

# CONSOLIDATED VERSION

# VERSION CONSOLIDÉE



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

**Fusibles basse tension –  
Partie 4: Exigences supplémentaires concernant les éléments de remplacement  
utilisés pour la protection des dispositifs à semiconducteurs**



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

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## CONTENTS

FOREWORD.....	4
1 General.....	6
1.1 Scope and object.....	6
1.2 Normative references .....	7
2 Terms and definitions .....	7
3 Conditions for operation in service .....	8
4 Classification.....	9
5 Characteristics of fuses .....	9
6 Markings .....	14
7 Standard conditions for construction .....	14
8 Tests.....	15
Annex AA (informative) Guidance for the coordination of fuse-links with semiconductor devices.....	28
Annex BB (normative) Survey on information to be supplied by the manufacturer in his literature (catalogue) for a fuse designed for the protection of semiconductor devices .....	34
Annex CC (normative) Examples of standardized fuse-links for the protection of semiconductor devices.....	35
Bibliography .....	53
Figure 101 – Conventional overload curve (example) (X and Y are points of verified overload capability).....	24
Figure 102 – Example of a conventional test arrangement for bolted fuse-links .....	25
Figure 103 – Example of a conventional test arrangement for blade contact fuse-links .....	27
Figure CC.1 – Single body fuse-links.....	36
Figure CC.2 – Double body fuse-links .....	37
Figure CC.3 – Twin body fuse-links .....	38
Figure CC.4 – Striker fuse-links .....	38
Table CC.1 – Conventional time and current for "gR" and "gS" fuse-links .....	39
Figure CC.5 – Fuse-links with bolted connections, type B, body sizes 000 and 00 .....	40
Figure CC.6 – Fuse-links with bolted connections, type B, body sizes 0, 1, 2 and 3 .....	41
Figure CC.7 – Bolted fuse-links, type C .....	43
Figure CC.8 – Flush end fuse-links, type A.....	45
Figure CC.9 – Flush end fuse-links, type B.....	47
Figure CC.10 – Fuse-links with cylindrical contact caps, type A .....	48
Figure CC.11 – Fuse-links with cylindrical contact caps, type B .....	51
Figure CC.12 – Fuse-links with cylindrical contact caps with striker, type B (additional dimensions for all sizes except 10 × 38) .....	52
Table 101 – Conventional times and currents for “gR” and “gS” fuse-links .....	11
Table 102 – List of complete tests .....	16
Table 103 – Survey of tests on fuse-links of the smallest rated current of a homogeneous series.....	16
Table 104 – Values for breaking-capacity tests on a.c. fuses .....	21

Table 105 – Values for breaking-capacity tests on d.c. fuses .....	22
Table 106 – Values for breaking-capacity tests on VSI fuse-links .....	23
<b>Table 107 – Cross-sectional area of copper conductors for high current ratings tests .....</b>	<b>17</b>
Table CC.2 – Conventional time and current for "gR" and "gS" fuse-links .....	44
Table CC.3 – <del>Preferred</del> <b>Typical</b> rated voltages and <b>preferred maximum</b> rated currents .....	49
Table CC.4 – Conventional time and current for "gR" and "gS" fuse-links .....	49

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## LOW-VOLTAGE FUSES –

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

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**This Consolidated version of IEC 60269-4 bears the edition number 5.2. It consists of the fifth edition (2009-05) [documents 32B/535/FDIS and 32B/541/RVD], its amendment 1 (2012-05) [documents 32B/579/CDV and 32B/586A/RVC] and its amendment 2 (2016-08) [documents 32B/651/FDIS and 32B/663/RVD]. The technical content is identical to the base edition and its amendments.**

**In this Redline version, a vertical line in the margin shows where the technical content is modified by amendments 1 and 2. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.**

International Standard IEC 60269-4 has been prepared by subcommittee 32B: Low-voltage fuses, of IEC technical committee 32: Fuses.

This fifth edition constitutes a technical revision. The significant technical changes to the fourth edition 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 part is to be used in conjunction with IEC 60269-1:2006, *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.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the IEC 60269 series, under the general title: *Low-voltage fuses*, can be found on the IEC website.

The committee has decided that the contents of the base publication and its amendments will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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## 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.

NOTE 3 IEC 60269-6 (Low-voltage fuses – Part 6: Supplementary requirements for fuse-links for the protection of solar photovoltaic energy systems) is dedicated to the protection of solar photovoltaic energy systems.

NOTE 4 These fuse-links are intended for use on systems employing the standardized voltages and tolerances of IEC 60038. Tests carried out on fuse-links in accordance with previous editions of this standard shall remain valid until such time as complimentary equipment has evolved to the standardized voltages and tolerances of IEC 60038.

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 BB).