SVENSK STANDARD SS-EN 60127-2

Fastställd	Utgåva	Sida	Ansvarig kommitté
2014-11-19	3	1 (1+46)	SEK TK 32C

Finsäkringar –
Säkerhet –
Del 2: Särskilda fordringar på finsäkringar av patrontyp

Miniature fuses –
Part 2: Cartridge fuse-links

Som svensk standard gäller europastandarden EN 60127-2:2014. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60127-2:2014.

Nationellt förord

Europastandarden EN 60127-2:2014

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 60127-2, Third edition, 2014 - Miniature fuses - Part 2: Cartridge fuse-links**

utarbetad inom International Electrotechnical Commission, IEC.

Standarden ska användas tillsammans med SS-EN 60127-1, utgåva 2, 2006.

Tidigare fastställd svensk standard SS-EN 60127-2, utgåva 2, 2003, SS-EN 60127-2/A1, utgåva 1, 2003 och SS-EN 60127-2/A2, utgåva 1, 2010, gäller ej fr o m 2017-10-24.

ICS 29.120.50

Denna standard är fastställd av SEK Svensk Elstandard,
som också kan lämna upplysningar om **sakinnehållet** i standarden.
Postadress: Box 1284, 164 29 KISTA
Telefon: 08 - 444 14 00.
E-post: sek@elstandard.se. Internet: www.elstandard.se

Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a mätning, säkerhet och provning och för utförande, skötsel och dokumentation av elprodukter och elanläggningar.

Genom att utforma sådana standarder blir säkerhetsfordringar tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringsarbetet inom elområdet

SEK Svensk Elstandard svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

SEK Svensk Elstandard
Box 1284
164 29 Kista
Tel 08-444 14 00
www.elstandard.se

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60127-2

October 2014

ICS 29.120.50

Supersedes EN 60127-2:2003

English Version

Miniature fuses - Part 2: Cartridge fuse-links (IEC 60127-2:2014)

Coupe-circuit miniatures - Partie 2: Cartouches (CEI 60127-2:2014)

Geräteschutzsicherungen - Teil 2: Feinsicherungseinsätze (IEC 60127-2:2014)

This European Standard was approved by CENELEC on 2014-10-24. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 60127-2:2014 E

SEK Svensk Elstandard

Foreword

The text of document 32C/493/FDIS, future edition 3 of IEC 60127-2, prepared by SC 32C "Miniature fuses" of IEC/TC 32 "Fuses" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60127-2:2014.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2015-07-24
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2017-10-24

This document supersedes EN 60127-2:2003.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 60127-2:2014 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 61249-2-7:2002	NOTE	Harmonized as EN 61249-2-7:2002 (not modified).

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu

Publication	Year	Title	EN/HD	Year
IEC 60068-2-20	-	Environmental testing - Part 2-20: Tests - Test T: Test methods for solderability and resistance to soldering heat of devices with leads	EN 60068-2-20	-
IEC 60068-2-21	2006	Environmental testing - Part 2-21: Tests - Test U: Robustness of terminations and integral mounting devices	EN 60068-2-21	2006
IEC 60127-1 +A1	2006 2011	Miniature fuses - Part 1: Definitions for miniature fuses and general requirements for miniature fuse-links	EN 60127-1 +A1	2006 2011
ISO 3	-	Preferred numbers; Series of preferred numbers	-	-

CONTENTS

FOREWORD....4
INTRODUCTION....6
1 Scope and object....7
2 Normative references....7
3 Terms and definitions....7
4 General requirements....7
5 Standard ratings....7
6 Marking....8
7 General notes on tests....8
8 Dimensions and construction....14
9 Electrical requirements....16
10 Standard sheets....18
Annex A (normative) Miniature fuse-links with wire terminations....38
A.1 General....38
A.2 Scope....38
A.3 General notes on tests....38
A.3.1 Type tests....38
A.3.2 Testing schedule....38
A.3.3 Test bases for tests....39
A.4 Dimensions and construction....41
A.4.1 Dimensions....41
A.4.2 Mechanical tests on terminations....41
A.4.3 Solderability of terminations....42
A.4.4 Resistance to soldering heat....42
A.5 Electrical requirements....42
A.5.1 Voltage drop....43
A.5.2 Time/current characteristic at normal ambient temperature....43
A.5.3 Breaking capacity....43
A.5.4 Fuse-link temperature....43
Bibliography....44

Figure 1 – Test fuse-base for 5 mm × 20 mm and 6,3 mm × 32 mm fuse-links – Rated currents up to and including 6,3 A (see 7.3)....11
Figure 2 – Test fuse-base for 5 mm × 20 mm and 6,3 mm × 32 mm fuse-links – Rated currents exceeding 6,3 A (see 7.3)....12
Figure 3 – Test fuse-base for breaking capacity tests (see 7.3)....13
Figure 4 – Axial pull test apparatus....15
Figure 5 – Alignment gauge (see 8.4)....16
Figure 6 – Typical test circuit for breaking-capacity tests for high-breaking capacity fuse-links (see 9.3)....17
Figure 7 – Typical test circuit for breaking-capacity tests for low- and enhanced-breaking capacity fuse-links (see 9.3)....17
Figure A.1 – Test board....39

Figure A.2 – Test base 40
Figure A.3 – Dimensions of fuse-link with wire terminations 41

Table 1 – Testing schedule for individual ampere ratings 9
Table 2 – Testing schedule for maximum ampere rating of a homogeneous series 9
Table 3 – Testing schedule for minimum ampere rating of a homogeneous series 10
Table A.1 – Testing schedule 39

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

MINIATURE FUSES –

Part 2: Cartridge fuse-links

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60127-2 has been prepared by subcommittee 32C: Miniature fuses, of IEC technical committee 32: Fuses.

This third edition of IEC 60127-2 cancels and replaces the second edition published in 2003, amendment 1 (2003) and amendment 2 (2010). This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) add 4 new standard sheets 7 up to 10.

This International Standard is to be used in conjunction with IEC 60127-1:2006.

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

FDIS	Report on voting
32C/493/FDIS	32C/498/RVD

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

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

The clauses of this standard supplement, modify or replace the corresponding clauses in IEC 60127-1.

Where there is no corresponding clause or subclause in this standard, the clause or subclause of IEC 60127-1 applies without modification as far as is reasonable. When this standard states “addition”, “modification” or “replacement”, the relevant text in IEC 60127-1 is to be adapted accordingly.

The committee has decided that the contents of this publication 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

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

INTRODUCTION

According to the wish expressed by the users of miniature fuses, all standards, recommendations and other documents relating to miniature fuses should have the same publication number in order to facilitate reference to fuses in other specifications, for example, equipment specifications.

Furthermore, a single publication number and subdivision into parts would facilitate the establishment of new standards, because clauses and subclauses containing general requirements need not be repeated.

The new IEC 60127 series is thus subdivided as follows:

IEC 60127, *Miniature fuses* (general title).

IEC 60127-1, *Miniature fuses – Part 1: Definitions for miniature fuses and general requirements for miniature fuse-links*

IEC 60127-2, *Miniature fuses – Part 2: Cartridge fuse-links*

IEC 60127-3, *Miniature fuses – Part 3: Sub-miniature fuse-links*

IEC 60127-4, *Miniature fuses – Part 4: Universal modular fuse-links (UMF) – Through-hole and surface mount types*

IEC 60127-5, *Miniature fuses – Part 5: Guidelines for quality assessment of miniature fuse-links*

IEC 60127-6, *Miniature fuses – Part 6: Fuse-holders for miniature fuse-links*

IEC 60127-7, *Miniature fuses – Part 7: Miniature fuse-links for special applications*

IEC 60127-8, (Free for further documents)

IEC 60127-9, (Free for further documents)

IEC 60127-10, *Miniature fuses – Part 10: User guide for miniature fuses*

This Part of IEC 60127 covers additional requirements, test equipment and standard sheets.

The SI system of units is used throughout this standard.

MINIATURE FUSES –

Part 2: Cartridge fuse-links

1 Scope and object

This part of IEC 60127 relates to special requirements applicable to cartridge fuse-links for miniature fuses with dimensions measuring 5 mm × 20 mm and 6,3 mm × 32 mm for the protection of electric appliances, electronic equipment and component parts thereof, normally intended for use indoors.

It does not apply to cartridge fuse-links for appliances intended to be used under special conditions, such as in corrosive or explosive atmospheres.

This standard applies in addition to the requirements of IEC 60127-1.

The object of this standard is to define special and additional test methods for cartridge fuse-links applying in addition to the requirements of IEC 60127-1.

2 Normative references

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

IEC 60068-2-20, *Environmental testing – Part 2-20: Tests – Test T: Test methods for solderability and resistance to soldering heat of devices with leads*

IEC 60068-2-21:2006, *Environmental testing – Part 2-21: Tests – Test U: Robustness of terminations and integral mounting devices*

IEC 60127-1:2006, *Miniature fuses – Part 1: Definitions for miniature fuses and general requirements for miniature fuse-links*
Amendment 1:2011

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