



SLOVENSKI STANDARD
SIST EN 140402:2002

01-september-2002

Blank detail specification: Fixed low power wire wound surface mounting (SMD) resistors

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Vordruck für Bauartspezifikation: Oberflächenmontierbare drahtgewickelte Festwiderstände (SMD) niedriger Belastbarkeit

Spécification particulière cadre: Résistances fixes bobinées à faible dissipation pour montage en surface (CMS)

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Ta slovenski standard je istoveten z: EN 140402:1998

ICS:

31.040.10 Fiksni upor Fixed resistors

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 140402

August 1998

ICS 31.040.10

Descriptors: Fixed wire wound resistors, low power, surface mounting, non insulated resistors, blank detail specification

English version

**Blank Detail Specification:
Fixed low power wire wound surface mounting (SMD) resistors**

Spécification particulière cadre:
Résistances fixes bobinées à faible
dissipation pour montage en surface
(CMS)

Vordruck für Bauartspezifikation:
Oberflächenmontierbare drahtgewickelte
Festwiderstände (SMD) niedriger
Belastbarkeit

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This European Standard was approved by CENELEC on 1998-08-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 40XB, Fixed resistors.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 140402 on 1998-08-01.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 1999-08-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 1999-08-01

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Identification of the Detail Specification and the component

The first page of the Detail Specification should have the layout recommended on page 3.

The numbers in square brackets correspond to the indications to be completed hereunder :

- [1] The name of the National Standards Organisation under whose authority the Detail Specification is published and, if applicable, the organisation from whom the Detail Specification is available.
- [2] The CECC symbol and the number allocated to the Detail Specification by the CECC General Secretariat.
- [3] The number and issue number of the CECC generic and sectional specification as relevant; also national reference if different.
- [4] If different from the CECC number, the national number of the Detail Specification, date of issue and any further information required by the national system, together with any amendment numbers.
- [5] A brief description of the component or range of components.
- [6] Information on typical construction (where applicable).

For [5] and [6] the text to be given in the Detail Specification should be suitable for an entry in CECC 00 200 (register of approvals) and CECC 00 300 (Library list).

- [7] An outline drawing with main dimensions which are of importance for interchangeability and/or reference to the appropriate national or international document for outlines. Alternatively, this drawing may be given in an annex to the Detail Specification.
- [8] Assessment level.
- [9] Reference data giving information on the most important properties of the component which allow comparison between the various component types intended for the same, or for similar, applications.

Specification available from : [1]	EN 140402-XXX [2] Page 1 of
ELECTRONIC COMPONENTS OF [3] ASSESSED QUALITY IN ACCORDANCE WITH :	[4]
Outline and dimensions (see Table 1) [7] (First angle projection)	FIXED LOW POWER WIREWOUND [5] SURFACE MOUNTING RESISTORS
	WIREWOUND RESISTOR [6] (NON) INSULATED End termination for mounting on a) printed boards or b) alumina substrate
All dimensions in millimetres [8]	Assessment level "S"
NOTE 1 : Other shapes are permitted within the dimensions given	

Mounting

[9]

The detail specification shall give full information in this section regarding the recommended method of mounting the resistors by it. It shall state :

- the preferred substrate to be used;
- any glues, together with their curing temperatures and times;
- soldering methods, temperatures and times;
- cleaning solvents.

The detail specification shall also give in this section a warning of any precautions which should be taken in the assembly of the resistors.

Table 1 - Dissipation and dimensions

STYLE	Rated dissipation (W at 70°C) on alumina substrate	Rated dissipation (W at 70°C) on printed board	Limiting element voltage (V d.c or a.c. r.m.s)	Dimensions (mm)					
				L		W		H	
				Min	Max	Min	Max	Min	Max

Information about manufacturers who have components qualified to this detail specification is available in the current CECC 00 200 : Register of Approvals.

1. Ratings and characteristics

Resistance range : Ω to Ω
Standard tolerances or rated resistance	\pm %
Climatic category	... / ... / ...
Vibration severity	... Hz to ... Hz; 0,75 mm or 98 m/s ² (whichever is the less severe)
Low air pressure	8,5 kPa (85 mbar)
Bump (or shock) severity
Limit of resistance change after 1000h endurance test	\pm (... % R + ... Ω)
Temperature characteristic of resistance (20°C to 70°C)	$\Delta R : \leq \pm$... % R ($\Delta R / R \Delta T : \leq \pm$... $10^{-6} / ^\circ\text{C}$)

Should, for any reason, it be necessary for further parameters to be controlled, then a more detailed specification should be used.

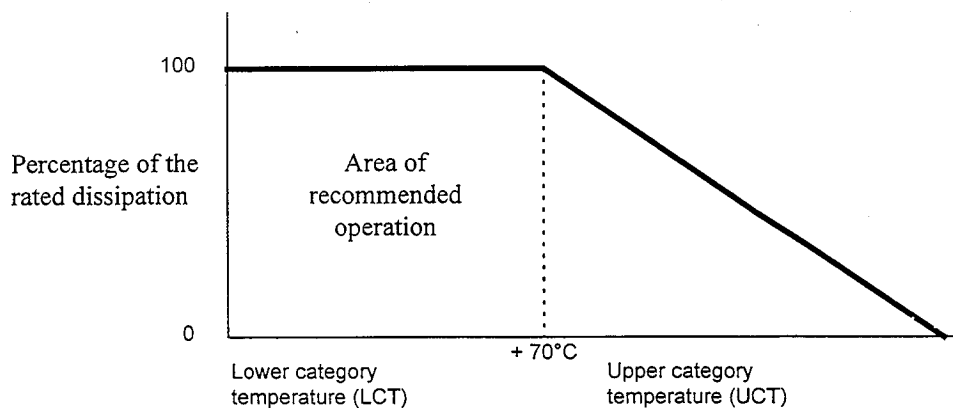
The additional test method(s) shall be fully described, and appropriate limits, AQL's and Inspection Levels specified.

Note

The preferred values are those of the E... series of IEC 60063. Where the use of intermediate values is essential, they should, wherever possible, be chosen from a series in that document.

1.1. Derating

When mounted as described, for example, in annex A of this detail specification, resistors covered by this specification are derated according to the following curve :



A larger area of operation may be given in the detail specification provided it includes all the area given above.

The detail specification shall state the maximum allowable dissipation at temperatures other than 70°C. All break points on the curve shall be verified by test.

Note : Various parameters have been precisely specified for this component. It should no be assumed that any parameter not specified will remain unchanged from one component to another.

2. Marking

The marking of the components and the package shall be in accordance with the requirements of 2.4 of EN 140000 and 2.4.11 of EN 140400.

3. Related documents

National Authorised 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 :

- Detail specification and style reference
- Rated resistance
- Tolerance
- Temperature coefficient of resistance (if more than one is available)
- Packaging instructions

5. Certified test records

The detail specification shall indicate in this clause whether or not Certified Test Records shall be prepared in accordance with 3.9 of EN 140000.

6. Additional information (not for inspection purposes)

Temperature rise : $T \leq \dots \text{ }^\circ\text{C}$ See 4.14 of EN 140000

The detail specification may include information (which is not required to be verified by the inspection procedure), such as circuit diagrams, curves, drawings and notes needed for the clarification of the detail specification.

Temperature characteristics of resistance : for accurate measurements below 5 ohms the method of measurement will be described in the detail specification.

7. Inspection requirements (see Table 2)

7.1 When drying is required, Procedure I of 4.3 of EN 140000 shall be used.

7.2 When the manufacturer desires to obtain Qualification Approval by adopting the fixed sample size procedure (see 3.5.3 of EN 140000), use shall be made of the test schedule given in annex 'A' to EN 140000.

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

8. Assessed process average procedures

When the assessed process average procedure as specified in EN 100014 is used, the detailed specification shall give the limits as required in 3.12 of EN 140000. The detailed specification shall prescribe at relevant places that non operatives have to be recorded.

Table 2 - Inspection requirements

Clause number and test (1)	D or ND (3)	Conditions of test (1)	IL (2)	AQL (2)	Performance Requirements (1)				
Group A - Inspection									
To be conducted on a sampling basis, lot-by-lot									
<u>Sub-Group A1</u>	ND		S-4	1,0					
4.4.1 Visual examination					As in 4.4.1				
4.4.1 Marking (if applicable)					As in 4.4.1				
<u>Sub-Group A2</u>	ND		S-4	1,0 C=0					
4.4.3 Dimensions (gauging)		Items <i>L</i> , <i>W</i> and <i>H</i>			As specified in Table 1				
4.5 Resistance					As in 4.5.2				
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 Insulation resistance		(Insulated resistors only)			$R \geq \dots \text{G}\Omega$				
4.7 Voltage proof		(Insulated resistors only)			As in 4.7.3				
<u>Sub-Group B2</u>	D		S-3	4,0 C=0					
4.17 Solderability (if applicable) (see Note 4)		(The detail specification shall state whether ageing is required)							
4.13 Overload		Visual examination Unless otherwise specified in the detail specification, the resistors shall be mounted as described in Annex A of this detail specification (BDS)			As in 4.17.3.2				
		<table border="1"> <thead> <tr> <th>Resistor style</th> <th>Load duration s</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table>	Resistor style	Load duration s					
Resistor style	Load duration s								
		Visual examination Resistance			As in 4.13.3 $\Delta R : \leq \pm (\dots \% R + \dots \Omega)$				
<u>Sub-Group B3</u>	D		S-3	2,5					
4.8 Temperature characteristic of resistance		This test is applicable only where a temperature coefficient of resistance of less than $50 \times 10^6 / ^\circ\text{C}$ is claimed, unless otherwise specified One cycle of 20°C to 70°C to 20°C only			$\Delta R < \dots \% R$				

See Notes on page 11