

Rapidplus®



**PROTECTING
THE WORLD**

RAPIDPLUS

HIGH SPEED FUSE LINKS FOR SEMICONDUCTORS

aR CYLINDRICAL

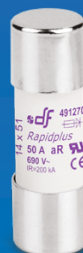
semiconductor protection
fuse links

CYL

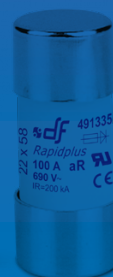
14x51



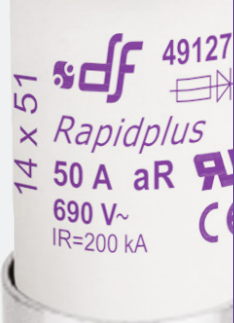
10x38



14x51



22x58



RATED VOLTAGE

690V AC

RATED CURRENT

4A...50A

BREAKING CAPACITY

200kA

STANDARDS

IEC/EN 60269-1

IEC/EN 60269-4

UL248-1

UL248-13



Rapidplus®

Cylindrical fuse links for semiconductors

RAPIDPLUS CYL aR fuse links are intended for clearing short-circuits and have been designed and manufactured to have very low I^2t values as well as reduced arc voltages that guarantee an optimum protection of semiconductors. They have a very good cycling ability.

The range comprises the following fuse links:

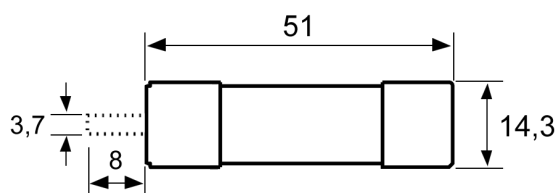
→ Size 14x51 690V AC 4A to 50A

Typical applications 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.























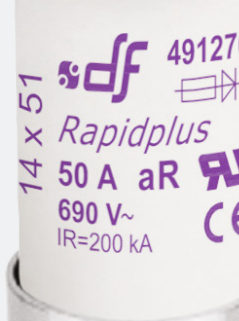
Dimensions



Weight 18gr

Range

In (A)	REFERENCE		PACKING Uni /BOX
	WITHOUT STRIKER	WITH STRIKER	
4	491215 	-	10/50
6	491225 	-	10/50
8	491230 	491730 	10/50
10	491235 	491735 	10/50
12	491237 	491737 	10/50
16	491241 	491741 	10/50
20	491245 	491745 	10/50
25	491250 	491750 	10/50
32	491260 	491760 	10/50
40	491265 	491765 	10/50
50	491270 	491770 	10/50



Technical data

Rated voltage	690V AC 700V DC (L/R=10ms)
Rated current	4A...50A
Rated breaking capacity	200kA @690V AC 30kA @700V DC
Utilization category	aR
Storage temperature	-40°C ... 90°C
Operating temperature *	-40°C ... 80°C

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

Standards

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



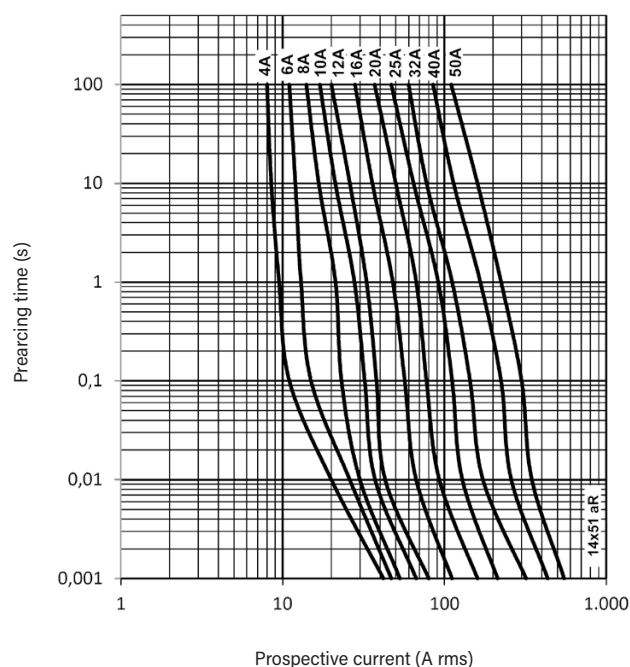
Certifications



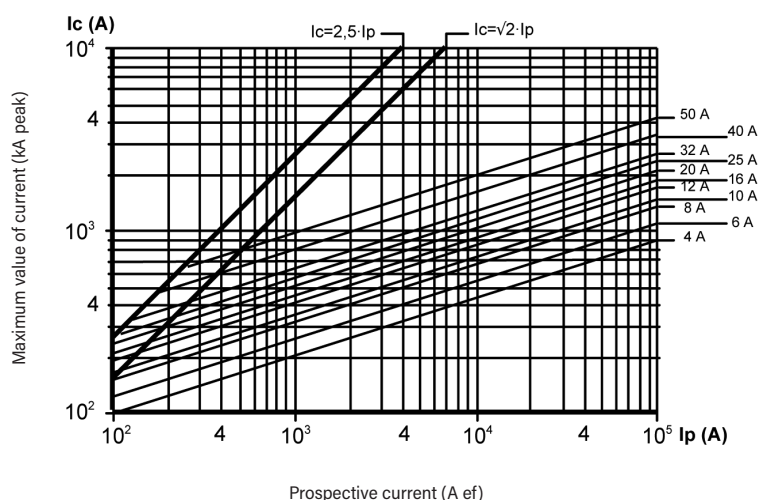
Power dissipation

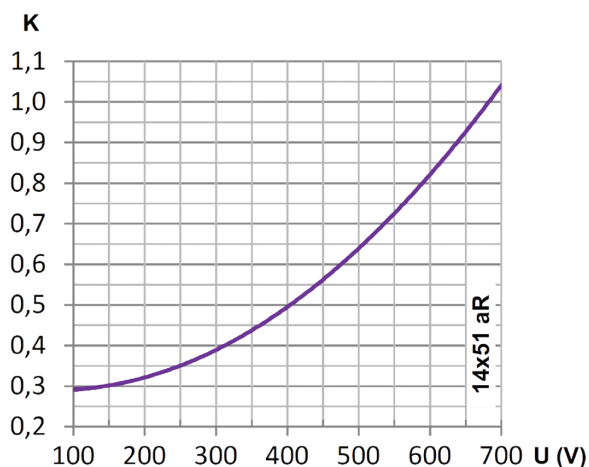
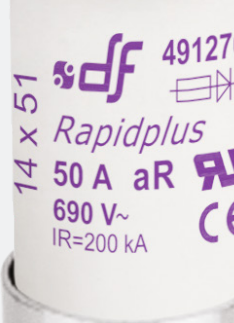
I_n	POWER DISSIPATION I_n	POWER DISSIPATION $0.8 \cdot I_n$	PREARcing I^2t	I^2t 690V
(A)	(W)	(W)	(A²S)	(A²S)
4	2,94	1,56	5,6	17
6	4,20	2,25	16,0	48
8	2,00	1,18	3,8	30
10	2,52	1,41	5,9	47
12	3,54	1,95	8,4	68
16	4,83	2,67	15	120
20	5,40	2,91	27	170
25	6,00	3,38	53	333
32	6,93	3,72	108	679
40	7,52	4,13	211	1331
50	9,80	5,36	350	2200

t-I characteristics



Cut-off characteristics

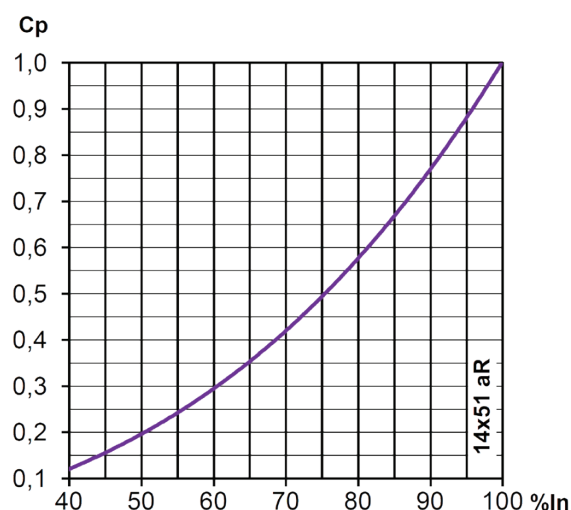




I²t Correction factor

The total clearing I²t at rated voltage and at power factor of 0,15 are given in the electrical characteristics.

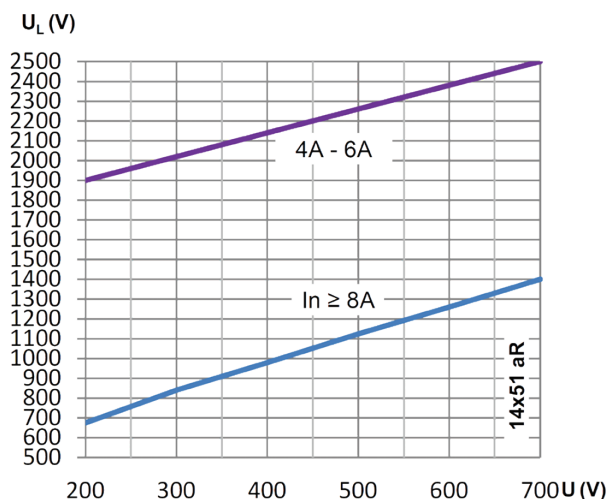
For other voltages, the clearing I²t is found by multiplying by correction factor, K.



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.

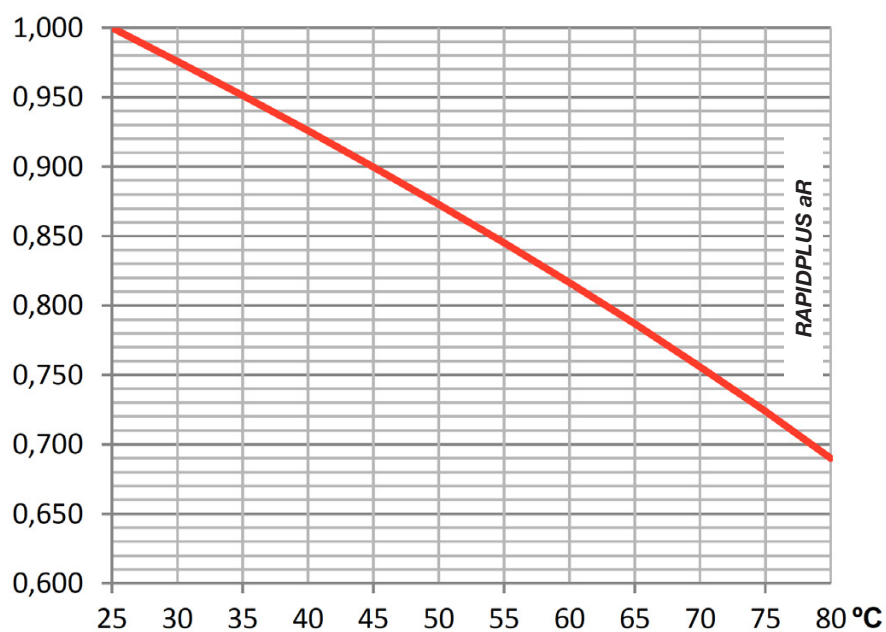


Peak arc voltage

This curve gives the peak arc voltage, UL, which 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 **5W**

MAX. POWER ACCEPTANCE
OF ELECTRIC FUSE HOLDERS **6W**

I_n (A)	MAXIMUM CURRENT
4	4A
6	6A
8	8A
10	10A
12	12A
16	16A
20	20A
25	25A
32	30A
40	35A
50	40A

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 appropriately.



MAX. POWER ACCEPTANCE
OF ELECTRIC FUSE HOLDERS **11W**



PROTECTING THE WORLD

HEAD OFFICE AND FACTORY

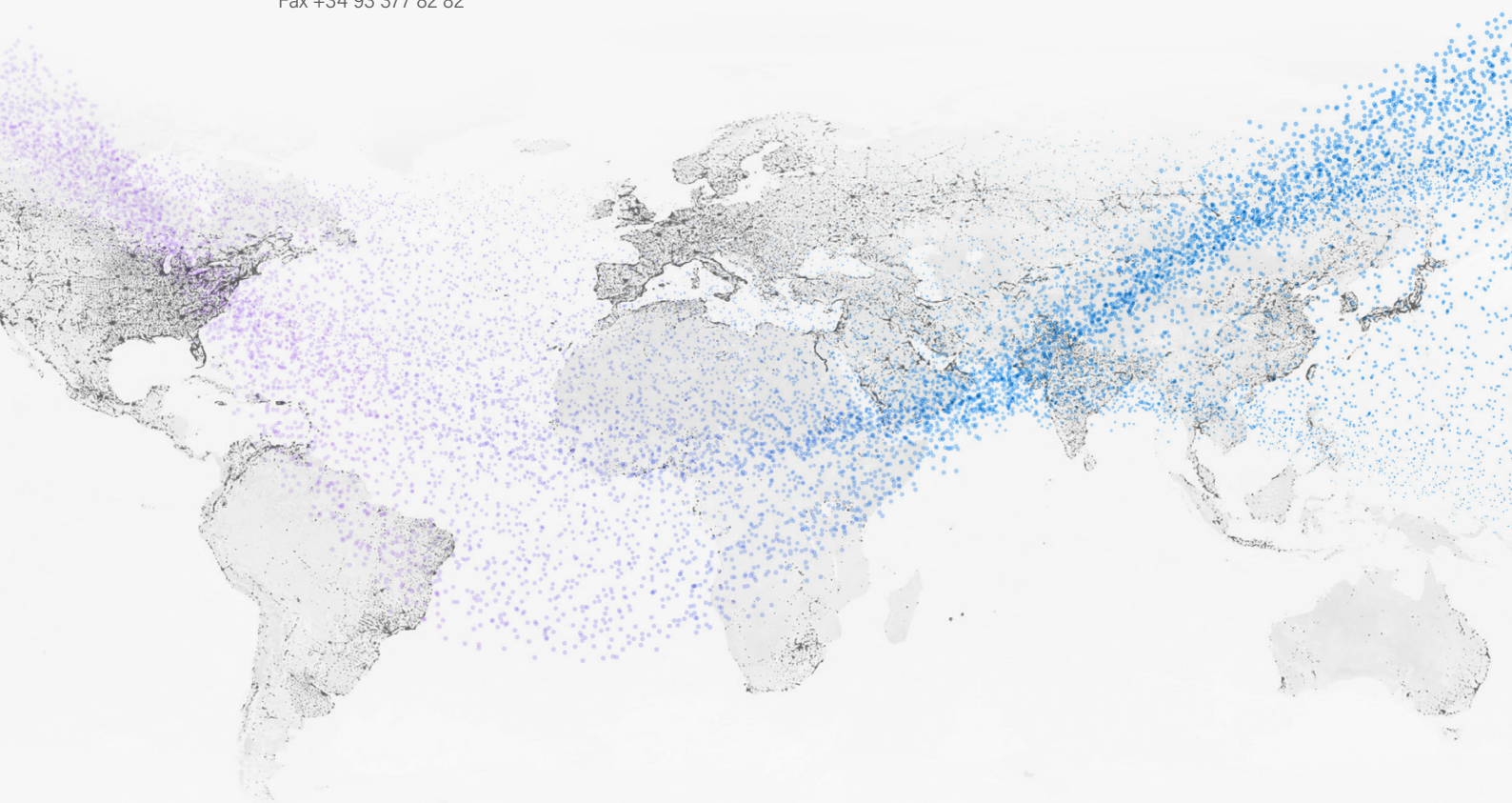
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According to the waste of electrical and electronic equipment directive, electrical material should not be part of the usual waste. This symbol alerts users that these products should be recycled according to local environmental waste disposal regulations.



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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