

CECC



RESISTANCES FIXES DE PRECISION

FIXED PRECISION RESISTORS

PRÄZISIONS- FESTWIDERSTÄNDE

CECC 40301

AVA 1975 **Documents**
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Cette page bleue doit être insérée après la page de garde de la CECC 40 301 Edition 1 (1975)

MODIFICATION 1 A LA CECC 40 301 (Edition 1) :
SPECIFICATION PARTICULIERE CADRE:
RESISTANCES FIXES DE PRECISION

Supprimer les pages 4/5 de la CECC 40 301 Edition 1 et insérer les nouvelles pages 1a et 4/5 de la CECC 40 301 Edition 1 Modification 1.

Les modifications suivantes doivent être effectuées à la main:

PREFACE

Supprimer la "Note".

TABEAU 2

(page 6)

En sous-groupe C1, essai "4.15.2 Soudure - Résistance à la chaleur" colonne 3, modifier la référence du document CEI et lire "CEI 68-2-20" et en colonne 7, modifier "4.15.2.4" en "4.15.2.3".

This blue page shall be inserted after the title page of CECC 40 301 Issue 1 (1975)

AMENDMENT 1 TO CECC 40 301 (Issue 1) :
BLANK DETAIL SPECIFICATION :
FIXED PRECISION RESISTORS

Remove pages 4/5 of CECC 40 301 Issue 1 and insert new pages 1a and 4/5 of CECC 40 301 Issue 1 Amendment 1.

The following amendments shall be made in manuscript:

PREFACE

(page 1)

Delete the "Note".

TABLE 2

(page 6)

In Sub-Group C1, Test "4.15.2 Soldering - Resistance to heat", Column 3, amend the reference of the IEC document to read "IEC 68-2-20" and in Column 7, amend "4.15.2.4" to read "4.15.2.3".

Dieses blaue Blatt ist nach dem Titelblatt der CECC 40 301 Ausgabe 1 (1975) einzusetzen

ÄNDERUNG 1 ZU CECC 40 301 (Ausgabe 1) :
VORDRUCK FÜR BAUARTSPEZIFIKATIONEN:
PRÄZISIONSFESTWIDERSTÄNDE

Die Seiten 3/4 der CECC 40 301 Ausgabe 1 sind herauszunehmen und die neuen Seiten 1a und 3/4 der CECC 40 301 Ausgabe 1 Änderung 1 sind einzusetzen.

Folgende Änderungen sind handschriftlich vorzunehmen:

EINLEITUNG

(Seite 1)

Die "Anmerkung" ist zu streichen.

TABELLE 2

(Seite 5)

In Untergruppe B2, Prüfung "4.15.1 Löten - Lötbarkeit", Spalte 3, ist vor dem bestehenden Text einzusetzen "Verfahren ----" und in Spalte 6 ist der bestehende Text zu ersetzen durch "Wie in 4.15.1.2.2".

(Seite 6)

In Untergruppe C1, Prüfung "4.15.2 Löten - Lötwärmebeständigkeit", Spalte 3, ist der Verweis auf das IEC-Schriftstück zu ändern in "IEC 68-2-20" und in Spalte 7 ist "4.15.2.4" zu berichtigen in "4.15.2.3".

CECC 40 301 Edition 1 Modification 1 1986

CECC 40 301 Issue 1 Amendment 1 1986

CECC 40 301 Ausgabe 1 Änderung 1 1986

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 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 document has been formally approved by the CECC and has been prepared for those member countries taking part in the System who wish to prepare and issue detail specifications for FIXED PRECISION RESISTORS. It should be read in conjunction with document CECC 00 100: Basic Rules (1974).

At the date of printing of this document the member countries of the CECC are Belgium, Denmark, Germany, France, Ireland, Italy, Netherlands, Norway, Sweden, Switzerland and the United Kingdom, and copies of it can be obtained from the National Committees of the CENELEC in these countries.

PREFACE

This blank detail specification was prepared by CECC Working Group 4 : "RESISTORS".

It is one of a series of blank detail specifications for fixed precision resistors, all relating to the generic specification printed as CECC 40 000 and the sectional specification printed as CECC 40 300.

The text of this specification has been prepared from the information contained in CECC 40 000 and CECC 40 300. It was circulated to the CECC for voting in the documents listed below and was formally approved by the CECC for publication as a CECC Specification on 7 November 1973:

<u>Document</u>	<u>Voting date</u>
CECC(Secretariat) 60	10 January 1972
CECC(Secretariat) 83	30 June 1972
CECC(Secretariat) 127	10 May 1973





Amendment 1 to Issue 1 of this blank detail specification results from amendments to the generic specification CECC 40 000 and to the sectional specification CECC 40 300. They were circulated to the CECC for voting in the documents listed below and were approved by the President of the CECC for publication:

<u>Voting document</u>	<u>Date of voting</u>	<u>Report on the voting</u>
CECC(Secretariat)340	June 1975	CECC(Secretariat)402
CECC(Secretariat)1447	March 1984	CECC(Secretariat)1611

IMPLEMENTATION

This amendment shall become effective for all new qualification approvals on 1 May 1986. It shall become effective for all other qualification approvals by 1 May 1987.

The numbers between square brackets on the first page correspond to the following indications which should be given :

Identification of the harmonized detail specification

- [1] The name of National Standards Organization under whose authority the detail specification is drafted.
- [2] The CECC number of the relevant blank detail specification.
- [3] The number and issue number of the national generic specification.
- [4] The national number of the detail specification, date of issue and any further information required by the national system.

Identification of the resistor

- [5] A short description of the type of resistor.
- [6] Information on typical construction (where applicable) e.g. wirewound insulated.
- [7] Outline drawing with main dimensions which are of importance for interchangeability and/or reference to the national or international documents for outlines. Alternatively, this drawing may be given in an appendix to the detail specification.
- [8] Application or group of applications covered.
- [9] Reference data on the most important properties, to allow comparison between the various resistor types.

[1] Specification available from:-	[2] CECC 40 301 
[3] ELECTRONIC COMPONENT OF ASSESSED QUALITY IN ACCORDANCE WITH :-	[4]
[7] Outline and dimensions:- (See Table 1) (First angle projection)	[5] FIXED PRECISION RESISTORS [6] [8]

Note 1 : Other shapes are permitted within the dimensions given. [9]

Note 2 : These resistors are (not) suitable for printed wiring applications.

TABLE 1

Style	Rated dissipation (W at 70°C)	Limiting element voltage (V d.c. or a.c. peak)	Isolation voltage (V d.c. or a.c. peak)	Maximum dimensions		d		
				L	D	min	nom	max

All dimensions are in millimetres.

1. RATINGS AND CHARACTERISTICS

- *Resistance range Ω to Ω
- Standard selection tolerances $\pm \dots \%$
- Climatic category -/-/-
- Vibration severity $\dots$ Hz to $\dots$ Hz; 0,75 mm or 98 m/s²
 (whichever is the less severe)
- Low air pressure 8,5 kN/m² (85 mbar)
- *The preferred values are those of the E-series of IEC 63. Where the use of intermediate values is essential, they should, wherever possible, be chosen from a series in that document.

See the relevant Qualified Parts List for the availability of components qualified to this detail specification.

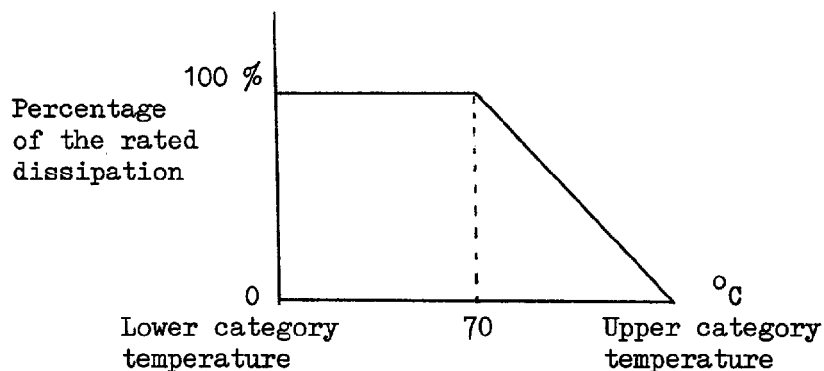


Limit of resistance change
after 1 000 h endurance test $\pm (\% + \Omega)$

Temperature characteristic of
resistance (20 to 70°C) $\Delta R/R: \leq \pm \dots \% \quad (\Delta R/R\Delta T: \leq \dots \text{ppm}/^{\circ}\text{C})$

1.1 Derating

Resistors covered by this specification are derated according to the curve :



2. MARKING

The marking of the component and package shall be in accordance with the requirements of 2.4 of CECC 40 000.

3. RELATED DOCUMENTS

National Authorized Institutions will complete this section, making reference to any documents, recommendations or specifications directly referred to in their national equivalent of this document.

4. ORDERING INFORMATION

Orders for resistors covered by this specification shall contain the following information:

- Resistance value
- Tolerance
- Style and national specification number of this detail specification.

5. CERTIFIED TEST RECORDS

National Authorized Institutions shall indicate in this clause whether certified test records shall be prepared in accordance with 3.5 of CECC 40 000.

6. INSPECTION REQUIREMENTS (See Table 2)

6.1 When drying is called for, Procedure I of 4.2 of CECC 40 000 shall be used.

6.2 When the manufacturer desires to obtain qualification approval by adopting the fixed sample size procedure (see 3.3.3 of CECC 40 000) use shall be made of the test schedule given in Appendix A to CECC 40 300. The conditions of test and the performance requirements shall be identical to those prescribed for quality conformance inspection in the detail specification.

TABLE 2

1

Clause Number and Test (See Note 1)	D or ND	Conditions of test	I L (See Note 2)	A Q L	Performance requirements (See Note 1)								
GROUP A INSPECTION													
To be conducted on a sampling basis, lot-by-lot													
Sub-Group A1 4.3.1 Visual examination 4.3.2 Marking	ND		S-4	1,0%	As in 4.3.1 As in 4.3.2								
Sub-Group A2 4.3.3 Dimensions (gauging) 4.4 Resistance	ND	See CECC 40 000 Appendix D3.1	S-4	1,0%	As specified in the detail specification. As in 4.4.2								
GROUP B INSPECTION													
To be conducted on a sampling basis, lot-by-lot													
Sub-Group B1 4.6 Voltage proof	ND	Insulated resistors only	S-3	1,0%	As in 4.6.3								
Sub-Group B2 4.15.1 Soldering - Solderability 4.11 Overload	D	Method ---- (The detail specification shall indicate whether the terminations are suitable for printed wiring) <table><tr><th>Test duration</th><th>Rated dissipation</th></tr><tr><td>1 s</td><td>0,063 W</td></tr><tr><td>5 s</td><td>0,125 to 0,75 W</td></tr><tr><td>15 s</td><td>1 to 2 W</td></tr></table> Voltage: The applied voltage shall be 2,5 times the rated voltage or twice the limiting element voltage, whichever is the less. Visual examination Resistance	Test duration	Rated dissipation	1 s	0,063 W	5 s	0,125 to 0,75 W	15 s	1 to 2 W	S-3	2,5%	As in 4.15.1.2.2 As in 4.11.3 $\Delta R/R : \leq \dots \%$
Test duration	Rated dissipation												
1 s	0,063 W												
5 s	0,125 to 0,75 W												
15 s	1 to 2 W												
Sub-Group B3 4.7 Temperature characteristic of resistance	ND	One cycle of 20°C to 70°C to 20°C only.	S-3	2,5%	$\Delta R/R : \leq \dots \%$								

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Clause Number and Test (See Note 1)	D or ND	Conditions of test	Sample size & criterion of acceptability (See Note 3)			Performance requirements (See Note 1)						
			P	n	c							
4.20 Climatic sequence - Dry heat, - Damp heat, cyclic, first cycle - Cold - Low air pressure - Damp heat, cyclic, remaining cycles - Final measurements		<u>All of the sample</u> 8,5 kN/m ² (85 mbar) Visual examination Resistance Insulation resistance (insulated resistors only)				As in 4.20.8 $\Delta R/R : \leq \dots \%$ $R : \geq \dots M \Omega$ or $G \Omega$						
<u>Sub-Group C2</u> 4.24.1 Endurance at 70°C	D	Duration : 1000 h Examination at 48, 168, 500 and 1000 h. Visual examination Resistance Examination at 1000 h Insulation resistance (insulated resistors only)	3	20	1	As in 4.24.1.7 $\Delta R/R : \leq \dots \%$ $R : \geq \dots M \Omega$ or $G \Omega$						
<u>Sub-Group C3</u> 4.7 Temperature characteristic or resistance	ND		3	20	1	<table><tr><td>LCT/20</td><td>20/UCT</td></tr><tr><td colspan="2">$\Delta R/R : \leq$</td></tr><tr><td>... %</td><td>... %</td></tr></table>	LCT/20	20/UCT	$\Delta R/R : \leq$		... %	... %
LCT/20	20/UCT											
$\Delta R/R : \leq$												
... %	... %											

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Clause Number and Test (See Note 1)	D or ND	Conditions of test	Sample size & criterion of acceptability (See Note 3)			Performance requirements (See Note 1)
			P	n	c	
GROUP D INSPECTION						
To be conducted on a sampling basis at the periodicity given in column "P"						
<u>Sub-Group D1</u>	D		12	20	1	
4.21 Damp heat, steady state		Visual examination Resistance Insulation resistance. (insulated resistors only)				As in 4.21.4 $\Delta R/R : \leq \dots \%$ $R : \geq \dots M \Omega$ or $G \Omega$
<u>Sub-Group D2</u>	D		36	20	1	
4.3.4 Dimensions (detail)						As specified in the detail specification
4.24.3 Endurance at upper category temperature		Duration : 1000 h Examination at 168, 500 and 1000 h. Visual examination Resistance Examination at 1000 h Insulation resistance (insulated resistors only)				As in 4.24.3.7 $\Delta R/R : \leq \dots \%$ $R : \geq \dots M \Omega$ or $G \Omega$
<u>Sub-Group D3</u>	D		36	20	1	
4.24 Endurance at other temperatures (where applicable)		This sub-group is only applicable if a derating curve other than that shown in 2.4 of CECC 40 300, is claimed in the detail specification. Duration : 1000 h Examination at 48, 168, 500 and 1000 h. Visual examination Resistance Examination at 1000 h Insulation resistance (insulated resistors only)				As in 4.24.1.7 $\Delta R/R : \leq \dots \%$ (As for Sub-Group C2) $R : \geq \dots M \Omega$ or $G \Omega$

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NOTE 1 : Clause numbers of tests and performance requirements refer to CECC 40 000.

NOTE 2 : Inspection Levels and AQL's are selected from IEC 410.

NOTE 3 : In this table :

p	=	periodicity (in months)
n	=	sample size
c	=	acceptance criterion (permitted number of defectives)
D	=	destructive
ND	=	non-destructive
LCT	=	Lower category temperature
UCT	=	Upper category temperature

NOTE 4 : Resistors shall be mounted by their normal means. Where this is by axial wire terminations, the distance between the resistor body and the mounting point on the termination shall be 6 ± 1 mm.

The design of a resistor 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 performance of bump, shock and vibration tests.