Electric

RAPIDPLUS

HIGH SPEED FUSE LINKS FOR SEMICONDUCTORS

Rapidplus®

gR CYLINDRICAL

semiconductor protection fuse links

CYL 10x38

10x38 14x51 22x58

PROTECTING THE WORLD

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10x38

RAPIDPLUS

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RATED VOLTAGE
690V AC

RATED CURRENT
1A...32A

BREAKING CAPACITY
200kA

STANDARDS
IEC/EN 60269-1
IEC/EN 60269-4
UL248-1
UL248-13

Rapidplus®
Cylindrical fuse links for semiconductors

RAPIDPLUS CYL gR fuse links are capable to clearing all types of overcurrents, overloads as well as short-circuits, thus the fuse links protect semiconductors as well as cables and all switchgear of installation.

The range comprises the following fuse links:

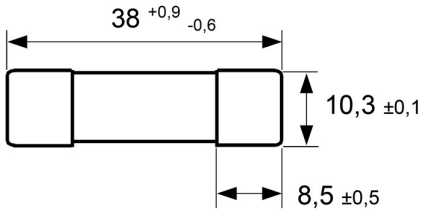
→ **Size 10x38 690V AC 1A to 32A**

Typical application comprise protection of semiconductors (diodes, thyristors, triacs, etc) used in power rectifiers, UPS, converters, motor drives (AC and DC), soft starters, solid state relays, photovoltaic inverters, welding inverters and any application where it is necessary to protect semiconductor devices.

UL certification according to UL248 standard. UL file Nr. E477155.

RoHS COMPLIANT

Dimensions



Weight 8gr

Range

In (A)	REFERENCE	PACKING Uni /BOX
1	**492000**	10/100
2	**492001**	10/100
3	**492002**	10/100
4	**492003**	10/100
6	**492004**	10/100
8	**492005**	10/100
10	**492006**	10/100
12	**492007**	10/100
16	**492008**	10/100
20	**492009**	10/100
25	**492010**	10/100
32	**492011**	10/100

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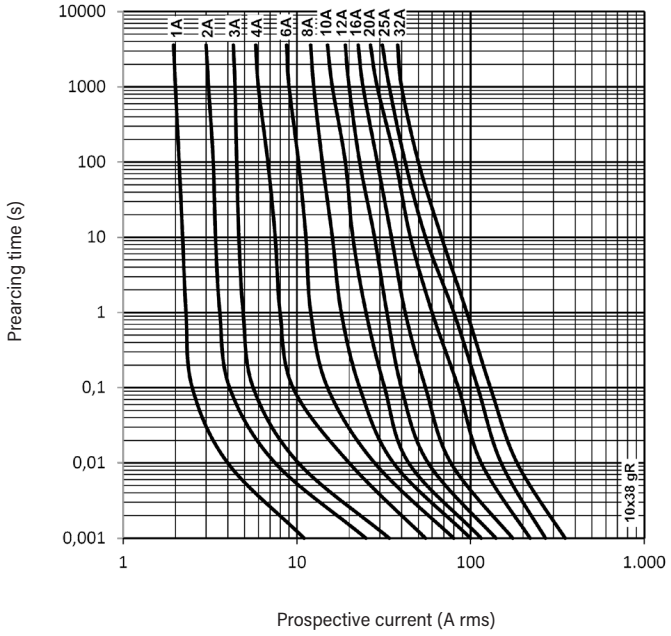
Technical data

Rated voltage	690V AC (UL/IEC) 440V DC (L/R=10ms)(IEC)
Rated current	1A...32A
Rated breaking capacity	200kA @690V AC 30kA @440V DC
Operating class	gR
Storage temperature	-40°C ... 90°C
Operating temperature *	-40°C ... 80°C

* For ambient temperatures higher than 25ºC it is necessary to apply a derating in maximum current.

t-I characteristics

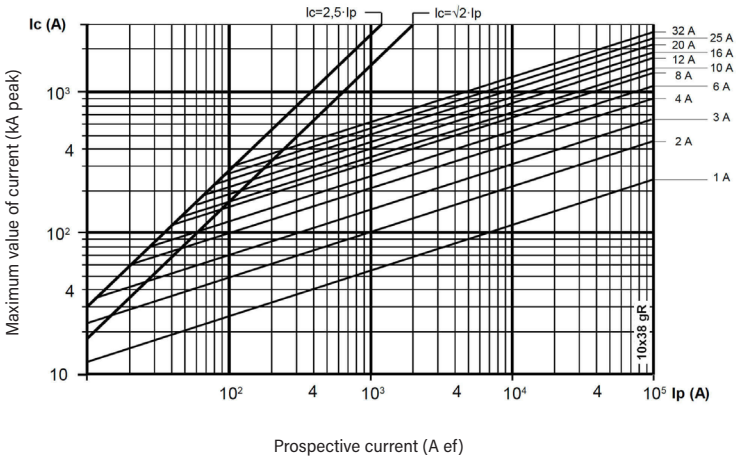


Standards

IEC/EN 60269-1
IEC/EN 60269-4
UL248-1
UL248-13
RoHS Compliant

Certifications

Cut-off characteristics



Power dissipation

I_n	POWER DISSIPATION I_n	POWER DISSIPATION $0.8 \cdot I_n$	PREARCING I^2t	I^2t 690V
(A)	(W)	(W)	(A^2S)	(A^2S)
1 *	0,75	0,45	0,20	1,2
2	1,40	0,75	0,80	2,6
3	1,70	0,95	2,5	8,0
4	2,05	1,13	5,6	17
6	3,00	1,56	16,0	48
8	1,68	0,97	4,3	38
10	2,09	1,20	6,6	59
12	2,99	1,69	9,6	84
16	4,27	2,31	17,0	150
20	5,35	2,86	23,5	200
25	5,52	2,94	60,2	512
32	7,43	3,82	94,0	800

* Not UL certified

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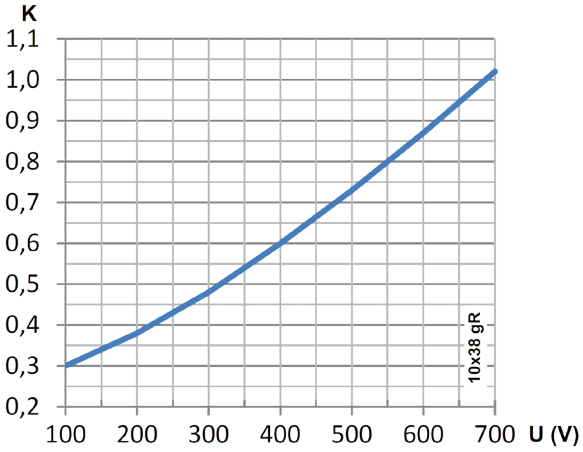
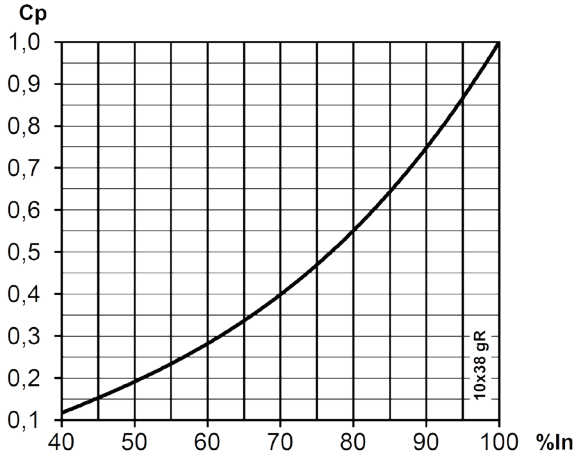


I^2t Correction factor

The total clearing I^2t at rated voltage and at power factor of 0,15 are given in the electrical characteristics.

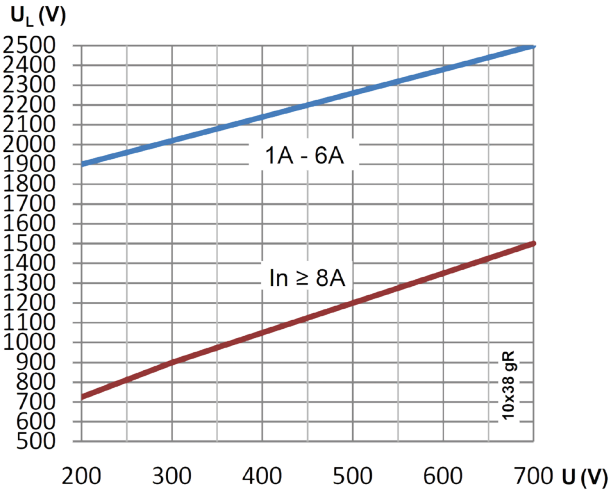
For other voltages, the clearing I^2t is found by multipliying by correction factor, K.



Correction factor for power loss

Watts loss at rated current are given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated value.

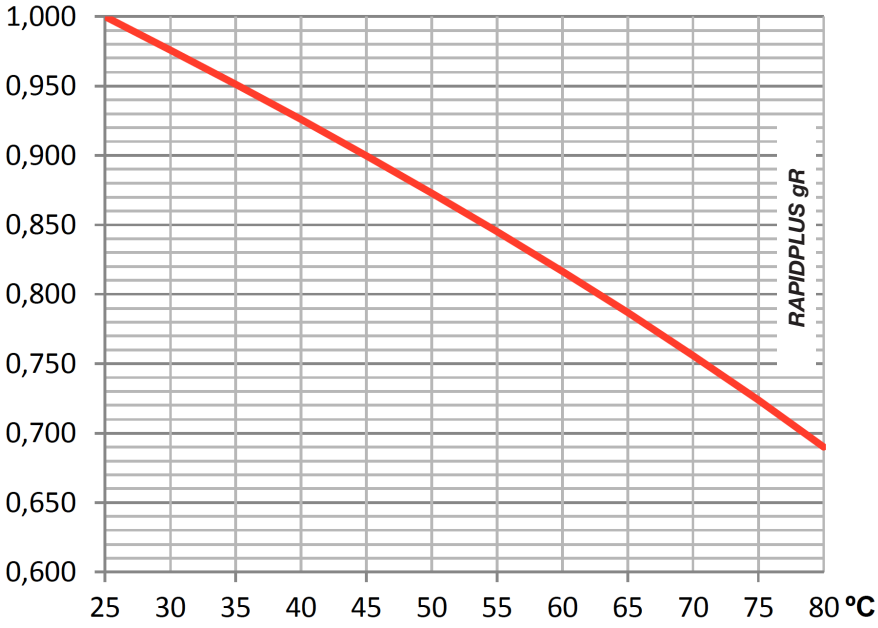
The correction factor Cp, is given as a function of the RMS load current Ib in % of the rated current.



Peak arc voltage

This curve gives the peak arc voltage, U_L, wich may appear across the fuse during its operation as a function of the applied working voltage, Eg (RMS) at a power factor of 0,15.

Ambient temperature derating factor



Use of Rapidplus® in PMX fuse holders

The modular fuse holders for cylindrical fuses have a rated power acceptance according to the maximum power dissipations allowed for the general use fuse links (gG) and back up fuse links.

These maximum values allowed for the fuse links (gG/aM) are regulated by standards (IEC/EN60269-2). In the same way, this standards specify the minimum power acceptance for the fuse holders. This power acceptance is the power dissipated by the fuse links (converted in heat) that the fuse holder can accept with an acceptable increase of the temperature (values also regulated by standards).

The fuse links for protection of semiconductors RAPIDPLUS have a rated power dissipation (or power loss) higher than the gG or aM types, and for this reason there are some limitations for the application of these fuses in closed modular fuse holders.

It is necessary to check that the fuse links have a power diissipation not higher than the maximum value admissible of the fuse holder indicated by the manufacturer.

When it is no possible to use modular fuse holders the solution is the use of an open fuse base where the heat can be appropriately dissipated.

In the following table are indicated the maximum values of power acceptance for DF ELECTRIC fuse holders. These limits should never be exceeded:

RATED POWER ACCEPTANCE IEC/EN60269-2	3W
MAX. POWER ACCEPTANCE DF ELECTRIC FUSE HOLDERS	4W

I_n (A)	MAXIMUM CURRENT
1	1A
2	2A
3	3A
4	4A
6	6A
8	8A
10	10A
12	12A
16	15,5A
20	18A
25	22A
32	25A

Use of Rapidplus® in BAC Open fuse bases

There are open type fuse bases (BAC) with high values of acceptable power disipations, where heat can be evacuated appropiately.

MAX. POWER ACCEPTANCE DF ELECTRIC FUSE HOLDERS	8W

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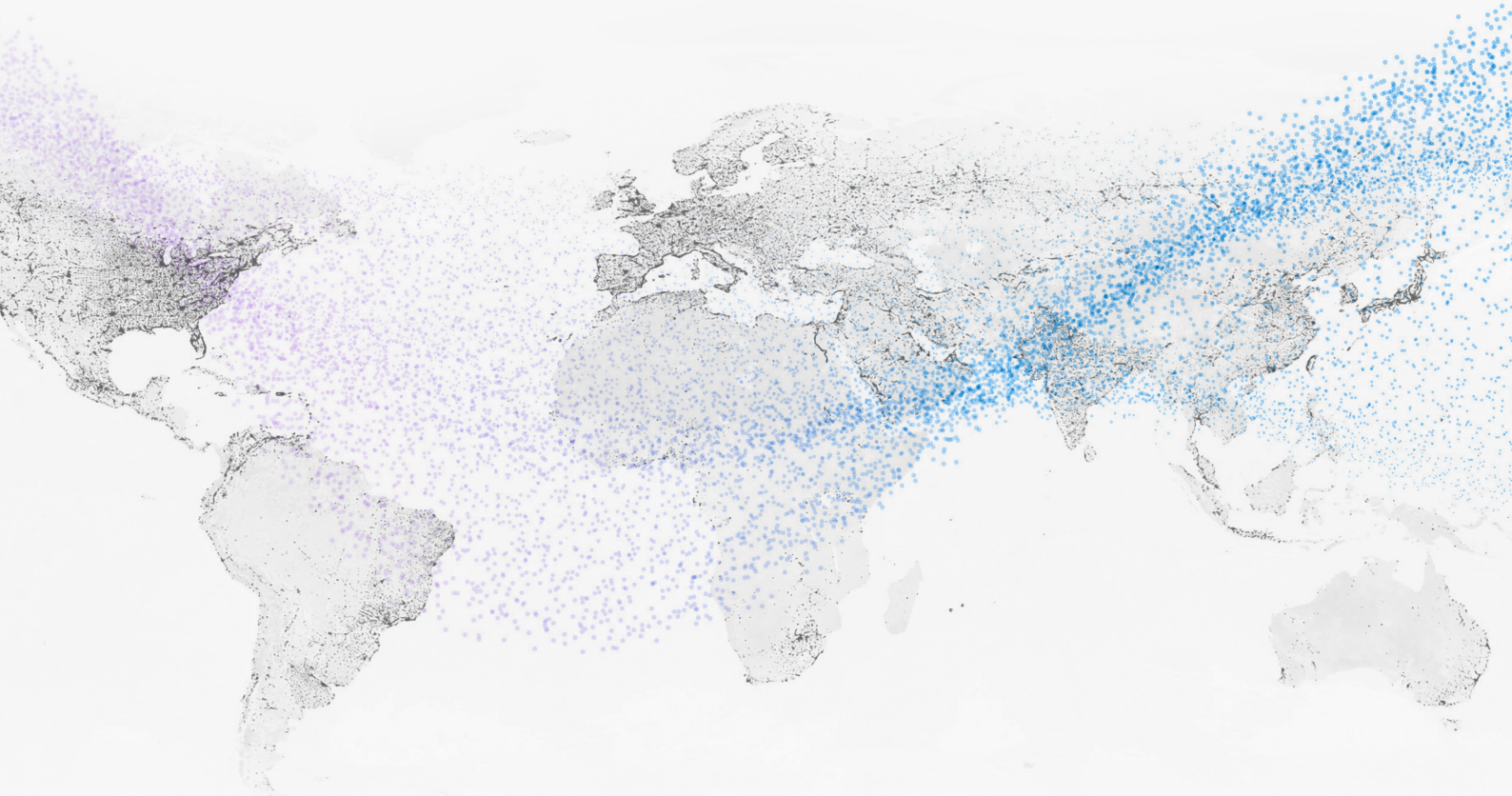

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MADE IN SPAIN

According to the waste of electrical and electronic equipment directive, electrical material should not be part of the usual waste. This symbol alerts users that these products should be recycled according to local environmental waste disposal regulations.

The "electro technical expert" logo marked on the products included in this data sheet indicates that the installation of these products must be carried out by expert personnel with specialized knowledge.

To prevent electrical hazards, carry out the installation without voltage.

Safety notice
Please capture the following QR code and read our safety notice carefully before installing our products.

The data reflected in this technical record are subject to the correct installation of the product in accordance with manufacturer's instructions, relevant installation standards and professional practices, maintained and used in applications for which they were made.

The products described in this document have been designed, developed and tested in accordance with specific standard. They are considered components that are integrated as part of installation, machine or equipment. The correct general operation of the referred product is responsibility of the manufacturer of the installation, machine or equipment.

DF ELECTRIC cannot guarantee the characteristics of an installation, machine or equipment that has been designed by a third party. Once a product has been selected, the user must verify that it is appropriate for its application, through the verifications and/or tests that it deems appropriate.

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