

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 0,5%

Harmonized System of Quality Assessment for
Electronic Components

DETAIL SPECIFICATION:

FIXED LOW POWER NON-WIREWOUND RESISTORS

STABILITY 0,5%

Harmonisiertes Gütebestätigungssystem für
Bauelemente der Elektronik

BAUARTSPEZIFIKATION:

NICHTDRAHTGEWICKELTE FESTWIDERSTÄNDE KLEINER BELASTBARKEIT

STABILITÄT 0,5%



1

Edition
Issue
Ausgabe

CECC 40101-804

1979

Cette page bleue doit être insérée après la page de garde de la CECC 40 101-804 Edition 1 (1979)

MODIFICATION 3 A LA CECC 40 101-804 (Edition 1) :

SPECIFICATION PARTICULIERE :

RESISTANCES FIXES NON-BOBINEES A FAIBLE DISSIPATION
Stabilité 0,5 %

Supprimer la page 1 de la CECC 40 101-804 Edition 1 et insérer la nouvelle page 1 de la CECC 40 101-804 Edition 1 Modification 3.

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 40 101-804 Issue 1 (1979)

AMENDMENT 3 TO CECC 40 101-804 (Issue 1) :

DETAIL SPECIFICATION :

FIXED LOW POWER NON-WIREWOUND RESISTORS
Stability 0,5 %

Remove page 1 of CECC 40 101-804 Issue 1 and insert new page 1 of CECC 40 101-804 Issue 1 Amendment 3.

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 40 101-804 Ausgabe 1 (1979) einzusetzen

ÄNDERUNG 3 ZU CECC 40 101-804 (Ausgabe 1) :

BAUARTSPEZIFIKATION:

NICHTDRAHTGEWICKELTE FESTWIDERSTÄNDE
KLEINER BELASTBARKEIT
Stabilität 0,5 %

Seite 1 der CECC 40 101-804 Ausgabe 1 ist herauszunehmen und die neue Seite 1 der CECC 40 101-804 Ausgabe 1 Änderung 3 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 8)

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 40 101-804 Issue 1 Amendment 3 1986

CECC 40 101-804 Edition 1 Modification 3 1986

CECC 40 101-804 Ausgabe 1 Änderung 3 1986

MODIFICATION 2 A LA CECC 40 101-804 (Edition 1):
SPECIFICATION PARTICULIERE:
RESISTANCES FIXES NON-BOBINES A FAIBLE DISSIPATION
STABILITE 0,5 %

Supprimer les pages 2 et 3 de la CECC 40 101-804
(Edition 1) et insérer les nouvelles pages 2 et 3
de la Modification 2 à la CECC 40 101-804
(Edition 1).

Les modifications suivantes doivent être effectuées
à la main:

PREFACE

Sous 'CECC(Secrétariat)643'
ajouter:

CECC(Secrétariat)1095 Juillet 1981 CECC(Secrétariat)1183

CECC 40 101-804 Edition 1 Modification 2 1984

AMENDMENT 2 TO CECC 40 101-804 (Issue 1):
DETAIL SPECIFICATION:
FIXED LOW POWER NON-WIREWOUND RESISTORS
STABILITY 0,5 %

Remove pages 2 and 3 of CECC 40 101-804 (Issue 1)
and insert new pages 2 and 3 of Amendment 2 to
CECC 40 101-804 (Issue 1).

The following amendments shall be made in
manuscript:

PREFACE

Below 'CECC(Secretariat)643'
add:

CECC(Secretariat)1095 July 1981 CECC(Secretariat)1183

CECC 40 101-804 Issue 1 Amendment 2 1984

ÄNDERUNG 2 ZU CECC 40 101-804 (Ausgabe 1):
BAUARTSPEZIFIKATION:
NICHTDRAHTGEWICKELTE FESTWIDERSTÄNDE KLEINER
BELASTBARKEIT
STABILITÄT 0,5 %

Die Seiten 2 und 3 der CECC 40 101-804 (Ausgabe 1)
sind herauszunehmen und die neuen Seiten 2 und 3
der Änderung 2 zu CECC 40-101-804 (Ausgabe 1)
sind einzusetzen.

Die folgenden Änderungen sind handschriftlich
vorzunehmen:

EINLEITUNG

Unter 'CECC (Sekretariat)643'
ergänzen:

CECC(Sekretariat)1095 Juli 1981 CECC(Sekretariat)1183

CECC 40 101-804 Ausgabe 1 Änderung 2 1984

Cette page bleue doit être insérée après la
page de garde de la CECC 40 101-804 (Edition 1)

PREMIERE MODIFICATION A LA CECC 40 101-804 :
SPECIFICATION PARTICULIERE :
RESISTANCES FIXES NON-BORNEES A FAIBLE
DISSIPATION Stabilité 0,5 %

Il n'y a pas de modification nécessaire au texte
français de l'Edition 1 (1979) de la CECC 40 101-804.

This blue page should be inserted after the
title page of CECC 40 101-804 (Issue 1)

1ST AMENDMENT TO CECC 40 101-804 :
DETAIL SPECIFICATION :
FIXED LOW POWER NON-WIREWOUND RESISTORS
Stability 0,5 %

The following amendment to Issue 1 (1979) of
CECC 40 101-804 should be made in manuscript :

Please amend Table 2 on page 7 as follows :

Sub-Group B3 : delete IL = S-2
insert IL = S-3

Dieses blaue Blatt ist nach dem Titelblatt
der CECC 40 101-804 (Ausgabe 1) einzusetzen

1. ÄNDERUNG ZU CECC 40 101-804 :
BAUARTSPEZIFIKATION :
NIEFTRANTGEWICKELTE FESTWIDERSTÄNDE
KLEINER BELASTBARKEIT Stabilität 0,5 %

Bei der Ausgabe 1 (1979) der CECC 40 101-804
ist keine Änderung im deutschen Text notwendig.

CECC 40 101-804	Modification	1	1979
	Amendment	1	
	Änderung	1	

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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.

<u>Document</u>	<u>Voting date</u>
CECC(Secretariat)358	11 August 1975
CECC(Secretariat)643	5 November 1977

Amendment 2

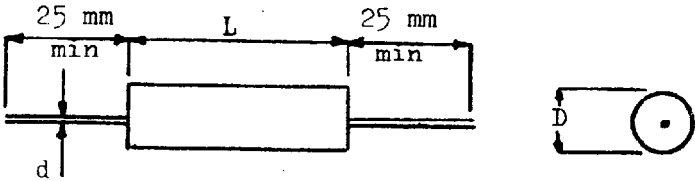
<u>Voting document</u>	<u>Date of voting</u>	<u>Report on the voting</u>
CECC(Secretariat)1095	July 1981	CECC(Secretariat)1183

Amendment 3 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:

<u>Voting document</u>	<u>Date of voting</u>	<u>Report on the voting</u>
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.

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 40 101-804 1979 
ELECTRONIC COMPONENTS OF ASSESSED QUALITY - DETAIL SPECIFICATION IN ACCORDANCE WITH CECC 40 000 AND CECC 40 100	Issue 1
 Outline and dimensions data (See Table 1)	FIXED LOW POWER NON-WIREWOUND INSULATED RESISTORS
	AXIAL WIRE TERMINATIONS TYPICAL CONSTRUCTION : METAL FILM 0,5 % 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 will be given in the Qualified Products List (CECC 00 200).

Standard tolerances

$\pm 0,1\%$; $\pm 0,25\%$; $\pm 0,50\%$; $\pm 1,0\%$

Climatic category

55/125/56

Vibration severity

10 Hz to 500 Hz; 0,75 mm or 98 m/s²
(whichever is the less severe)

Low air pressure

8,5 kPa (85 mbar)

*The preferred values taken from IEC 63 : E96 for $\pm 1\%$ selection tolerance; E192 for other values of selection tolerance.

See the relevant Qualified Products List for availability of components made to this specification.

TABLE 1

Style (See Note 1)	Rated dissipation at 70°C (W)	Category dissipation at 125°C (W)	Limiting element voltage (V dc or ac rms)	Isolation voltage (V dc or ac peak)	Dimensions (mm) (See Note 2)									
					L		D		d preferred				d permissible	
					min.	max.	min.	max.	min.	nom.	max.	min.	nom.	max.
J*	0,063	0,036	200	280	3,3	4,7	1,2	1,8	0,45	0,5	0,55	0,35	0,4	0,44
A*	0,125	0,063	200	280	5,2	7,2	2,0	2,5	0,55	0,6	0,66	-	-	-
B*	0,25	0,125	250	350	7,5	11,1	2,4	4,2	0,55	0,6	0,66	0,75	0,8	0,88
C*	0,50	0,25	350	500	11,0	16,7	3,9	6,5	0,75	0,8	0,88	0,55	0,6	0,66
D*	1,0	0,5	500	700	16,8	22,0	5,2	6,9	0,75	0,8	0,88	0,55	0,6	0,66

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.

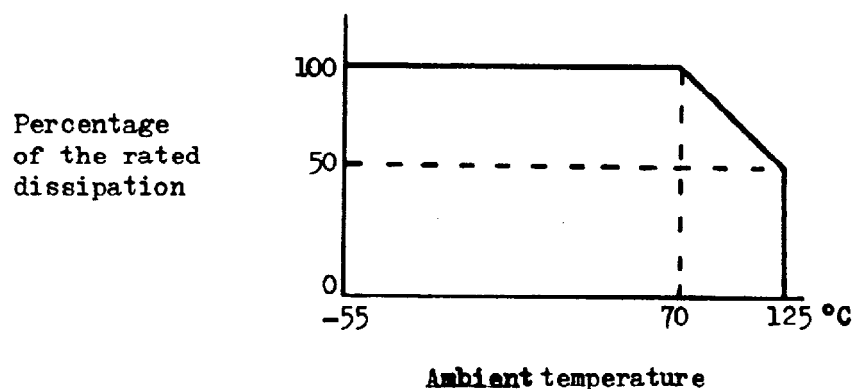
Limit of resistance change $\pm (0,5 \% R \pm 0,05 \Omega)$
after 1 000 h endurance test

Temperature characteristic
of resistance
(20 to + 70 °C)

Code letter	$\Delta R/R$ (20/70)	Temp. coeff. (10 ⁻⁶ /K)	Typical construction
C	$\pm 0,25 \%$	± 50	Metal film
E	$\pm 0,125 \%$	± 25	Metal film
T	$\pm 0,075 \%$	± 15	Metal 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 40 101-804, Style AE, 100 $\Omega \pm 0,5 \%$

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.

Test (See Note 1)	D or ND	Conditions of test	I L (See Note 2)	A Q L	Performance requirements (See Note 1)						
<u>Sub-Group B3</u> 4.7 Temperature characteristic of resistance	ND	This test is applicable only to resistors with a temperature coefficient of resistance of $\pm 25 \times 10^{-6}/K$ (letter E) and $\pm 15 \times 10^{-6}/K$ (letter T) One cycle of 20 °C to 70 °C to 20 °C only.	S-2	2,5 %	<table><tr><td>$\Delta R: \leq \text{--- \%R}$</td><td>Code</td></tr><tr><td>$\pm 0,125$</td><td>E</td></tr><tr><td>$\pm 0,075$</td><td>T</td></tr></table>	$\Delta R: \leq \text{--- \%R}$	Code	$\pm 0,125$	E	$\pm 0,075$	T
$\Delta R: \leq \text{--- \%R}$	Code										
$\pm 0,125$	E										
$\pm 0,075$	T										
<u>GROUP C INSPECTION</u> To be conducted on a sampling basis at the periodicity given in column 'p'			Sample size & criterion of acceptability (See Note 3)								
			p	n	c						
<u>Sub-Group C1</u> 4.14 Robustness of terminations	D	i) Half of the sample Tensile, bending and torsion Visual examination Resistance	3	20	1						
4.15.2 Soldering - Resistance to heat		"As in 4.15.2.2(a) Duration (10 ± 1) s" Visual examination Resistance ii) Other half of sample									
4.16 Rapid change of temperature		T _A : - 55 °C T _B : 125 °C									
			As in 4.14.6.1 $\Delta R: \leq \pm(0,1 \%R + 0,01 \Omega)$ As in 4.15.2.3 $\Delta R: \leq \pm(0,1 \%R + 0,01 \Omega)$								

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CECC 40 101-804 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	
4.19 Vibration		Visual examination Resistance				As in 4.16.4 $\Delta R: \leq \pm(0,1 \%R + 0,01 \Omega)$
		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 mounting point on the terminations shall be 6 ± 1 mm. Visual examination Resistance iii) All of the sample				As in 4.19.3 $\Delta R: \leq \pm(0,1 \%R + 0,01 \Omega)$
4.20 Climatic sequence						
- Dry heat						
- Damp heat, accelerated, first cycle						
- Cold						
- Low air pressure		8,5 kPa (85 mbar)				
- Damp heat, accelerated, remaining cycles						
- D.C. load						
- Final measurements		Visual examination Resistance Insulation resistance				As in 4.20.8 $\Delta R: \leq \pm(0,5 \%R + 0,05 \Omega)$ $R: \geq 100 M\Omega$

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CECC 40 101-804 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 C2</u> 4.24.1 Endurance at 70°C	D	Duration : 1 000 h Examination at 48, 500 and 1 000 h. Visual examination Resistance Examination at 1 000 h Insulation resistance The test 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	20	1	As in 4.24.1.7 $\Delta R: \leq \pm(0,5 \%R + 0,05 \Omega)$ $R: \geq 1 \text{ M}\Omega$ $\Delta R/R$: The results obtained are for information only.															
<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>$\pm 0,375$</td><td>$\pm 0,525$</td><td>C</td></tr><tr><td>$\pm 0,188$</td><td>$\pm 0,262$</td><td>E</td></tr><tr><td>$\pm 0,113$</td><td>$\pm 0,158$</td><td>T</td></tr></table>	-55/20	20/125	Code	$\Delta R \leq \text{---} \%R$			$\pm 0,375$	$\pm 0,525$	C	$\pm 0,188$	$\pm 0,262$	E	$\pm 0,113$	$\pm 0,158$	T
-55/20	20/125	Code																			
$\Delta R \leq \text{---} \%R$																					
$\pm 0,375$	$\pm 0,525$	C																			
$\pm 0,188$	$\pm 0,262$	E																			
$\pm 0,113$	$\pm 0,158$	T																			
<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 $\Delta R: \leq \pm(0,5 \%R + 0,05 \Omega)$ $R: \geq 100 \text{ M}\Omega$															

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CECC 40 101-804 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 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 1 000 h Insulation resistance	36	20	1	As specified in Table 1 As in 4.24.3.7 $\Delta R: \leq \pm(0,5 \% R + 0,05 \Omega)$ $R \geq 1 \text{ M}\Omega$

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CECC 40 101-804 Issue 1