IEC 60269-4

Edition 5.0 2016-08

INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 2
AMENDEMENT 2

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

IEC 60269-4:2009-05/AMD2:2016-08(en-fr)

IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

About the IEC
The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications
The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

IEC Catalogue - webstore.iec.ch/catalogue
The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - www.iec.ch/searchpub
The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,…). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished
Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

Electropedia - www.electropedia.org
The world's leading online dictionary of electronic and electrical terms containing 20 000 terms and definitions in English and French, with equivalent terms in 15 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary
65 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

IEC Customer Service Centre - webstore.iec.ch/csc
If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: csc@iec.ch.

A propos de l'IEC
La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC
Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Catalogue IEC - webstore.iec.ch/catalogue
Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

Recherche de publications IEC - www.iec.ch/searchpub
La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,…). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished
Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

Electropedia - www.electropedia.org
Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient 20 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 15 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary
65 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

Service Clients - webstore.iec.ch/csc
Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: csc@iec.ch.

IEC 60269-4

Edition 5.0 2016-08

INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 2
AMENDEMENT 2

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

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 29.120.50

ISBN 978-2-8322-3562-1

FOREWORD

This amendment has been prepared by subcommittee SC 32B: Low voltage fuses, of IEC technical committee TC 32: Fuses.

The text of this amendment is based on the following documents:

FDIS	Report on voting
32B/651/FDIS	32B/663/RVD

Full information on the voting for the approval of this amendment can be found in the report on voting indicated in the above table.

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

1.1 Scope and object

Insert, after existing Note 3, the following new Note 4:

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.

Replace

d) availability and presentation of technical data (see Annex B).

with the following new text:

d) availability and presentation of technical data (see Annex BB).

1.2 Normative references

Replace the first two references with the following new references:

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

IEC 60269-2, *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 K*

Add, after IEC 60269-3:

IEC TR 60269-5, *Low-voltage fuses – Part 5: Guidance for the application of low-voltage fuses*

IEC 60269-6, *Low-voltage fuses – Part 6: Supplementary requirements for fuse-links for the protection of solar photovoltaic energy systems*

Add, after IEC 60417:

IEC 60664-1:2000, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

2.2.105
voltage source inverter fuse-link
VSI fuse-link

Replace the second sentence of NOTE 2 with the following new text:

This short circuit condition leads to a very high rate of rise of current equivalent to a very low value of time constant, typically 3 ms or less.

3.6.3 Time constant (τ)

Add, after Note 2, the following new NOTE 3:

NOTE 3 Instead of time constant di/dt can be used in case of short circuit condition

di/dt = E/L.

E= voltage value of the DC power source

L = total inductance of the capacitor discharge circuit.

5.1.2 Fuse-links

Replace the order of the letters:

j)

k)

l)

by the following:

i)

j)

k)

Table 101 – Conventional times and currents for “gR” and “gS” fuse-links

In the third column, replace "1,13 I_n" *by* "1,1 I_n".

Replace, in the NOTE a:

In Annex C, some examples .....

by the following new text:

In Annex CC, some examples .....

5.7.2 Rated breaking capacity

Add, before the NOTE:

For VSI the rated breaking capacity is based on type tests performed in a circuit containing very low inductance and resistance with d.c. or capacitor discharged applied voltage.

7.4 Operation

Delete, in the 1st sentence of Subclause 7.4, "(see 8.4.3.4)".

Replace, at the beginning of the first indent, "its fuse-element"

by

"it"

8.3.3 Measurement of power dissipation of the fuse-link

Replace the first sentence of 8.3.3 with the following new text:

In addition to 8.3.3 of IEC 60269-1, the following applies: the power dissipation test shall be made successively at least at 50 % and at 100 % of rated current. This test may be performed with either ac or dc.

Add, after Subclause 8.3.3, the following new subclause and table:

8.3.4 Test method

The cross-sectional area of copper conductors for high current ratings tests corresponding to Subclauses 8.3 and 8.4 is defined in Table 107.

Table 107 – Cross-sectional area of copper conductors for high current ratings tests

Rated current *(IN)* A	Cross-sectional area (mm × mm)
1 600	2 × 100 × 5
2 000	3 × 100 × 5
2 500	4 × 100 × 5
3 150	3 × 100 × 10
≥ 4 000	IN *x* mm^2 / A[a]
[a] For currents ≥ 4 000 A the cross sectional area is defined with a current density = 1 A/mm^2.	

8.3.5 Acceptability of test results

Delete the second paragraph of Subclause 8.3.5.

8.4.3.2 Verification of rated current (see AA.3.3)

Delete the third paragraph of Subclause 8.4.3.2.

8.4.3.4 Overload

Delete the third paragraph of Subclause 8.4.3.4.

8.4.3.6 Operation of indicating devices and strikers, if any

Replace the first indent of the second paragraph of Subclause 8.4.3.6 with the following new text:

– at a current of I_{2a} (see Table 104 and Table 105);

8.5.5.2

Replace the first indent of Subclause 8.5.5.2 with the following new text:

For a.c. $110\ ^{+2}_{-3}$ % of the rated voltage

Table 104 – Values for breaking-capacity tests on a.c. fuses

Replace, in the second column of Table 104:

"$105\ ^{+5}_{0}$ %for rated voltage of 690 V[a]"

by

"$110\ ^{+2}_{-3}$ % of the rated voltage[a]"

Replace, in the first Note to Table 104:

"I_1 is the current which is used in the designation of the rated breaking capacity."

by

"I_1 is the current which is used in the designation of the rated breaking capacity (see 5.7.2)."

Table 105 – Values for breaking-capacity tests on d.c. fuses

Replace, in the first Note to Table 105:

"I_1 is the current which is used in the designation of the rated breaking capacity (see 5.7)."

by

"I_1 is the current which is used in the designation of the rated breaking capacity (see 5.7.2)."

Table 106 – Values for breaking-capacity tests on VSI fuse-links

Replace, in the second column of Table 106:

"$110\ ^{+5}_{-0}$ % of the rated voltage[b]"

by:

"$110\ ^{+2}_{-3}$ % of the rated voltage[b]"

Replace, in the second column of Table 106:

"Between 1 ms and 3 ms[c]"

by

"Less than 3 ms[c]"

Replace the text of note c of Table 106 with the following new text:

[c] Prospective current with high di/dt instead of low time constant may be utilized with the manufacturer's consent.

CC.6 System of fuse-links with flush end connections, type B – North American

CC.6.1 Scope

Replace the last sentence of the first paragraph of Subclause CC.6.1 by the following new text:

Their a.c. rated voltages (see CC.6.3) and currents are as follows:

Figure CC.11 – Fuse-links with cylindrical contact caps, type B

Delete Note 3) from the rows where it refers to:

Size	a
20 × 127	127 ± 1
36 × 127	127 ± 1