

European Committee for Electrotechnical Standardization (CENELEC)
Cenelec Electronic Components Committee

CECC

Système Harmonisé d'Assurance de la Qualité
des Composants Electroniques

SPECIFICATION PARTICULIERE:

RESISTANCES FIXES NON-BOBINEES A FAIBLE DISSIPATION

STABILITE 2%

Harmonized System of Quality Assessment for
Electronic Components

DETAIL SPECIFICATION:

FIXED LOW POWER NON-WIREWOUND RESISTORS

STABILITY 2%

Harmonisiertes Gütebestätigungssystem für
Bauelemente der Elektronik

BAUARTSPEZIFIKATION:

NICHTDRAHTGEWICKELTE FESTWIDERSTÄNDE KLEINER BELASTBARKEIT

STABILITÄT 2%



1

Edition
Issue
Ausgabe

CECC 40101-802

1979

AVA Documents
Document Sharing Hub

Cette page bleue doit être insérée après la page de garde de la CECC 40 101-802 Edition 1 (1979)

MODIFICATION 1 A LA CECC 40 101-802 (Edition 1) :

SPECIFICATION PARTICULIERE :

RESISTANCES FIXES NON-SOLDAIRES A FAIBLE DISSIPATION
Stabilité 2 %

Supprimer la page 1 de la CECC 40 101-802 Edition 1 et insérer la nouvelle page 1 de la CECC 40 101-802 Edition 1 Modification 1.

Les modifications suivantes doivent être effectuées à la main:

TABEAU 2

(page 6)

En sous-groupe B2, essai "4.15.1 Soudure - Soudabilité", colonne 2, insérer avant le texte existant: "Méthode 1" et en colonne 5, supprimer le texte existant et insérer "Comme en 4.15.1.2.2".

(page 7)

En sous-groupe C1, essai "4.15.2 Soudure - Résistance à la chaleur", colonne 2, remplacer "Méthode 1A CEI 68-2-20A" par: "Comme en 4.15.2.2(a) Durée (10 ± 1) s" 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 40 101-802 Issue 1 (1979)

AMENDMENT 1 TO CECC 40 101-802 (Issue 1) :

DETAIL SPECIFICATION :

FIXED LOW POWER NON-WIREWOUND RESISTORS
Stability 2 %

Remove page 1 of CECC 40 101-802 Issue 1 and insert new page 1 of CECC 40 101-802 Issue 1 Amendment 1.

The following amendments shall be made in manuscript:

TABLE 2

(page 6)

In Sub-Group B2, Test "4.15.1 Soldering - Solderability", Column 2, insert before the existing text "Method 1" and in Column 5 delete the existing text and insert "As in 4.15.1.2.2".

(page 7)

In Sub-Group C1, Test "4.15.2 Soldering - Resistance to heat", Column 2, replace "Method 1A IEC 68-2-20A" by "As in 4.15.2.2(a) Duration (10 ± 1) s" and in Column 7 amend "4.15.2.4" to read "4.15.2.3".

Dieses blaue Blatt ist nach dem Titelblatt der CECC 40 101-802 Ausgabe 1 (1979) einzusetzen

ÄNDERUNG 1 ZU CECC 40 101-802 (Ausgabe 1) :

BAUARTSPEZIFIKATION:

NICHTDRAHTGEWICKELTE FESTWIDERSTÄNDE
KLEINER BELASTBARKEIT
Stabilität 2 %

Seite 1 der CECC 40 101-802 Ausgabe 1 ist herauszunehmen und die neue Seite 1 der CECC 40 101-802 Ausgabe 1 Änderung 1 ist einzusetzen.

Folgende Änderungen sind handschriftlich vorzunehmen:

TABELLE 2

(Seite 6)

In Untergruppe B2, Prüfung "4.15.1 Löten - Lötbarkeit", Spalte 2, ist vor dem bestehenden Text einzusetzen "Methode 1" und in Spalte 5 ist der bestehende Text zu ersetzen durch "Wie in 4.15.1.2.2".

(Seite 7)

In Untergruppe C1, Prüfung "4.15.2 Löten - Lötwärmebeständigkeit", Spalte 2, ist "Methode 1A IEC 68-2-20A" zu ersetzen durch "Wie in 4.15.2.2(a) Dauer (10 ± 1) s" und in Spalte 7 ist "4.15.2.4" zu berichtigen in "4.15.2.3".

CECC 40 101-802 Edition 1 Modification 1 1986

CECC 40 101-802 Issue 1 Amendment 1 1986

CECC 40 101-802 Ausgabe 1 Änderung 1 1986

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PREFACE

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

It is one of a series of detail specifications for fixed low power non-wirewound resistors, all relating to the generic specification printed as CECC 40 000, the sectional specification printed as CECC 40 100 and the blank detail specification printed as CECC 40 101.

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

Document**Voting date**

CECC(Secretariat)359
CECC(Secretariat)642

11 August 1975
26 November 1977

Amendment 1 of this detail specification results from amendments to the generic specification CECC 40 000. They were circulated to the CECC for voting in the document indicated below and was approved by the President of the CECC for publication:

Voting document

CECC(Secretariat)1447

Date of voting

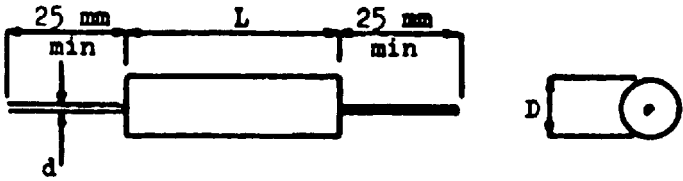
March 1984

Report on the voting

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.

Copies of this specification can be obtained from: CECC General Secretariat Stresemannallee 21 D-6000 FRANKFURT/MAIN 70 or from the addressees shown on the inside cover.	CECC 40 101-802 1979 
ELECTRONIC COMPONENTS OF ASSESSED QUALITY - DETAIL SPECIFICATION IN ACCORDANCE WITH CECC 40 000 AND 40 100	Issue 1
 Outline and dimensions data (see Table 1)	FIXED LOW POWER NON-WIREWOUND INSULATED RESISTORS
	AXIAL WIRE TERMINATIONS TYPICAL CONSTRUCTION : (See 1) 2 % STABILITY

For ordering information, see 4.

NOTE 1 : Other shapes are permitted within the dimensions given.

NOTE 2 : These resistors are suitable for printed wiring applications.

1. RATINGS AND CHARACTERISTICS

*Resistance range	The range of values available in each style shall be given in the Qualified Products List (CECC 00 200).
Standard tolerances	$\pm 1\%$; $\pm 2\%$; $\pm 5\%$;
Climatic category	55/125/56
Vibration severity	10 Hz to 500 Hz; 0,75 mm or 98 m/s ² (whichever is the less severe)
Low air pressure	8,5 kPa (85 mbar)
Limit of resistance change after 1 000 h endurance test	$\pm (2\%R + 0,1 \Omega)$

*The preferred values are those of the E24 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 Products List for availability of components made to this detail specification.

TABLE I

Style (See Note 1)	Rated dissipation at 70 °C (W)	Category dissipation at 125 °C (W)	Limiting element voltage (V d.c. or a.c. r.m.s.)	Isolation voltage (V d.c. or a.c. peak)	Dimensions (mm) (See Note 2)									
					L		D	d preferred			d permissible			
								min	max	min	nom.	max	min	nom.
					min	max	min	max	min	max	min	nom.	max	min
A*	0,125	0,045	200	280	3,3	4,7	1,2	1,8	0,45	0,5	0,55	0,35	0,4	0,44
B*	0,25	0,090	250	350	5,2	7,2	2,1	2,5	0,55	0,6	0,66	-	-	-
C*	0,5	0,180	350	500	7,9	11,1	2,5	4,1	0,55	0,6	0,66	0,75	0,8	0,88

NOTE 1 : Asterisk to be replaced by the letter appropriate to the temperature characteristic (See 'Ratings and characteristics'). The style reference code shown here is arbitrarily chosen and relates to this detail specification only.

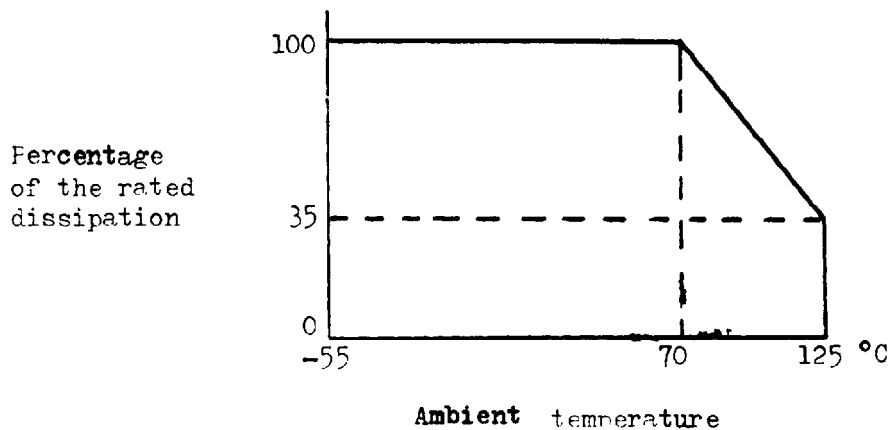
NOTE 2 : The Qualified Products List shall show whether the preferred or permissible dimensions have been used in approving the component and if the permissible dimensions have been used this information shall be given in a note to the Qualified Products List entry.

Temperature characteristic
of resistance
(20 to 70 °C)

Code letter	$\Delta R/R$ (20/70)	Temp. coeff. (10 ⁻⁶ /K)	Typical construction
V	$\pm 1,25 \%$	± 250	Metal oxide film
K	$\pm 0,50 \%$	± 100	Metal or metal oxide film

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

CECC 40 000	(1973)	Generic Specification: Fixed resistors.
CECC 40 100	(1973)	Sectional Specification: Fixed low power non-wirewound resistors.
CECC 00 007	(1978)	Basic Specification: Sampling plans and procedures for inspection by attributes (Issue 2).

4. ORDERING INFORMATION

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

- Specification number and style
- Resistance value
- Tolerance

for example : CECC 40 101-802, Style AV, 47 k Ω $\pm 2 \%$

5. CERTIFIED TEST RECORDS (RCE)

Certified Test Records shall be prepared in accordance with 3.5.1 of CECC 40 000. Measurements information shall be in accordance with 3.5.2 of CECC 40 000 for the percentage change in resistance resulting from the Endurance Test at 70 °C.

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 it is desired to obtain qualification approval by adopting the fixed sample size procedure, use shall be made of the test schedule given for that purpose in CECC 40 100.

The conditions of test and the performance requirements shall be identical to those prescribed for quality conformance inspection in Table 2 of this detail specification.

TABLE 2

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					
<u>Sub-Group A1</u>	ND		S-4	1,0 %	
4.3.1 Visual examination					As in 4.3.1
4.3.2 Marking					As in 4.3.2
<u>Sub-Group A2</u>	ND		S-4	1,0 %	
4.3.3 Dimensions (gauging)		A gauge-plate of 1,5 mm shall be used			As specified in Table 1
4.4 Resistance					As in 4.4.2
GROUP B INSPECTION					
To be conducted on a sampling basis, lot-by-lot					
<u>Sub-Group B1</u>	ND		S-3	1,0 %	
4.6 Voltage proof					As in 4.6.3
<u>Sub-Group B2</u>	D		S-3	2,5 %	
4.15.1 Soldering - Solderability		"Method 1" Solder bath method : Temperature : 230 ± 10 °C Duration : 2 ± 0,5 s			*As in 4.15.1.2.2".
4.11 Overload		Test duration 5 s The applied voltage shall be 2,5 times the rated voltage or twice the limiting element voltage, whichever is the less Visual examination Resistance			As in 4.11.3 $\Delta R: \leq \pm (0,5 \% R + 0,05 \Omega)$

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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	
<u>GROUP C INSPECTION</u>						
To be conducted on a sampling basis at the periodicity given in column 'p'						
<u>Sub-Group C1</u>	D		3	20	1	
4.14 Robustness of terminations		i) Half of the sample Tensile, bending and torsion Visual examination Resistance				As in 4.14.6.1 $\Delta R: \leq \pm(0,5 \%R+0,05 \Omega)$
4.15.2 Soldering - resistance to heat		"As in 4.15.2.2(a) Duration (10 $\pm$ 1) s" Visual examination Resistance				As in "4.15.2.3". $\Delta R: \leq \pm(0,5 \%R+0,05 \Omega)$
4.16 Rapid change of temperature		ii) Other half of sample $T_A : - 55^{\circ}C$ $T_B : 125^{\circ}C$ Visual examination Resistance				As in 4.16.4 $\Delta R: \leq \pm(0,5 \%R+0,05 \Omega)$
4.19 Vibration		Procedure : B4 Frequency range : 10 Hz to 500 Hz Amplitude : 0,75 mm or 98 m/s ² (which- ever is the less severe) Sweep endurance : Total duration 6 h Resistors shall be mounted by their normal means. The distance between the resistor body and the point on the termin- ation shall be 6 $\pm$ 1 mm. Visual examination Resistance				As in 4.19.3 $\Delta R: \leq \pm(0,5 \%R+0,05 \Omega)$

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CECC 40 101-802 Issue 1

Tests (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, accelerated , first cycle - Cold - Low air pressure - Damp heat, accelerated , remaining cycles - D.C. load - Final measurements		iii) All of the sample 8,5 kPa (85 mbar) Visual examination Resistance Insulation resistance				As in 4.20.8 $\Delta R: \leq \pm (2 \sqrt{R+0,1 \Omega})$ $R: \geq 100 M\Omega$
<u>Sub-Group C2</u> 4.24.1 Endurance at 70 °C	D	Duration : 1000 h Examination at 48, 500 and 1 000 h Visual examination Resistance Examination at 1000 h Insulation resistance The tests on one sample each year shall be extended to 8 000 h duration. Examination at 2 000, 4 000 and 8 000 h Resistance	3 12	20 20	1 -	As in 4.24.1.7 $\Delta R: \leq \pm (2 \sqrt{R+0,1 \Omega})$ $R: \geq 1 M\Omega$ $\Delta R/R$: The results obtained are for information only.

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CECC 40 101-802 Issue 1

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													
<u>Sub-Group C3</u> 4.7 Temperature characteristic of resistance	ND		3	20	1	<table><tr><td>-55/20</td><td>20/125</td><td>Code</td></tr><tr><td colspan="3">$\Delta R: \leq \text{---} \%R$</td></tr><tr><td>$\pm 1,88$</td><td>$\pm 2,62$</td><td>V</td></tr><tr><td>$\pm 0,75$</td><td>$\pm 1,05$</td><td>K</td></tr></table>	-55/20	20/125	Code	$\Delta R: \leq \text{---} \%R$			$\pm 1,88$	$\pm 2,62$	V	$\pm 0,75$	$\pm 1,05$	K
-55/20	20/125	Code																
$\Delta R: \leq \text{---} \%R$																		
$\pm 1,88$	$\pm 2,62$	V																
$\pm 0,75$	$\pm 1,05$	K																
<u>GROUP D INSPECTION</u>																		
To be conducted on a sampling basis at the periodicity given in column 'p'																		
<u>Sub-Group D1</u> 4.21 Damp heat, steady state	D	Visual examination Resistance Insulation resistance	12	20	1	As in 4.21.4 $\Delta R: \leq \pm (2 \%R + 0,1 \Omega)$ $R : \geq 100 M\Omega$												
<u>Sub-Group D2</u> 4.3.4 Dimensions (detail) 4.24.3 Endurance at upper category temperature	D	Duration : 1 000 h Examination at 48, 500 and 1 000 h Visual examination Resistance Examination at 1 000h Insulation resistance	36	20	1	As specified in Table 1 As in 4.24.3.7 $\Delta R: \leq \pm (2 \%R + 0,1 \Omega)$ $R : \geq 1 G\Omega$												

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