 7           |
| SECTION 3 - QUALITY ASSURANCE PROCEDURES              | 9           |
| 3.1 Primary stage of manufacture                      | 9           |
| 3.2 Structurally similar components                   | 9           |
| 3.3 Certified test records                            | 9           |
| 3.4 Qualification approval                            | 9           |
| 3.5 Quality conformance inspection                    | 11          |
| SECTION 4 - TESTS AND MEASURING METHODS               | 15          |
| 4.1 Visual examination and check of dimensions        | 15          |
| 4.2 Electrical tests                                  | 15          |
| 4.3 Robustness of terminations                        | 19          |
| 4.4 Resistance to soldering heat                      | 19          |
| 4.5 Solderability                                     | 19          |
| 4.6 Rapid change of temperature                       | 19          |
| 4.7 Vibration                                         | 20          |
| 4.8 Bump                                              | 20          |
| 4.9 Shock                                             | 21          |
| 4.10 Climatic sequence                                | 21          |
| 4.11 Damp heat, steady state                          | 22          |
| 4.12 Endurance                                        | 23          |
| APPENDIX A : Test schedule for Qualification Approval | 24          |



## 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 accepted by 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 POLYPROPYLENE FILM DIELECTRIC METAL FOIL D.C. 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.

## PREFACE

This sectional specification was prepared by CECC Working Group 3: "Capacitors".

It is based, wherever possible, on the Publications of the International Electrotechnical Commission and in particular on IEC 384-13: Part 13: Sectional specification: Fixed polypropylene film dielectric metal foil capacitors for direct current.

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

| <u>Document</u>       | <u>Voting Date</u> | <u>Report on the Voting</u> |
|-----------------------|--------------------|-----------------------------|
| CECC(Secretariat)1559 | May 1984           | CECC(Secretariat)1692       |



## SECTION 1 - GENERAL

### 1.1 Scope

This specification applies to fixed capacitors for direct current, using as dielectric a polypropylene film and electrodes of thin metal foils. The capacitors covered by this specification are intended for use in electronic equipment.

It prescribes preferred ratings and characteristics and selects from the specification CECC 30 000 the appropriate quality assurance procedures, test and measuring methods and gives general performance requirements for this type of capacitor.

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

### 1.2 Related documents

|                      |        |                                                            |
|----------------------|--------|------------------------------------------------------------|
| ISO 3                | (1973) | Preferred numbers - Series of preferred numbers            |
| IEC 62               | (1974) | 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               |        | Basic environmental testing procedures                     |
| CECC 30 000, Issue 3 | (1983) | Generic specification: Fixed capacitors                    |
| IEC 410              | (1973) | Sampling plans and procedures for inspection by attributes |

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

### 1.3 Information to be given in a detail specification

The 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 1.3.1 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 shall preferably 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 of the body diameter, and the length and diameter of the terminations. When necessary, for example when a number of items (capacitance values/ voltages 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. 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 normal use and for the application of the vibration and the bump or shock tests. The capacitors shall be mounted by their normal means. 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.

#### 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 may have different ranges, the following statement should be added: "The range of values available in each voltage range 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.

1.3.4 Marking

The detail specification shall specify the content of the marking on the capacitor and on the package.

1.4 Terminology

In addition to the applicable terms and definitions of CECC 30 000 the following definitions apply:

1.4.1 Stability class

The stability class is defined by the tolerance on the temperature coefficient together with the permissible change of capacitance after defined tests. The stability class is stated in the detail specification. Table 1 in 2.2.4 shows the preferred stability classes.

1.4.2 Rated voltage

The rated voltage is the maximum d.c. voltage which may be applied continuously to 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 a.c. voltage shall not exceed the following percentages of the rated voltage at the frequencies stated and shall not be greater than 280 V:

|           |        |
|-----------|--------|
| 50 Hz     | : 20 % |
| 100 Hz    | : 15 % |
| 1 000 Hz  | : 3 %  |
| 10 000 Hz | : 1 %  |

unless otherwise specified in the detail specification.