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

CECC

Système Harmonisé d'Assurance de la Qualité
des Composants Electroniques

SPECIFICATION PARTICULIERE:

VARISTANCES BASSE TENSION POUR MATERIEL TELEPHONIQUE

Disques avec sorties par fils: protégé
0,1 W: Niveau d'assurance de qualité P

Harmonized System of Quality Assessment for
Electronic Components

DETAIL SPECIFICATION:

LOW VOLTAGE VARISTORS PRIMARILY FOR TELEPHONY APPLICATIONS

Disc type, wire terminations: protected
0,1 W: Assessment level P

Harmonisiertes Gütebestätigungssystem für
Bauelemente der Elektronik

BAUARTSPEZIFIKATION:

NIEDERSPANNUNGS-VARISTOREN VORZUGSWEISE FÜR TELEPHONIE-ANWENDUNGEN

Scheibenbauform mit Anschlußdrähten: lackumhüllt
0,1 W: Gütebestätigungsstufe P

1 Edition
Issue
Ausgabe

CECC 42101-803

1982

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Information about the System may be obtained from:

FEN e.V. Secretariat
and
CECC General Secretariat
Gartenstraße 179
D - 6000 Frankfurt am Main 70
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Telex: 4 032 175 cecc d
Telefax: Int. + 49 69 639427

or from the National Authorized Institutions of the participating countries listed who can supply copies of:

1 The Internal Regulations of the FEN e.V.

2 The Rules of Procedure of the System

3 CECC Specifications of the FEN and National Specifications for the System

4 CECC 00 200: Qualified Products List (QPL)

5 CECC 00 300: CECC Publications and their related national documents

6 Other CECC Publications and publicity documents

AUSTRIA
Österreichischer Verband für Elektrotechnik (ÖVE)
Eschenbachgasse 9
A-1010 VIENNA

BELGIUM
Comité Electrotechnique Belge
Galerie Ravenstein 3 (Boîte 11)
B-1000 BRUSSELS

DENMARK
Dansk Elektroteknisk Komite
Strandgade 36
DK-1401 COPENHAGEN K

FINLAND
Finnish Electrotechnical Standards Association (SESKO)
P.O. Box 134
SF-00211 HELSINKI 21

FRANCE
Union technique de l'Electricité
Participation française au CECC
F-92052 PARIS La Défense Cedex 64

GERMANY
Deutsche Elektrotechnische Kommission im DIN und VDE (DKE)
Stresemannallee 15
D-6000 FRANKFURT/Main 70

IRELAND
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Glasnevin
IRL-DUBLIN 9

ITALY
Comitato Elettrotecnico Italiano (CEI)
Viale Monza, 259
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P.O. Box 5059
NL-2600 GB DELFT

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N-0212 OSLO 2

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P-1199 LISBOA CODEX

SPAIN
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Avda. de Brasil, 7
E-28020 MADRID

SWEDEN
Svenska Elektriska Kommissionen (SEK)
Box 1284
S-16428 KISTA-STOCKHOLM

SWITZERLAND
Schweizerischer Elektrotechnischer Verein (SEV)
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UNITED KINGDOM
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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 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 LOW VOLTAGE VARISTORS PRIMARILY FOR TELEPHONY-APPLICATIONS (ASSESSMENT LEVEL P). 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 Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Sweden, Switzerland, and the United Kingdom. Copies of it can be obtained from the addresses shown on the inside cover.

PREFACE

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

It is one of a series of detail specifications for low voltage varistors primarily for telephony applications, all relating to the generic specification printed as CECC 42 000, the sectional specification printed as CECC 42 100 and the blank detail specification printed as CECC 42 101.

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

Document	Voting date	Report on the voting
CECC(Secretariat)825	October 1979	CECC(Secretariat)954

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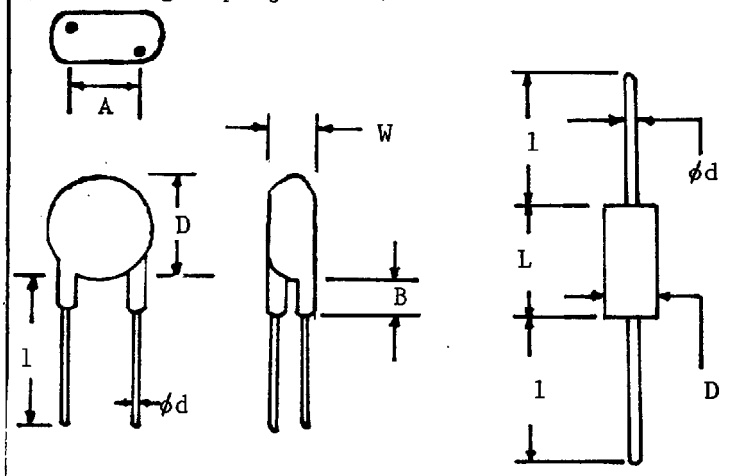
Copies of this specification can be obtained from : CECC General Secretariat Stresemannallee 15 D-6000 Frankfurt/Main 70 or from the addresses shown on the inside cover.	CECC 42 101 - 803 1982
ELECTRONIC COMPONENTS OF ASSESSED QUALITY IN ACCORDANCE WITH CECC 42 000, GENERIC SPECIFICATION FOR VARISTORS AND CECC 42 100, SECTIONAL SPECIFICATION FOR LOW VOLTAGE VARISTORS PRIMARILY FOR TELEPHONY APPLICATION.	Issue 1
Outline and dimensions : (See Table 1) (First angle projection)  STYLES AA, AB, AC, AD, AE & AF STYLE BA	LOW VOLTAGE VARISTORS PRIMARILY FOR TELEPHONY APPLICATIONS TYPICAL CONSTRUCTION : ZINC OXIDE DISC TYPE, WIRE TERMINATIONS, PROTECTED 0,1 W ASSESSMENT LEVEL 'P'

For ordering information, see Clause 4.

NOTE 1 : Other shapes are permitted within the dimensional envelope shown.

NOTE 2 : The non-dimensioned details do not affect the use of the device.

TABLE 1

Style	Max. Current at reference voltage (48 V) (mA)	Peak Current at voltage (135 V) under pulse conditions (mA)	Dimensions (mm) D max.	W max.	L max.	d nom. (See IEC 301)	l min.	B max.	A
AA	0,01	152	7	3	-	0,6	12	6	2,54±0,5
AB	0,01	152	7	3	-	0,6	**	**	**
AC	0,01	152	8,5	6	-	0,6	12	6	2,54±0,5
AD	0,01	152	8,5	6	-	0,6	**	**	**
AE	0,01	152	5,5	3	-	0,6	25	6	2,54±0,5
AF	0,01	152	8,5	6	-	0,6	25	6	5,08±0,5
BA	0,01	152	3,7	-	8,5	0,8	25	-	-

** To be in accordance with ordering information.

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

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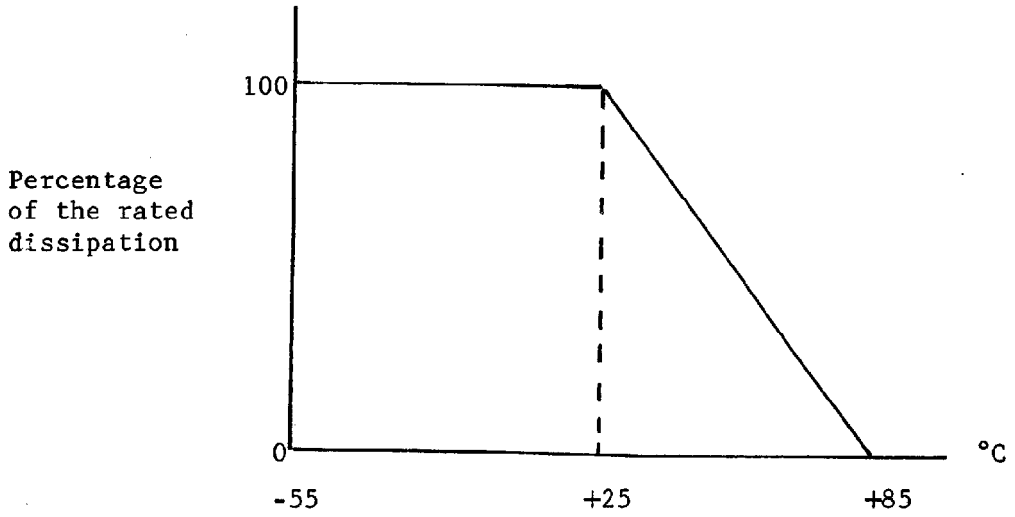
1 RATINGS AND CHARACTERISTICS

Climatic category	55/085/56
Reference voltage	48 V d.c.
Rated dissipation (at 25 °C)	0,1 W
Temperature coefficient of voltage (measured at 1 mA)	0,1%/°C max.
Non-linearity	135 $V_{max.}$

1.1 De-rating curve

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



2 MARKING

The marking of the component and the package shall be in accordance with the requirements of 2.4 of CECC 42 000.

The values for the reference voltage (48 V d.c.) and the current at reference voltage (0,01 mA) shall be marked on the varistor either :

1) as 48 V m01

or

2) the body being coloured white completely.

3 RELATED DOCUMENTS

CECC 00 006	1981	Basic specification : Environmental test procedures
CECC 42 000	1978	Generic specification : Varistors
CECC 42 100	1978	Sectional specification : Low voltage varistors primarily for telephony applications

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IEC 68-2-20	1979	Basic environmental testing procedures. Test T : Soldering.
IEC 301	1971	Preferred diameters of wire terminations of capacitors and resistors.
IEC 410	1973	Sampling plans and procedures for inspection by attributes.

4 ORDERING INFORMATION

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

- reference voltage
- maximum current at reference voltage
- number of this detail specification and style reference
- for styles AB and AD, the values of dimensions l, A and B

5 CERTIFIED TEST RECORDS (RCE)

Certified test records shall be prepared in accordance with 3.5 of CECC 42 000.

6 INSPECTION REQUIREMENTS (See Table 2)

When it is desired to obtain qualification approval by adopting the fixed sample size procedure (see 3.3.3 of CECC 42 000), use shall be made of the test schedule given for that purpose in CECC 42 100.

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

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(See Notes 1 and 2)

Clause Number and Test	Conditions of test	IL	AQL	Performance Requirements
GROUP A INSPECTION				
To be conducted on a sampling basis, lot-by-lot				
Sub-Group A1 (Non-destructive)		II	4%	
4.2.1 Visual examination				As in 4.2.1
Sub-Group A2 (Non-destructive)		II	1%	
4.2.2 Marking				As in 4.2.2
4.2.3 Dimensions (gauging)	Dimensions A, B and D			As specified in Table 1
Sub-Group A3 (Non-destructive)		II	1,5%	
C1.2 Voltage under pulse conditions	Peak current : 152 mA			$V_{max.}$: 135 V
4.3 Current at reference voltage	Reference voltage : 48 V			I : $\leq$ 0,01 mA
Sub-Group A4 (Non-destructive)		S-1	4%	
4.2.4 Dimensions (detail)	Dimensions ϕd, W and 1			As specified in Table 1
GROUP B INSPECTION	(See Note 6)			
To be conducted on a sampling basis, lot-by-lot				
Sub-Group B1 (Destructive)		S-3	2,5%	
4.11 Robustness of terminations	Tensile and bending tests (See Note 5)			
	Visual examination			As in 4.11.6
	Current at reference voltage			Δ I : $\leq$ 40 μA
	Reference voltage : 48 V			
4.10.1 Soldering - solderability	Solder bath method 230 $\pm$ 10 °C			The terminations shall be uniformly tinned.

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(See Notes 1, 2 and 3)

Clause Number and Test		Conditions of Test	IL	AQL	Performance Requirements
Sub-Group B3 (Destructive)			S-2	1,5%	
C1.1	Overload	Visual examination			As in C1.1.4
		Current at reference voltage			ΔI : ≤ 40μA
		Reference voltage : 48 V			
		Voltage under pulse conditions			$V_{max.}$: 135 V
GROUP C INSPECTION			Sample size & criterion of acceptability		
			P	n	c
To be conducted on a sampling basis at the periodicity given in column 'P'					
Sub-Group C1 (Destructive)			6	8	1
C1.3	Pulse endurance	Visual examination			As in C1.3.4
		Current at reference voltage			Δ I : ≤ 40 μA
		Reference voltage : 48 V			
		Voltage under pulse conditions			$V_{max.}$: 135 V
Sub-Group C2 (Destructive)			6	13	1
4.10.2	Soldering - resistance to solder heat	Method 1A of IEC 68-2-20			
		Visual examination			As in 4.10.2.4
		Current at reference voltage			Δ I : ≤ 40 μA
		Reference voltage : 48 V			
4.12	Rapid change of temperature	T_A : -55 °C			
		T_B : 85 °C			
		Visual examination			As in 4.12.4
		Current at reference voltage			Δ I : ≤ 40 μA
		Reference voltage : 48 V			

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(See Notes 1 and 3)

Clause Number and Test		Conditions of Test	Sample size & criterion of acceptability			Performance Requirements
			P	n	c	
GROUP D INSPECTION						
To be conducted on a sampling basis at the periodicity given in column 'P'						
Sub-Group D1 (Destructive)			12	8	1	
4.16	Climatic sequence	(Low air pressure test not applicable)				
	-Dry heat	85 °C				
	-Damp heat, cyclic, first cycle	Reference voltage : 48 V				
	-Cold	- 55 °C				
	-Damp heat, cyclic, remaining cycles	Reference voltage : 48 V				
	-Final measure-ments	Visual examination				As in 4.16.9.1
		Current at reference voltage				Δ I : ≤ 40 µA
		Reference voltage : 48 V				
Sub-Group D2 (Destructive)			24	8	1	
4.17	Damp heat, steady state	4 specimens with no applied voltage				
		other 4 specimens with applied voltage of				
		0,8 to 1,0 times the reference voltage				
		Visual examination				As in 4.17.3.1
		Current at reference voltage				Δ I : ≤ 40 µA
		Reference voltage : 48 V				

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(See notes 1 and 3)

Clause Number and Test	Conditions of Test	Sample size & criterion of acceptability			Performance Requirements
		P	n	c	
Sub-Group D3 (Non-destructive)		24	8	1	
4.5 Temperature coefficient of voltage	Measuring current : 1 mA				25/-55 | 25/85 Δ V : ≤ 0,1%/°C | 0,1%/°C
Sub-Group D4 (Destructive)		24	6	1	
4.14 Shock	Pulse shape : half sine Acceleration : 490 m/s² Pulse duration : 11 ms (See Note 4) Visual examination Current at reference voltage Reference voltage : 48 V				As in 4.14.3 Δ I : ≤ 40 µA
Sub-Group D5 (Destructive)		24	5	0	
4.18 Flammability	(Under consideration)				

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