Electric

RAPIDPLUS

HIGH SPEED FUSE LINKS FOR SEMICONDUCTORS

Rapidplus®

aR
CYLINDRICAL

semiconductor protection
fuse links

CYL 14x51

10x38 14x51 22x58

PROTECTING
THE WORLD

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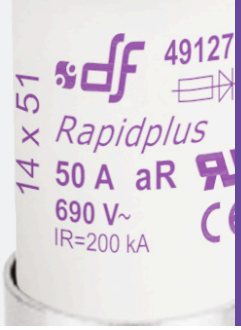


aR CYLINDRICAL

semiconductor protection fuse links

14x51

RAPIDPLUS

Rapidplus®

14x51

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 to 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:

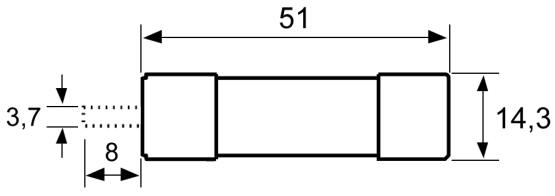
→ **Size 14x51 690V AC 4A to 50A**

Typical 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

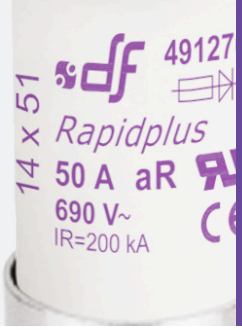
Dimensions



Weight 18gr

Range

In (A)	REFERENCE WITHOUT STRIKER	REFERENCE WITH STRIKER	PACKING Uni /BOX
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



aR
CYLINDRICAL
semiconductor protection fuse links

14x51

RAPIDPLUS

Rapidplus®

Technical data

Rated voltage	690V AC (UL/IEC) 700V DC (L/R=10ms)(IEC)
Rated current	4A...50A
Rated breaking capacity	200kA @690V AC 30kA @700V DC
Operating class	aR
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.

Standards

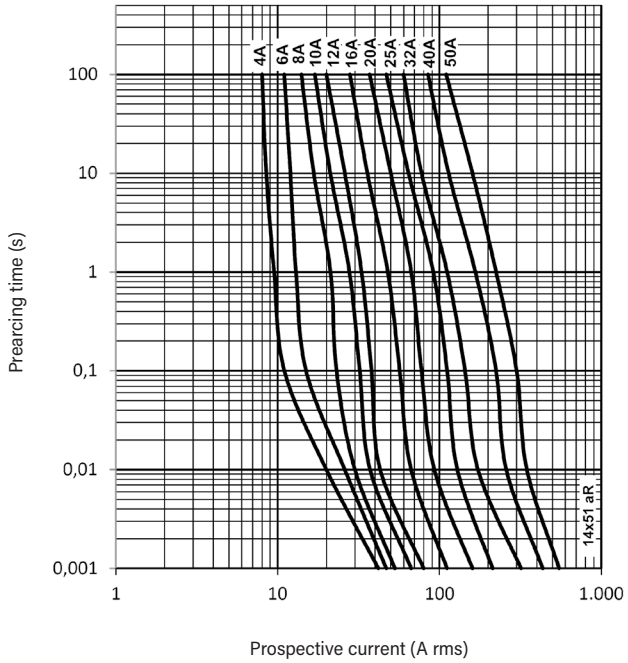
IEC/EN 60269-1
IEC/EN 60269-4
UL248-1
UL248-13
RoHS Compliant

Certifications

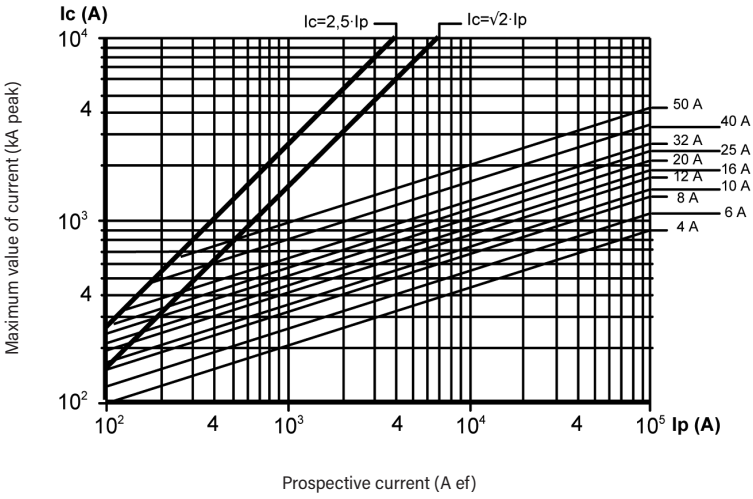
Power dissipation

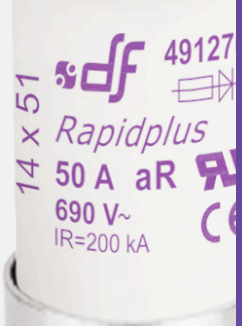
I_n	POWER DISSIPATION I_n	POWER DISSIPATION $0.8 \cdot I_n$	PREARCING I^2t	I^2t 690V
(A)	(W)	(W)	(A^2S)	(A^2S)
4	2,94	1,56	5,6	17
6	4,20	2,25	16,0	48
8	2,00	1,18	3,8	30
10	2,52	1,41	5,9	47
12	3,54	1,95	8,4	68
16	4,83	2,67	15	120
20	5,40	2,91	27	170
25	6,00	3,38	53	333
32	6,93	3,72	108	679
40	7,52	4,13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

t-I characteristics

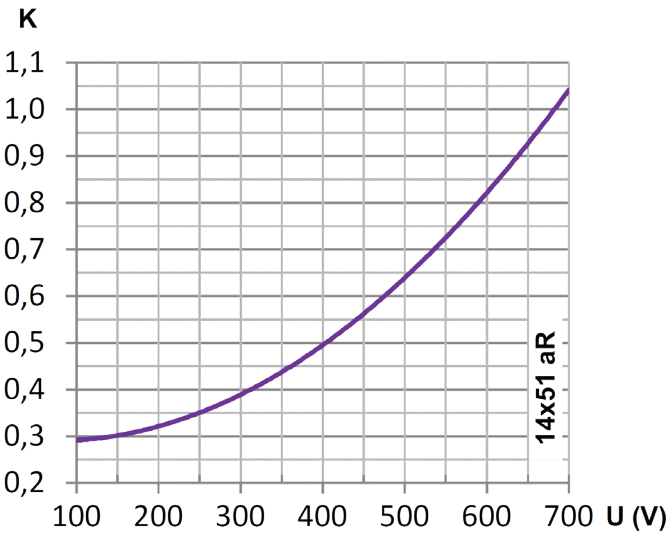


Cut-off characteristics

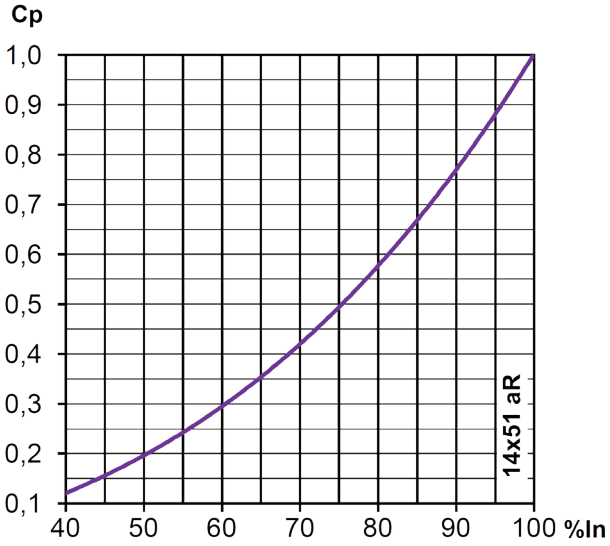




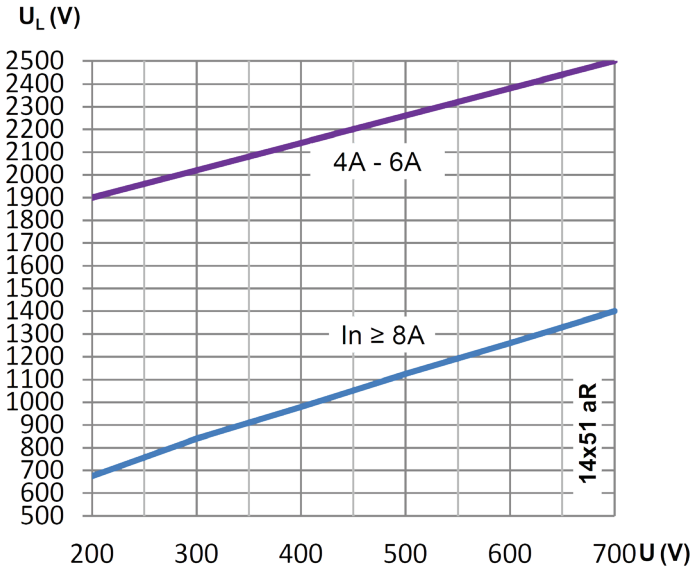
I²t Total clearing correction factor



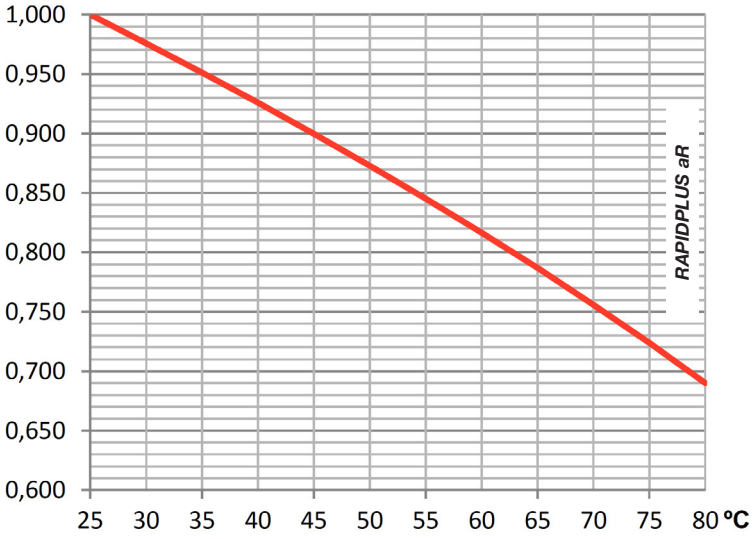
Power dissipation correction factor

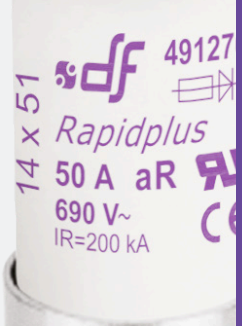


Arc voltage



Ambient temperature correction coefficient





TECHNICAL CHARACTERISTICS
(Introduction)

I^2t Total clearing correction factor

Total clearing I^2t values at rated voltage and at power factor of 0,15 are given in electrical characteristics tables.

For other voltages, clearing I^2t values can be calculated multiplying these values by correction factor **K**.

Arc voltage U_L

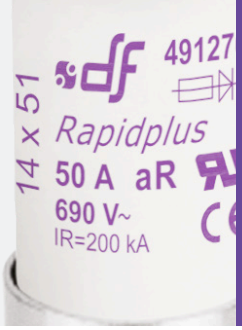
This graphic gives the peak arc voltage $\mathbf{U_L}$ that can appear across the fuse link during operation as a function of working voltage.

Power dissipation

Power dissipation values are given at rated voltage (I_n) and at $0{,}8 \cdot I_n$ (80% of rated current). It is possible to calculate values of power dissipation for other currents multiplying these values by correction factor for power loss ($\mathbf{C_P}$) as a function of % of rated current.

This value is very important to choose the appropriate fuse base to install these fuse links. The power dissipation of fuse link at the normal working conditions must be lower than the maximum value that the fuse base can withstand.

See the section "FUSE HOLDERS AND OPEN FUSE BASES" at the end of this document.



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 DF 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 appropiately.

MAX. POWER ACCEPTANCE DF ELECTRIC FUSE HOLDERS	11W

PROTECTING THE WORLD

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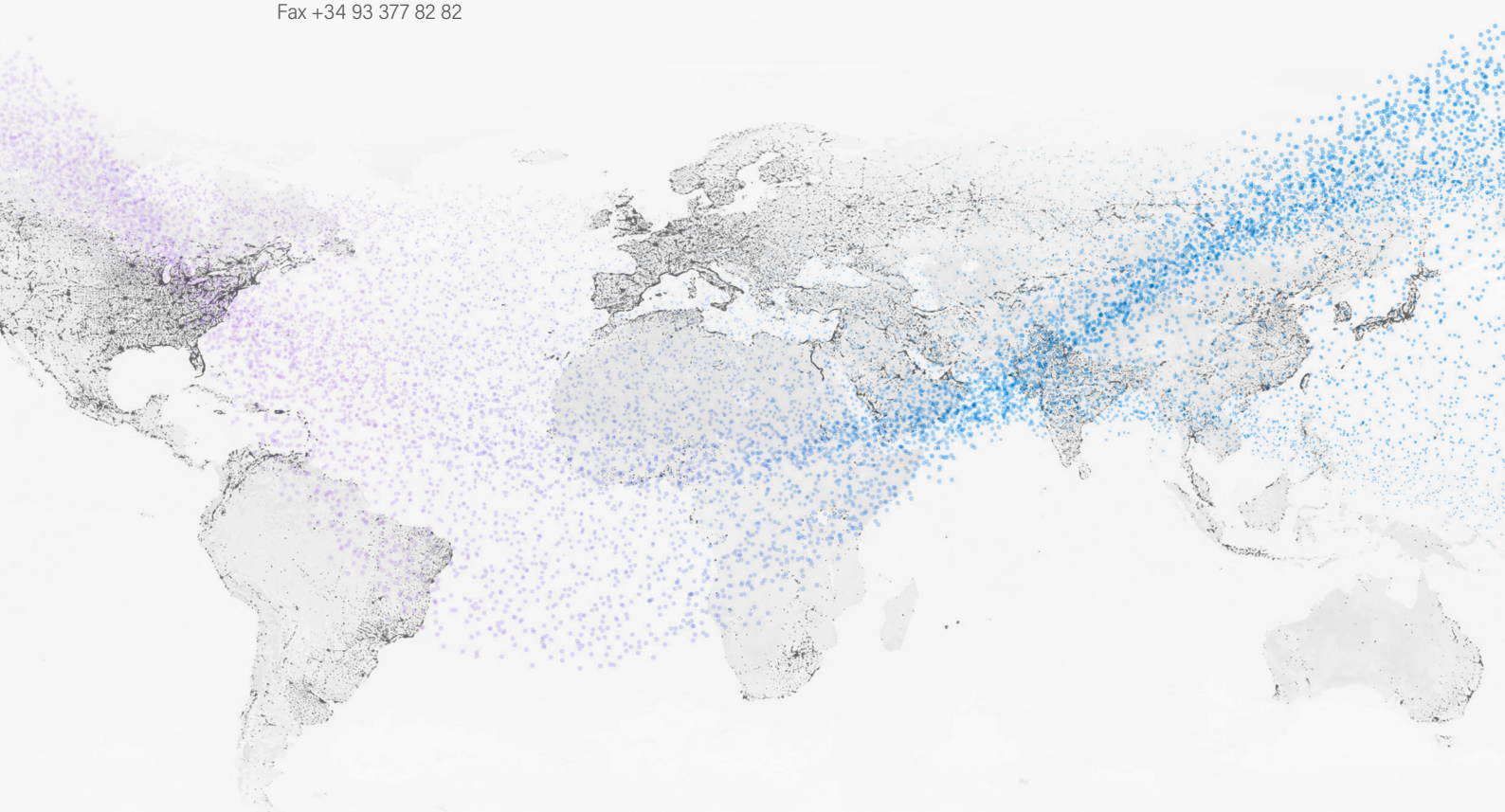

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FABRICADO EN ESPAÑA
MADE IN SPAIN

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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