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Low-voltage fuses -- Part 4: Supplementary requirements for fuse-links for the protection of semiconductor devices

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 60269-4:2009 sisaldab Euroopa standardi EN 60269-4:2009 ingliskeelset teksti.	This Estonian standard EVS-EN 60269-4:2009 consists of the English text of the European standard EN 60269-4:2009.
Standard on kinnitatud Eesti Standardikeskuse 31.12.2009 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 31.12.2009 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 25.11.2009.	Date of Availability of the European standard text 25.11.2009.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

ICS 29.120.50

EUROPEAN STANDARD

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EN 60269-4

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Supersedes EN 60269-4:2007

English version

Low-voltage fuses - Part 4: Supplementary requirements for fuse-links for the protection of semiconductor devices

(IEC 60269-4:2009)

Fusibles basse tension -
Partie 4: Exigences supplémentaires concernant les éléments de remplacement utilisés pour la protection des dispositifs à semiconducteurs
(CEI 60269-4:2009)

Niederspannungssicherungen -
Teil 4: Zusätzliche Anforderungen an Sicherungseinsätze zum Schutz von Halbleiter-Bauelementen
(IEC 60269-4:2009)

This European Standard was approved by CENELEC on 2009-09-01. 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: Avenue Marnix 17, B - 1000 Brussels

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Foreword

The text of document 32B/535/FDIS, future edition 5 of IEC 60269-4, prepared by SC 32B, Low-voltage fuses, of IEC TC 32, Fuses, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60269-4 on 2009-09-01.

This European Standard supersedes EN 60269-4:2007.

The significant technical changes to EN 60269-4:2007 are:

– the introduction of voltage source inverter fuse-links, including test requirements;

– coverage of the tests on operating characteristics for a.c. by the breaking capacity tests;

– the updating of examples of standardised fuse-links for the protection of semiconductor devices.

This standard is to be used in conjunction with EN 60269-1:2007, *Low-voltage fuses – Part 1: General requirements.*

This Part 4 supplements or modifies the corresponding clauses or subclauses of Part 1.

Where no change is necessary, this Part 4 indicates that the relevant clause or subclause applies.

Tables and figures which are additional to those in Part 1 are numbered starting from 101.

Additional annexes are lettered AA, BB, etc.

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)	2010-06-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2012-09-01

Annex ZA has been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 60269-4:2009 was approved by CENELEC as a European Standard without any modification.

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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60269-1	2006	Low-voltage fuses - Part 1: General requirements	EN 60269-1	2007
IEC 60269-2 (mod)	2006	Low-voltage fuses - Part 2: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application) - Examples of standardized systems of fuses A to I	HD 60269-2	2007
IEC 60269-3 (mod)	2006	Low-voltage fuses - Part 3: Supplementary requirements for fuses for use by unskilled persons (fuses mainly for household or similar applications) - Examples of standardized systems of fuses A to F	HD 60269-3	2007
IEC 60417	Data-base	Graphical symbols for use on equipment	-	-
ISO 3	-[1)]	Preferred numbers - Series of preferred numbers	-	-

[1)] Undated reference.

CONTENTS

LOW-VOLTAGE FUSES –

Part 4: Supplementary requirements for fuse-links for the protection of semiconductor devices

1 General

IEC 60269-1 applies with the following supplementary requirements.

Fuse-links for the protection of semiconductor devices shall comply with all requirements of IEC 60269-1, if not otherwise indicated hereinafter, and shall also comply with the supplementary requirements laid down below.

1.1 Scope and object

These supplementary requirements apply to fuse-links for application in equipment containing semiconductor devices for circuits of nominal voltages up to 1 000 V a.c. or 1 500 V d.c. and also, in so far as they are applicable, for circuits of higher nominal voltages.

NOTE 1 Such fuse-links are commonly referred to as “semiconductor fuse-links”.

NOTE 2 In most cases, a part of the associated equipment serves the purpose of a fuse-base. Owing to the great variety of equipment, no general rules can be given; the suitability of the associated equipment to serve as a fuse-base should be subject to agreement between the manufacturer and the user. However, if separate fuse-bases or fuse-holders are used, they should comply with the appropriate requirements of IEC 60269-1.

The object of these supplementary requirements is to establish the characteristics of semiconductor fuse-links in such a way that they can be replaced by other fuse-links having the same characteristics, provided that their dimensions are identical. For this purpose, this standard refers in particular to

a) the following characteristics of fuses:
   1) their rated values;
   2) their temperature rises in normal service;
   3) their power dissipation;
   4) their time-current characteristics;
   5) their breaking capacity;
   6) their cut-off current characteristics and their I^2t characteristics;
   7) their arc voltage characteristics;
b) type tests for verification of the characteristics of fuses;
c) the markings on fuses;
d) availability and presentation of technical data (see Annex B).

1.2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60269-1:2006, *Low-voltage fuses – General requirements*

IEC 60269-2:2006, *Low-voltage fuses – Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application) – Examples of standardized systems of fuses A to I*

IEC 60269-3:2006, *Low-voltage fuses – Supplementary requirements for fuses for use by unskilled persons (fuses mainly for household and similar applications) – Examples of standardized systems of fuses A to F*

IEC 60417, *Graphical symbols for use on equipment*

ISO 3, *Preferred numbers – Series of preferred numbers*

2 Terms and definitions

IEC 60269-1 applies with the following supplementary definitions.

2.2 General terms

2.2.101
semiconductor device
device whose essential characteristics are due to the flow of charge carriers within a semiconductor

[IEV 521-04-01]

2.2.102
semiconductor fuse-link
current-limiting fuse-link capable of breaking, under specific conditions, any current value within the breaking range (see 7.4)

2.2.103
signalling device
device forming part of the fuse and signalling the fuse operation to a remote place

NOTE A signalling device consists of a striker and an auxiliary switch. Electronic devices may also be used.

2.2.104
voltage source inverter
VSI
a voltage stiff inverter

[IEV 551-12-11]

NOTE Also referred to as a voltage stiff inverter i.e. an inverter that supplies current without any practical change in its output voltage.