SLOVENSKI STANDARD
SIST EN 60127-3:2015/A1:2020

01-december-2020

Miniaturne varovalke - 3. del: Subminiaturni taljivi vložki

Miniature fuses - Part 3: Sub-miniature fuse-links

Geräteschutzsicherungen - Teil 3: Kleinstsicherungseinsätze

Coupe-circuit miniatures - Partie 3: Éléments de remplacement subminiatures

Ta slovenski standard je istoveten z: **EN 60127-3:2015/A1:2020**

ICS:

29.120.50	Varovalke in druga nadtokovna zaščita	Fuses and other overcurrent protection devices

SIST EN 60127-3:2015/A1:2020 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60127-3:2015/A1

September 2020

ICS 29.120.50

English Version

Miniature fuses - Part 3: Sub-miniature fuse-links (IEC 60127-3:2015/A1:2020)

Coupe-circuit miniatures - Partie 3: Éléments de remplacement subminiatures (IEC 60127-3:2015/A1:2020)

Geräteschutzsicherungen - Teil 3: Kleinstsicherungseinsätze (IEC 60127-3:2015/A1:2020)

This amendment A1 modifies the European Standard EN 60127-3:2015; it was approved by CENELEC on 2020-08-26. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 amendment 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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, 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: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 32C/586/FDIS, future IEC 60127-3/A1, 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 60127-3:2015/A1:2020.

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) 2021-05-26
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2023-08-26

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

Endorsement notice

The text of the International Standard IEC 60127-3:2015/A1:2020 was approved by CENELEC as a European Standard without any modification.

IEC 60127-3

Edition 3.0 2020-07

INTERNATIONAL STANDARD

AMENDMENT 1

Miniature fuses – Part 3: Sub-miniature fuse-links

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ICS 29.120.50

ISBN 978-2-8322-8652-4

FOREWORD

This amendment has been prepared by subcommittee 32C: Miniature fuses, of IEC technical committee 32: Fuses.

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

FDIS	Report on voting
32C/586/FDIS	32C/589/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.

Add, at the end of Clause 10, the following new text:

Addition of the following new Annex A:

Annex A
(normative)

Sub-miniature fuse-links according to standard sheet 3 and 4 with optional DC ratings

A.1 General

This annex supplements the requirements of this standard and is to be applied to already tested and approved sub-miniature fuse-links.

This annex relates to requirements applicable to sub-miniature fuse-links adapted to printed circuits and used for the protection of electric appliances, electronic equipment and component parts thereof, normally intended to be used indoors.

The object of this annex is to define additional test methods for sub-miniature fuse-links according to standard sheet 3 and 4 with optional DC ratings.

A.2 General notes on tests

In addition to the requirements of Clause 7 of IEC 60127-1:2006, the following criteria shall be observed.

A.2.1 Type tests

Replacement of 7.2.1:

15 additional samples chosen at random are required.

The schedule for testing sub-miniature fuse-links with DC ratings shall be according to Table A.1.

The requirements of 7.2.3 of IEC 60127-1:2006 are not applicable.

No failure is allowed in any of the additional tests specified in this annex.

Table A.1 – Testing schedule

Sub-clause	Description	Fuse-link number				
		DC1 DC2 DC3	DC4 DC5 DC6	DC7 DC8 DC9	DC10 DC11 DC12	DC13 DC14 DC15
A.4.1	Rated breaking capacity	X				
A.4.1	5 times the rated current 5 I_N		X			
A.4.1	10 times the rated current 10 I_N			X		
A.4.1	50 times the rated current 50 I_N				X	
A.4.1	250 times the rated current 250 I_N					X
A.4.1	Insulation resistance	X	X	X	X	X
NOTE Applicable only when the defined rated breaking capacity is not exceeded.						

A.2.2 Test bases for tests

Sub-miniature fuse-links shall be tested in a test board as shown in Figure 1. The test board shall then be mounted on the test base of Figure 2.

A.3 Marking

Clause 6 of IEC 60127-1:2006 applies except as follows.

6.3

Addition after first paragraph:

Furthermore the DC rated breaking capacity in amperes (A) or in kilo amperes (kA) as well as the DC rated voltage (VDC) shall be marked on the package label.

A.4 Electrical requirements

A.4.1 Breaking capacity

Replacement of 9.3.1:

Fuse-links shall operate satisfactorily without endangering the surroundings when breaking prospective currents between the conventional non-fusing current and rated breaking capacity.

The recovery voltage shall be between 1,02 and 1,05 times the rated voltage of the fuse-links (the upper tolerance may be exceeded with the manufacturer's consent) and shall be maintained for 30 s after the fuse has operated.

Typical test circuits for DC are given in Figure A.1. The cross-sectional area of copper wire shall be approximately 6 mm^2.

For tests at lower prospective currents (5 I_N, 10 I_N, 50 I_N, 250 I_N), the inductance of the circuit shall remain constant and the current shall be adjusted by changing the resistance only.

In the case of fuse-links in which any component is organic (such as with a moulded body), the recovery voltage shall be maintained for 5 min after the fuse has operated.

In principle, the DC rated voltage, rated breaking capacity and associated time constant, respectively, shall be specified by the manufacturer.

Unless otherwise stated by the manufacturer, the time constant of the test circuit shall be chosen from Table A.2.

Table A.2 – Time constant

Test current	Time constant
up to 100 A	<1 ms
above 100 A up to 500 A	1 ms to 1,7 ms
above 500 A up to 1 500 A	2 ms to 2,5 ms

Compliance is checked by

a) Rated breaking capacity, but not be less than 35 A, 10In or as specified by the manufacturer, whichever is greater.

b) Prospective currents of approximately 5, 10, 50 and 250 times the rated current, but not exceeding the rated breaking capacity.

After the above test, the insulation resistance between the fuse-link terminations shall be measured with a DC voltage equal to twice the rated voltage of the fuse-link, but not less than 250 V. The resistance shall be not less than 0,1 MΩ.

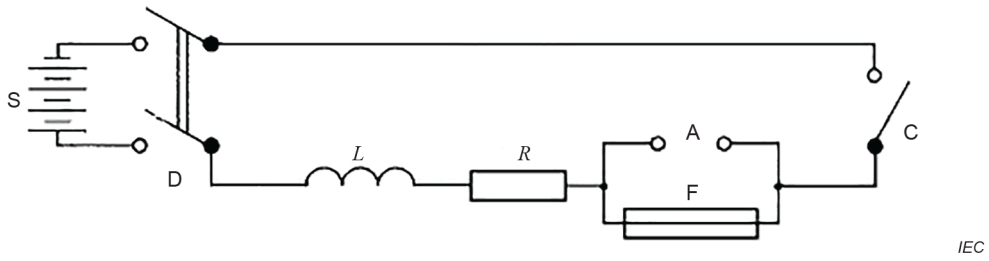

Figure A.1a) – Typical test circuit for breaking capacity tests for fuse-links with breaking capacity greater than 100 A

Figure A.1b) – Typical test circuit for breaking capacity tests for fuse-links with breaking capacity less than or equal to 100 A

Components

A	removable link used for calibration	S	source of supply, impedance less than 10 % of the total impedance of the circuit
C	contactor that makes the circuit		
D	switch to disconnect the source of supply	*L*	air-cored inductance
F	fuse-link under test	*R*	series resistor, adjusted to obtain correct prospective current

Figure A 1 – Test circuits for breaking capacity tests

A.5.2 Criteria for satisfactory performance

In addition to the failure criteria described in 9.3.2 of IEC 60127-1:2006, the fuse-link shall operate satisfactorily in all tests without any of the following phenomena:

– fusing together of the contacts;
– illegibility of marking after test;
– piercing of end caps (if applicable), visible to the naked eye;
– piercing of the external surfaces, visible to the naked eye;
– scorching or melting of organic substances on the external surfaces.

The following phenomena are neglected:

– black spots or other marks on the fuse-link terminations;