



**NSAI**  
Standards

Irish Standard  
I.S. EN 140101-806:2009

Detail Specification: Fixed low power film resistors - Metal film resistors on high grade ceramic, conformal coated or molded, axial or preformed leads

© NSAI 2009 No copying without NSAI permission except as permitted by copyright law.

I.S. EN 140101-806:2009

*Incorporating amendments/corrigenda issued since publication:*  
EN 140101-806:2008/AC:2009

This is a free 6 page sample. Access the full version online.

<i>This document replaces:</i> CECC 40 101-806:1997	<i>This document is based on:</i> EN 140101-806:2008	<i>Published:</i> 14 March, 2008
--------------------------------------------------------	---------------------------------------------------------	-------------------------------------

This document was published under the authority of the NSAI and comes into effect on:  16 November, 2009	ICS number: 31.040.10
----------------------------------------------------------------------------------------------------------------	--------------------------

<b>NSAI</b> 1 Swift Square, Northwood, Santry Dublin 9	T +353 1 807 3800 F +353 1 807 3838 E standards@nsai.ie W NSAI.ie	<b>Sales:</b> T +353 1 857 6730 F +353 1 857 6729 W standards.ie
-----------------------------------------------------------------	----------------------------------------------------------------------------	---------------------------------------------------------------------------

Údarás um Chaighdeáin Náisiúnta na hÉireann

English version

**Detail Specification:  
Fixed low power film resistors -  
Metal film resistors on high grade ceramic,  
conformal coated or molded, axial or preformed leads**

Spécification particulière:  
Résistances fixes à couche  
et à faible dissipation -  
Résistances à couche métallique  
sur céramique de qualité supérieure,  
moulée ou disposant  
d'un revêtement enrobant,  
avec des sorties préformées ou axiales

Bauartspezifikation:  
Schicht-Festwiderstände  
niedriger Belastbarkeit -  
Metallschichtwiderstände auf hochwertiger  
Keramik, mit konformer Umhüllung und  
axialen oder vorgeformten Anschlüssen

This European Standard was approved by CENELEC on 2007-11-01. 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, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the 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, Resistors.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 140101-806 on 2007-11-01.

This European Standard supersedes CECC 40 101-806:1997.

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) 2008-11-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2010-11-01

Preceding documents on the subject covered by this specification have been:

- only on resistors without established reliability, now Version A:
  - CECC 40 101-012: 1978-09; 1981-10; 1983-09; 1992-11
  - CECC 40 101-013: 1978-09; 1981-10; 1983-09; 1992-11
  - CECC 40 101-014: 1978-09; 1981-10
  - CECC 40 101-015: 1981-10; 1983-09; 1992-11
  - CECC 40 101-016: 1978-09; 1981-10; 1983-09; 1992-11
  - CECC 40 101-017: 1978-09; 1981-10; 1983-09; 1992-11
  - CECC 40 101-018: 1981-01; 1983-09; 1992-11
  - CECC 40 101-022: 1977-07
  - CECC 40 101-023: 1977-07
  - CECC 40 101-025: 1977-06
  - CECC 40 101-033: 1981-10; 1983-09
  - CECC 40 101-039: 1982-04; 1986-05
  - CECC 40 101-040: 1982-04; 1984-06
  - CECC 40 101-041: 1984-00
  - CECC 40 101-042: 1984-00
  - CECC 40 101-045: 1985-07; 1987-01; 1992-11; 1995-05
  - CECC 40 101-048: 1992-02; 1992-10
- only on resistors with established reliability, now Version E:
  - CECC 40 101-046: 1987-11
  - CECC 40 101-047: 1988-07; 1989-08; 1990-12; 1993-02; 1995-06

Compared to the superseded standard, the following changes have been implemented:

- modification of the title;
- elimination of style E;
- revised tables for resistance range and tolerance on rated resistance in 1.3;
- introduction of temperature coefficients  $\pm 10 \cdot 10^{-6}/K$  and  $\pm 5 \cdot 10^{-6}/K$  in 1.4;
- introduction of stability classes 0,25, 0,1 and 0,05 in 1.3 and 1.6;
- introduction of a test on the resistance to electrostatic discharge (ESD) in 1.6 and Annex A;
- introduction of description and test methods for lead-free soldering in 1.9.3 and Annex A;
- introduction of code letters for temperature coefficient (TCR) as in EN 60062;
- revision of ordering information in 1.8.4;

- revised information on pulse load capability in 1.9.5;
- revised information on resistance drift in 1.9.6;
- adoption of the IECQ rules of procedure, IEC QC 001002-3;
- revision of the sample quantities and the sequence of tests in Annex A;
- editorial revision.

This specification is part of a series of documents describing fixed low power film resistors as follows.

- EN 60115-1 Fixed resistors for use in electronic equipment – Part 1: Generic specification (IEC 60115-1, mod.)
- EN 140100 Sectional specification: Fixed low power film resistors
- this detail specification.

Any detail specification within this series is written on the basis of

- EN 140101 Blank detail specification: Fixed low power film resistors.

The contents of the corrigendum of October 2009 have been included in this copy.

---

## Contents

<b>1</b>	<b>Characteristics and ratings</b> .....	<b>5</b>
1.1	Dimensions and ratings .....	5
1.2	Derating curve .....	7
1.3	Resistance range and tolerance on rated resistance .....	7
1.4	Variation of resistance with temperature and temperature rise .....	11
1.5	Climatic categories .....	11
1.6	Limits for change of resistance at tests .....	12
1.7	Non-linear properties .....	13
1.8	Tests related to soldering .....	13
1.9	Marking, packaging and ordering designation .....	14
1.10	Additional information (not for inspection purpose) .....	15
<b>2</b>	<b>Quality assessment procedures</b> .....	<b>21</b>
2.1	General .....	21
2.2	Qualification Approval .....	23
2.3	Quality Conformance Inspection .....	23
<b>Annex A</b>	<b>(normative) Fixed sample size Qualification Approval and Quality Conformance Inspection test schedule for fixed low power film resistors</b> .....	<b>25</b>
<b>Annex B</b>	<b>(informative) Letter symbols and abbreviations</b> .....	<b>33</b>
<b>Bibliography</b>	.....	<b>35</b>
Figure 1	– Outline and dimensions (see Table 1) .....	5
Figure 2	– Derating curve .....	7
Figure 3	– Limits of non-linearity in resistance .....	13
Figure 4	– Pulse parameter for rectangular and exponential pulses .....	13
Figure 5	– Maximum permissible pulse load $P_{i,max}$ for continuous pulses .....	17
Figure 6	– Maximum permissible pulse load $P_{i,max}$ for single pulses .....	18
Figure 7	– Maximum permissible pulse voltage $U_{i,max}$ .....	18
Figure 8a	– Drift factor for UCT = 155 °C .....	19
Figure 8b	– Drift factor for UCT = 125 °C .....	20
Figure 8c	– Drift factor for UCT = 85 °C .....	20
Figure 9	– Current noise .....	21
Table 1	– Style and dimensions .....	5
Table 2a	– Ratings for stability classes 2; 1; 0,5 .....	6
Table 2b	– Ratings for stability class 0,25 .....	6
Table 2c	– Ratings for stability class 0,1; 0,05 .....	6
Table 2d	– Ratings for 0 Ω resistors .....	6
Table 3a	– Resistance range and tolerance on rated resistance for Version A .....	8
Table 3b	– Resistance range and tolerance on rated resistance for Version E .....	10
Table 4	– Temperature coefficients and percentage change of resistance .....	11
Table 5	– Limits of temperature rise .....	11
Table 6	– Climatic categories .....	11
Table 7a	– Limits for change of resistance at tests .....	12
Table 7b	– Limits for change of resistance at tests .....	12
Table A.1	– Test schedule for Qualification Approval and Quality Conformance Inspection, lot-by-lot tests, assessment level EZ .....	24
Table A.2	– Test schedule for Qualification Approval and Quality Conformance Inspection, periodic tests, assessment level EZ .....	27

This is a free preview. Purchase the entire publication at the link below:

**I.S. EN 140101-806 : 2009 : EN : COMBINED PDF**

- 
- ⊙ Looking for additional Standards? Visit SAI Global Infostore
  - ⊙ Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
- 

Need to speak with a Customer Service Representative - Contact Us