

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Miniature fuses – **STANDARD PREVIEW**
Part 6: Fuse-holders for miniature fuse-links
(standards.iteh.ai)

Coupe-circuits miniatures –
Partie 6: Ensembles-porteurs pour cartouches de coupe-circuits miniatures

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CONTENTS

FOREWORD.....	6
INTRODUCTION.....	8
1 Scope.....	9
2 Normative references	10
3 Terms and definitions	11
3.1 Fuse-holders.....	12
4 General requirements	15
5 Preferred standard ratings and classifications for fuse-holders	15
6 Marking	16
7 Clause deleted	16
8 General notes on tests	16
8.1 Nature of tests	16
8.2 Standard atmospheric conditions for measurement and tests.....	17
8.3 Preconditioning of test samples	17
8.4 Nature of supply	17
8.5 Gauges and dummy fuse-links for tests.....	17
8.5.1 Gauges and dummy fuse-links according to IEC 60127-2.....	17
8.5.2 Gauges and dummy fuse-links according to IEC 60127-3	18
8.6 Type tests.....	20
9 Protection against electric shock	20
9.1 Category PC1: Fuse-holders without integral protection against electric shock.....	20
9.2 Category PC2: Fuse-holders with integral protection against electric shock	21
9.3 Category PC3: Fuse-holders with enhanced integral protection against electric shock.....	21
10 Clearances and creepage distances	21
10.1 General.....	21
10.2 Minimum requirements for fuse-holders in respect to the grade of insulation.....	21
10.3 Clearances	22
10.4 Creepage distances	23
11 Electrical requirements	24
11.1 Insulation resistance, dielectric strength and impulse withstand voltage.....	24
11.1.1 Mounting	24
11.1.2 Humidity preconditioning	25
11.1.3 Measurement of insulation resistance	25
11.1.4 Dielectric strength test.....	26
11.1.5 Impulse withstand voltage test.....	26
11.2 Contact resistance	26
11.2.1 General measuring requirements	26
11.2.2 Measuring cycle.....	27
11.2.3 Measurement and requirements.....	27
12 Mechanical requirements.....	29
12.1 General.....	29
12.2 Mounting.....	29
12.3 Compatibility between fuse-holder and fuse-link	29

12.4	Mechanical strength of the connection between fuse-base and fuse-carrier	30
12.4.1	Screw and bayonet connections	30
12.4.2	Plug-in connection	30
12.5	Impact test	31
12.6	Mechanical strength of the fuse-holder fastening on panels	31
12.6.1	Fixing nut fastening	31
12.6.2	Fixing screw fastening	31
12.6.3	Snap-in fastening	32
12.7	Terminals of fuse-bases	33
12.7.1	Terminals with screw-type clamping or screwless-type clamping	33
12.7.2	Terminals for soldering	33
12.7.3	Quick-connect male tab terminals	35
12.7.4	Quick-connect male tab terminals combined with solder tag terminals	36
12.8	Resistance to vibration	36
12.8.1	General	36
12.8.2	Mounting	36
12.8.3	Measurement and requirements	37
13	Thermal requirements	37
13.1	Rated power acceptance test	37
13.1.1	General	37
13.1.2	Mounting	37
13.1.3	Dummy fuse-links	38
13.1.4	Measurement of maximum allowable temperatures on fuse-holders	40
13.1.5	Correlation between ambient air temperature T_{A1} and the power acceptance of a fuse-holder	42
13.1.6	Temperature measuring point for ambient air temperature T_{A1}	43
13.1.7	Test method	43
13.2	Resistance to abnormal heat and fire	44
13.2.1	Needle-flame test	44
13.2.2	Glow-wire ignition test	45
14	Endurance	45
14.1	General	45
14.2	Endurance test	45
14.3	Requirements	45
15	Additional requirements	45
15.1	Resistance to rusting	45
15.2	Resistance to cleaning solvents	46
Annex A (normative)	Test PC board for fuse-holders of rated currents up to 10 A	47
Annex B (normative)	Type tests, test sequences and number of samples	48
Annex C (informative)	Insulation coordination	49
C.1	Overvoltage categories	49
C.2	Degrees of pollution in the micro-environment	49
C.3	Comparative tracking index CTI	50
Annex D (informative)	Additional tests and requirements	51
D.1	General	51
D.2	Resistance to shock	51
D.2.1	General	51
D.2.2	Mounting	51

D.2.3	Measurement and requirements.....	51
D.3	Verification of the degree of protection of enclosures	51
D.4	Climatic category	52
D.4.1	General	52
D.4.2	Test conditions and requirements	52
Annex E (informative)	Information for the correct application of the fuse-holder	53
Bibliography	54
Figure 1	– Outline of gauges and dummy fuse-links according to IEC 60127-2.....	17
Figure 2	– Outline of gauges and dummy fuse-links according to IEC 60127-3 standard sheet 1	19
Figure 3	– Outline of gauges and dummy fuse-links according to IEC 60127-3 standard sheets 3 and 4	19
Figure 4	– Panel mounting	25
Figure 5	– PC board mounting	25
Figure 6	– Test device for mechanical test.....	29
Figure 7	– Fuse-holder fastening on panels	32
Figure 8	– Tensile force test	36
Figure 9	– Compressive force test	36
Figure 10	– Test device	38
Figure 11	– Illustration of temperatures experienced in practice	41
Figure 12	– Example of a derating curve.....	44
Figure A.1	– Example of a test board	47
<p style="text-align: center;"> https://standards.iteh.ai/catalog/standards/sist/330b9d4e-4061-47de-91be-bc9f422d32bb/iec-60127-6-2014 </p>		
Table 1	– Features of unexposed or exposed fuse-holders	9
Table 2	– Values for standard ratings and classifications	16
Table 3	– Dimensions and materials for gauges according to IEC 60127-2	18
Table 4	– Dimensions and materials for dummy fuse-links according to IEC 60127-2.....	18
Table 5	– Dimensions and materials for gauges according to IEC 60127-3	20
Table 6	– Dimensions and materials for dummy fuse-links according to IEC 60127-3.....	20
Table 7	– Types of insulation between different live parts and accessible parts	21
Table 8	– Required impulse withstand voltage for clearances	22
Table 9	– Overvoltage category II	23
Table 10	– Overvoltage category III	23
Table 11	– Minimum creepage distances in millimetres for a micro- environmentdependent on rated voltage, pollution degree, insulating material,corresponding to IEC 60664-1:2007, Table F.4.....	24
Table 12	– Values for insulation resistance, dielectric strength and impulse withstand voltage.....	28
Table 13	– Values for torque and axial pull	30
Table 14	– Torque values	31
Table 15	– Torque values	32
Table 16	– Mounting groups.....	33
Table 17	– Cross-sections of conductors	34
Table 18	– Tensile and compressive forces	36

Table 19 – Dummy fuse-links according to IEC 60127-2	39
Table 20 – Dummy fuse-links according to IEC 60127-3	40
Table 21 – Maximum allowable temperatures.....	42
Table A.1 – Copper layer for test board	47
Table B.1 – Type tests, test sequences and number of samples	48
Table D.1 – Examples of climatic categories	52
Table E.1 – Information for the correct application of the fuse-holder.....	53

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

MINIATURE FUSES –

Part 6: Fuse-holders for miniature fuse-links

FOREWORD

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International Standard IEC 60127-6 has been prepared by subcommittee 32C: Miniature fuses, of IEC technical committee 32: Fuses.

This second edition cancels and replaces the first edition published in 1994, its Amendment 1 (1996) and Amendment 2 (2002). This edition constitutes a technical revision.

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

- a) modify the arrangement of the fuse-holder samples in the planes in 13.1.1;
- b) add a new test 13.2.2: Glow-wire ignition test;
- c) change maximum gauge size for standard sheets 3 and 4 from 0,70 to 0,63 in table 5;
- d) change minimum gauge size for standard sheets 3 and 4 from 0,55 to 0,56 in table 5.

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

FDIS	Report on voting
32C/491/FDIS	32C/497/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.

A list of all parts in the IEC 60127 series, published under the general title *Miniature fuses*, can be found on the IEC website.

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

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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, *Part 1: Definitions for miniature fuses and general requirements for miniature fuse-links*

IEC 60127-2, *Part 2: Cartridge fuse-links*

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

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

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

IEC 60127-6, *Part 6: Fuse-holders for miniature cartridge fuse-links*

IEC 60127-7, *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, *Part 10: User guide for miniature fuses*

This part of IEC 60127 covers requirements, test equipment and test methods for fuse-holders. It is a self-standing document, which refers back to Part 1 with regard to certain definitions and the atmospheric conditions for test. It also makes reference to other parts of IEC 60127 with regard to dimensions and maximum power losses of fuse-links.

MINIATURE FUSES –

Part 6: Fuse-holders for miniature fuse-links

1 Scope

This part of IEC 60127 is applicable to fuse-holders for miniature cartridge fuse-links according to IEC 60127-2 and sub-miniature fuse-links according to IEC 60127-3 for the protection of electric appliances, electronic equipment and component parts thereof, normally intended for use indoors.

Examples of fuse-holder types with different features are given in Table 1.

Table 1 – Features of unexposed or exposed fuse-holders

1	<i>Types of mounting</i>
1.1	Panel and base mounting
1.2	Printed circuit board mounting
2	<i>Methods of fastening</i>
2.1	Methods of fastening on panel:
2.1.1	Fixing nut fastening (threaded nut)
2.1.2	Snap-in fastening:
2.1.2.1	Fuse-base with an integral spring system
2.1.2.2	Fuse-base with a separate spring nut (a nut fabricated, e.g. from thin spring steel having an impression designed to accommodate the mating part)
2.2	Methods of fastening on printed circuit (PC) board:
2.2.1	Solder fastening
2.2.2	Plug-in fastening
3	<i>Methods of insertion of the fuse-carrier into the fuse base</i>
3.1	Screw insertion
3.2	Bayonet insertion
3.3	Plug-in insertion
4	<i>Types of terminals</i>
4.1	Screw terminals
4.2	Solder terminals
4.3	Quick connect terminals
4.4	Other solderless terminals: <ul style="list-style-type: none"> – crimp terminals – wire wrap terminals
5	<i>Protection against electric shock</i>
5.1	Fuse-holder without integral protection against electric shock
5.2	Fuse-holder with integral protection against electric shock
5.3	Fuse-holder with enhanced integral protection against electric shock
NOTE This list is not intended to be comprehensive and fuse-holders which are not listed are not necessarily excluded from the scope.	

This part of IEC 60127 applies to fuse-holders with:

- a maximum rated current of 16 A; and
- a maximum rated voltage of 1 500 V d.c. or 1 000 V a.c.; and
- for use up to 2 000 m above sea-level, unless otherwise specified.

The object of this standard is to establish uniform requirements for safety and the assessment of electrical, mechanical, thermal and climatic properties of fuse-holders and the compatibility between fuse-holders and fuse-links.

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 60050 (all parts), *International Electrotechnical Vocabulary*

IEC 60068-1:2013, *Environmental testing - Part 1: General and guidance*

IEC 60068-2-1:2007, *Environmental testing - Part 2-1: Tests - Test A: Cold*

IEC 60068-2-2:2007, *Environmental testing - Part 2-2: Tests - Test B: Dry heat*

IEC 60068-2-6:2007, *Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)*

IEC 60068-2-20:2008, *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 60068-2-27:2008, *Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock*

IEC 60068-2-45:1980, *Basic environmental testing procedures - Part 2-45: Tests - Test XA and guidance: Immersion in cleaning solvents*

IEC 60068-2-45:1980/AMD1:1993

IEC 60068-2-47:2005, *Environmental testing - Part 2-47: Test - Mounting of specimens for vibration, impact and similar dynamic tests*

IEC 60068-2-75:1997, *Environmental testing - Part 2-75: Tests - Test Eh: Hammer tests*

IEC 60068-2-78:2012, *Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state*

IEC 60068-3-4:2001, *Environmental testing - Part 3-4: Supporting documentation and guidance - Damp heat tests*

IEC 60112:2003, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

IEC 60112:2003/AMD1:2009

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

IEC 60127-1:2006/AMD1:2011

IEC 60127-2:2003, *Miniature fuses - Part 2: Cartridge fuse-links*

IEC 60127-2:2003/AMD1:2003

IEC 60127-2:2003/AMD2:2010

IEC 60127-3:1988, *Miniature fuses - Part 3: Sub-miniature fuse-links*

IEC 60127-3:1988/AMD1:1991

IEC 60127-3:1988/AMD2:2002

IEC 60216-1:2013, *Electrical insulating materials - Thermal endurance properties - Part 1: Ageing procedures and evaluation of test results*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code)*

IEC 60529:1989/AMD1:1999

IEC 60529:1989/AMD2:2013

IEC 60664-1:2007, *Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests*

IEC 60695-11-5:2004, *Fire hazard testing - Part 11-5: Test flames - Needle-flame test method - Apparatus, confirmatory test arrangement and guidance*

IEC 60695-2-12:2010, *Fire hazard testing - Part 2-12: Glowing/hot-wire based test methods - Glow-wire flammability index (GWFI) test method for materials*

IEC 60695-2-12:2010/AMD1:2014

IEC 60695-2-13:2010, *Fire hazard testing - Part 2-13: Glowing/hot-wire based test methods - Glow-wire ignition temperature (GWIT) test method for materials*

IEC 60695-2-13:2010/AMD1:2014

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IEC 60999-1:1999, *Connecting devices - Electrical copper conductors - Safety requirements for screw-type and screwless-type clamping units - Part 1: General requirements and particular requirements for clamping units for conductors from 0,2 mm² up to 35 mm² (included)*

IEC 61140:2001, *Protection against electric shock - Common aspects for installation and equipment*

IEC 61140:2001/AMD1:2004

IEC 61210:2010, *Connecting devices - Flat quick-connect terminations for electrical copper conductors - Safety requirements*

ISO 3:1973, *Preferred numbers – Series of preferred numbers*

3 Terms and definitions

For the definitions of general terms used in this standard, reference should be made to IEC 60050-441, IEC 60050-581 and IEC 60664-1.

For definitions of terms relating to fuse-links, reference is made to IEC 60127-1:2006.

For the purposes of this document, the following terms and definitions apply.

3.1 Fuse-holders

3.1.1

fuse-base

fuse-mount

fixed part of a fuse provided with contacts and terminals for connection to the system

[SOURCE: IEC 60127-1:2006, 3.10]

3.1.2

fuse-carrier

movable part of a fuse designed to carry a fuse-link

[SOURCE: IEC 60127-1:2006, 3.12]

3.1.3

fuse-holder

combination of a fuse-base with its fuse-carrier

Note 1 to entry: In some fuse-holder constructions where the fuse-base and the fuse-carrier are not separate parts the fuse-holder may consist of only the fuse-base and no fuse-carrier.

3.1.4

unexposed fuse-holder

fuse-holder with enclosed contacts

3.1.5

exposed fuse-holder

fuse-holder with exposed contacts (e.g. clips)

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3.2

rating

general term employed to designate the characteristic values that together define the working conditions upon which the tests are based and for which the fuse is designed

EXAMPLE Examples of rated values usually stated for fuses:

- voltage (U_N);
- current (I_N);
- breaking capacity.

[SOURCE: IEC 60127-1:2006, 3.16]

3.3

rated power acceptance

value of power acceptance of a fuse-holder assigned by the manufacturer

Note 1 to entry: This value is the maximum power dissipation produced by the inserted dummy fuse-link during testing, at the rated current tolerated by the fuse-holder without exceeding the specified temperatures.

Note 2 to entry: The rated power acceptance is referred to an ambient temperature of 23 °C.

3.4

rated current

value of current of a fuse-holder assigned by the manufacturer and to which the rated power acceptance is referred

3.5

rated voltage

value of voltage of a fuse-holder assigned by the manufacturer and to which operation and performance characteristics are referred

3.6**insulation coordination**

mutual correlation of insulation characteristics of electrical equipment taking into account the expected micro-environment and other influencing stresses

[SOURCE: IEC 60664-1:2007, 3.1]

3.7**impulse withstand voltage**

highest peak value of impulse voltage of prescribed form and polarity which does not cause breakdown of insulation under specified conditions

[SOURCE: IEC 60664-1:2007, 3.8.1]

3.8**overvoltage category**

numeral defining a transient overvoltage condition

specified categories, see C.1

[SOURCE: IEC 60664-1:2007, 3.10, modified by addition of “specified categories”]

3.9**pollution**

any addition of foreign matter, solid, liquid, or gaseous that can result in a reduction of electric strength or surface resistivity of the insulation

[SOURCE: IEC 60664-1:2007, 3.11]

3.10**pollution degree**

numeral characterizing the expected pollution of the micro-environment

specified degrees, see C.2

[SOURCE: IEC 60664-1:2007, 3.13, modified by addition of “specified categories”]

3.11**micro-environment**

immediate environment of the insulation which particularly influences the dimensioning of the creepage distances

[SOURCE: IEC 60664-1:2007, 3.12.2]

3.12**clearance**

shortest distance in air between two conductive parts

[SOURCE: IEC 60664-1:2007, 3.2]

3.13**creepage distance**

shortest distance along the surface of a solid insulating material between two conductive parts

[SOURCE: IEC 60050-151:2001, 151-15-50]