

Other Protistor® Fuses

Ferrule Fuses

10x38 URB/URD/URL - 500 to 600 VAC



Extremely high breaking capacity fuses:
Protection of power semiconductors complying with IEC standard 60269.1 and 4.

500 - 600 VAC voltage rating

aR-CLASS according to VDE 636-23 IEC 60269-4

Without blown fuse indication 0.10 up to 0,80 A**

With trip-indicator (1 to 30 A), a Ferraz Shawmut speciality*

Main Characteristics

Voltage rating U_N (VAC)	Class	Current rating I_N (A)	Pre-arcing $I^t @ 1 \text{ ms}$ I^{tp} (A ² s)	Total clearing $I^t @ U_N$ I^{tt} (A ² s)	Watts loss		Tested breaking capacity		
					0.8 I_N	I_N			
600 V without blown fuse indicator	URD **	100 mA	/	1.2 10 ⁻³	0.23	0.4	200 kA @ 600 V		
		125 mA		2.3 10 ⁻³	0.25	0.44			
		160 mA		5.2 10 ⁻³	0.28	0.48			
		200 mA		8 10 ⁻³	0.34	0.58			
		250 mA		18 10 ⁻³	0.35	0.60			
		315 mA		33 10 ⁻³	0.42	0.73			
		400 mA		56 10 ⁻³	0.46	0.80			
		500 mA		0.100	0.46	0.80			
		630 mA		0.18	0.52	0.90			
		800 mA		0.44	0.58	1			
500 V with trip-indicator	URD	1 A	0.40	3.6	2.8	0.5	50 kA @ 500 V		
		1.25 A	0.13	1.7	0.52	0.91			
		1.6 A	0.31	2.2	0.58	1			
		2 A	0.65	3.1	0.63	1.1			
		2.5 A	1.65	5.9	0.63	1.1			
		3.15 A	2.80	9	0.86	1.5			
	URD	4 A	5.30	16	1.1	1.8	50 kA @ 500 V		
		5 A	12.7	36	1.1	1.8			
		6 A	1.3	47	0.73	1.35			
		8 A	2.3	80	0.83	1.55			
		10 A	3.6	110	1	1.9			
		12 A	5.25	150	1.3	2.3			
		16 A	9.30	200	1.7	3.1			
		20 A	16	290	1.7	3.2			
		URL	25 A	37	580	2.9		4.25	50 kA @ 500 V
			30 A	58	900	3.5		5.1	

* minimum operating voltage for trip-indicator: 20 V

** higher ratings without blown fuse indicator see 10x38gRB - 690 VAC

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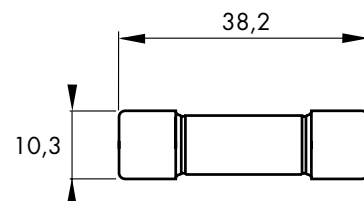
Other Protistor® Fuses

Ferrule Fuses

10x38 URB/URD - 500 to 600 VAC

10.3x38 - Without blown fuse indicator

Current Rating	Designation	Ref. Number	Catalog Number
100 mA	A 060 URD 0.100T13	H077632	A060UD0.100T13
125 mA	A 060 URD 0.125T13	J077633	A060UD0.125T13
160 mA	A 060 URD 0.160T13	K077634	A060UD0.160T13
200 mA	A 060 URD 0.200T13	L077635	A060UD0.200T13
250 mA	A 060 URD 0.250T13	M077636	A060UD0.250T13
315 mA	A 060 URD 0.315T13	N077637	A060UD0.315T13
400 mA	A 060 URD 0.400T13	P077638	A060UD0.400T13
500 mA	A 060 URD 0.500T13*	Q077639	A060UD0.500T13
630 mA	A 060 URD 0.630T13*	R077640	A060UD0.630T13
800 mA	A 060 URD 0.800T13*	S077641	A060UD0.800T13

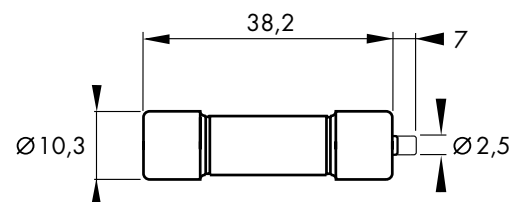


* UL Recognized

Fuses mounted in clips or fuse disconnectors

10.3x38 - With trip-indicator

Current Rating	Designation	Ref. Number	Catalog Number
1 A	A 050 URD 001 T13 I	P076925	A050URD1T13I
1.25 A	A 050 URD 001.2 T13 I	H076597	A050URD1.2T13I
1.6 A	A 050 URD 001.6 T13 I	G076596	A050URD1.6T13I
2 A	A 050 URD 002 T13 I	Q076926	A050URD2T13I
2.5 A	A 050 URD 002.5 T13 I	F076595	A050URD2.5T13I
3.15 A	A 050 URD 003 T13 I	R076927	A050URD3T13I
4 A	A 050 URD 004 T13 I	S076928	A050URD4T13I
5 A	A 050 URD 005 T13 I	T076929	A050URD5T13I
6 A	A 050 URB 006 T13 I	V076930	A050URB6T13I
8 A	A 050 URB 008 T13 I	W076931	A050URB8T13I
10 A	A 050 URB 010 T13 I	X076932	A050URB10T13I
12 A	A 050 URB 012 T13 I	Y076933	A050URB12T13I
16 A	A 050 URB 016 T13 I	Z076934	A050URB16T13I
20 A	A 050 URB 020 T13 I	A076935	A050URB20T13I
25 A	A 050 URL 025 T13 I	B076936	A050URL25T13I
30 A	A 050 URL 030 T13 I	C076937	A050URL30T13I



Fuses with trip indicator mounted in clips



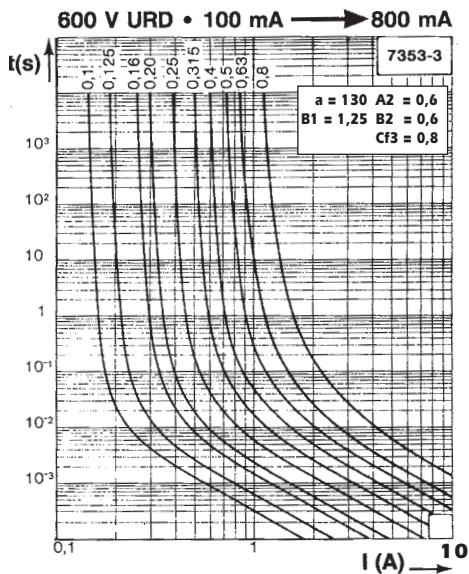
Other Protistor® Fuses Ferrule Fuses

10x38 URB/URD - 500 to 600 VAC

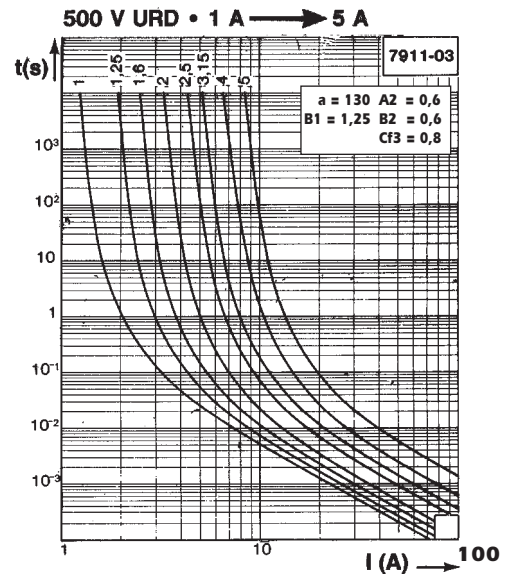
Electrical characteristics

Time vs current characteristics

WITHOUT BLOWN FUSE INDICATOR

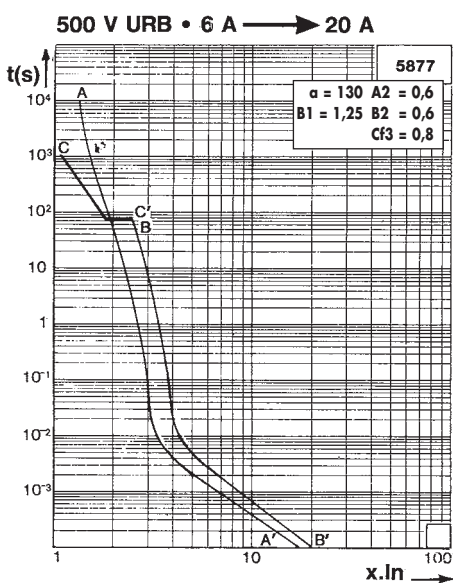


WITH TRIP INDICATOR

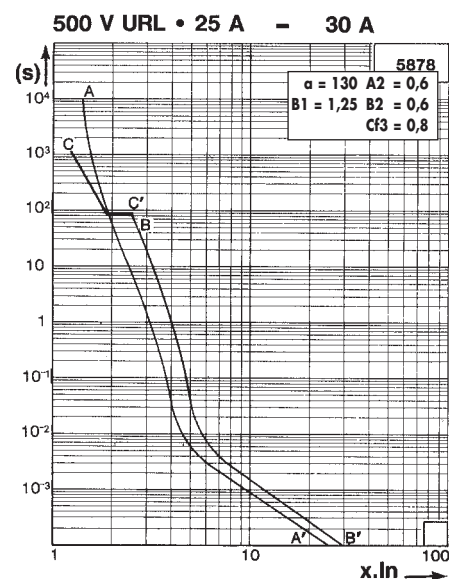


These curves indicate, for each rated current, pre-arcing time vs. R.M.S. pre-arcing current.
Tolerance for mean pre-arcing current $\pm 10\%$

WITH TRIP INDICATOR



WITH TRIP INDICATOR



These curves indicate, for each rated current, pre-arcing time vs. R.M.S. pre-arcing current.
as a multiple of current rating.



Semiconductor (AC) fuses

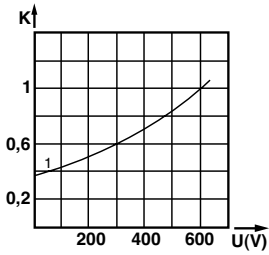
Other Protistor® Fuses

Ferrule Fuses

10x38 URB/URD - 500 to 600 VAC

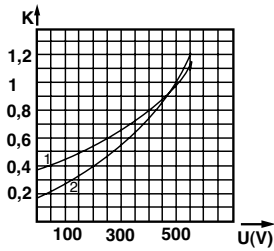
Corrective factor - Peak arc voltage

Corrective factor



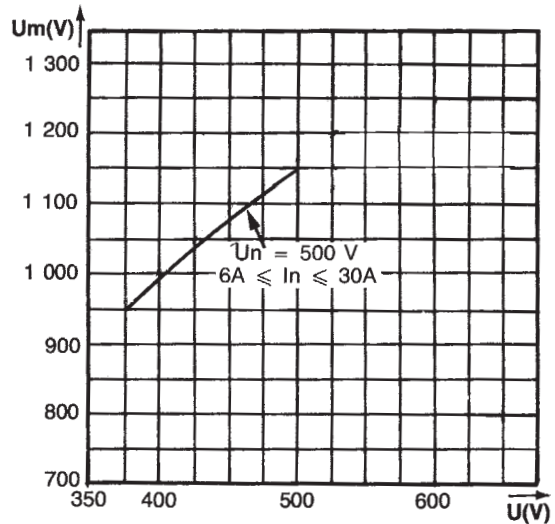
600 V UR
1 : 0.1 up to 0.8 A

These mean curves show the variation of the total clearing time (I^2t_t) and the total clearing duration t_t as a function of operating voltage U.



500 V UR
1 : 1 up to 5 A
2 : 6 up to 30 A

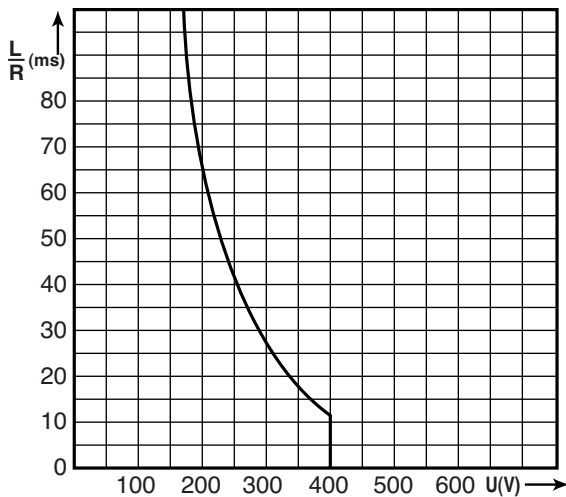
Peak arc voltage



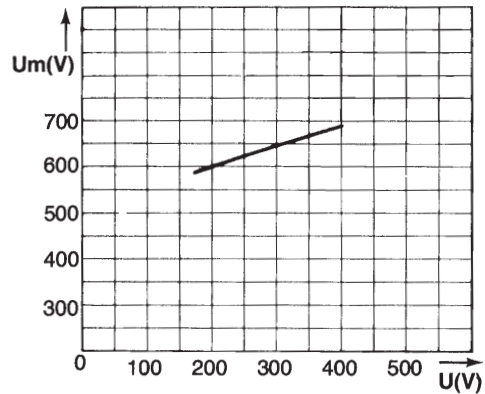
This curve shows the peak value U_m of the arc voltage which appears across the fuse link as a function of the operating voltage U @ $\cos \varphi = 0.15$.

D.C. Application data for fuses with trip indicator

500 V URD $I_N \geq 6A$



500 V URD $I_N \geq 6A$



This curve shows the peak value U_m of the arc voltage which appears across the fuse link as a function of the operating voltage U.

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Protistor® size 14x51 aR

690VAC (IEC) / 700VAC (UL)

SEMICONDUCTOR PROTECTION FUSES

IEC HIGH-SPEED CYLINDRICAL FUSE-LINKS AC PROTECTION



These Protistor® size 14x51 have been designed to protect power semi conductors, complying with standard IEC 60269-4. They are extremely high interrupting rating fuses with large band of ratings (current rating 6 to 63A).

Two models are existing: with or without striker.

TECHNICAL DATA OVERVIEW

Voltage AC	690 VAC
Rated Voltage	AC IEC: 690V AC UL: 700V DC UL: 500V
Ampere Range (A)	6 ... 63 A
Speed/Characteristic	aR
I.R. AC (IEC)	160 kA
I.R. AC (UL)	200 kA
I.R. DC (UL)	50 kA

FEATURES & BENEFITS

- Low I^2t for improved semiconductor protection
- Extremely fast acting
- Current limiting
- Excellent cycling capability
- UL recognized
- aR-class according to 60269-4

APPLICATIONS

- Small inverters
- UPS systems
- Variable speed drives
- Other similar 700V or less equipments

STANDARDS

- IEC 60269-4
- UL recognized
- CSA
- RoHS compliant



Protistor® size 14x51 aR

690VAC (IEC) / 700VAC (UL)

PRODUCT RANGE



FR14AR69V16T

Size 14x51 aR with striker

Catalog number	Item number	Rated voltage AC (IEC)	Rated current I _n	Clearing I ² t at Rated Voltage	Rated breaking capacity AC	Power dissipation at I _n	Pre-arcing I ² t	Package	Weight
FR14AR69V6T	P1056656	690 V	6 A	20 A ² s	160 kA	1.5 W	2.4 A ² s	10	20 g
FR14AR69V8T	Q1056657	690 V	8 A	30 A ² s	160 kA	2 W	3.3 A ² s	10	20 g
FR14AR69V10T	R1056658	690 V	10 A	40 A ² s	160 kA	3 W	4.3 A ² s	10	20 g
FR14AR69V12T	S1056659	690 V	12 A	55 A ² s	160 kA	4 W	5.4 A ² s	10	20 g
FR14AR69V16T	T1056660	690 V	16 A	100 A ² s	160 kA	5 W	11.3 A ² s	10	20 g
FR14AR69V20T	V1056661	690 V	20 A	160 A ² s	160 kA	5.5 W	21.7 A ² s	10	20 g
FR14AR69V25T	W1056662	690 V	25 A	345 A ² s	160 kA	6 W	45.3 A ² s	10	20 g
FR14AR69V32T	X1056663	690 V	32 A	500 A ² s	160 kA	7.7 W	77.4 A ² s	10	20 g
FR14AR69V40T	Y1056664	690 V	40 A	850 A ² s	160 kA	9.2 W	129.6 A ² s	10	20 g
FR14AR69V50T	Z1056665	690 V	50 A	1500 A ² s	160 kA	11.2 W	241.1 A ² s	10	20 g
FR14AR69V63T	A1056666	690 V	63 A	2600 A ² s	160 kA	14.3 W	428.6 A ² s	10	20 g

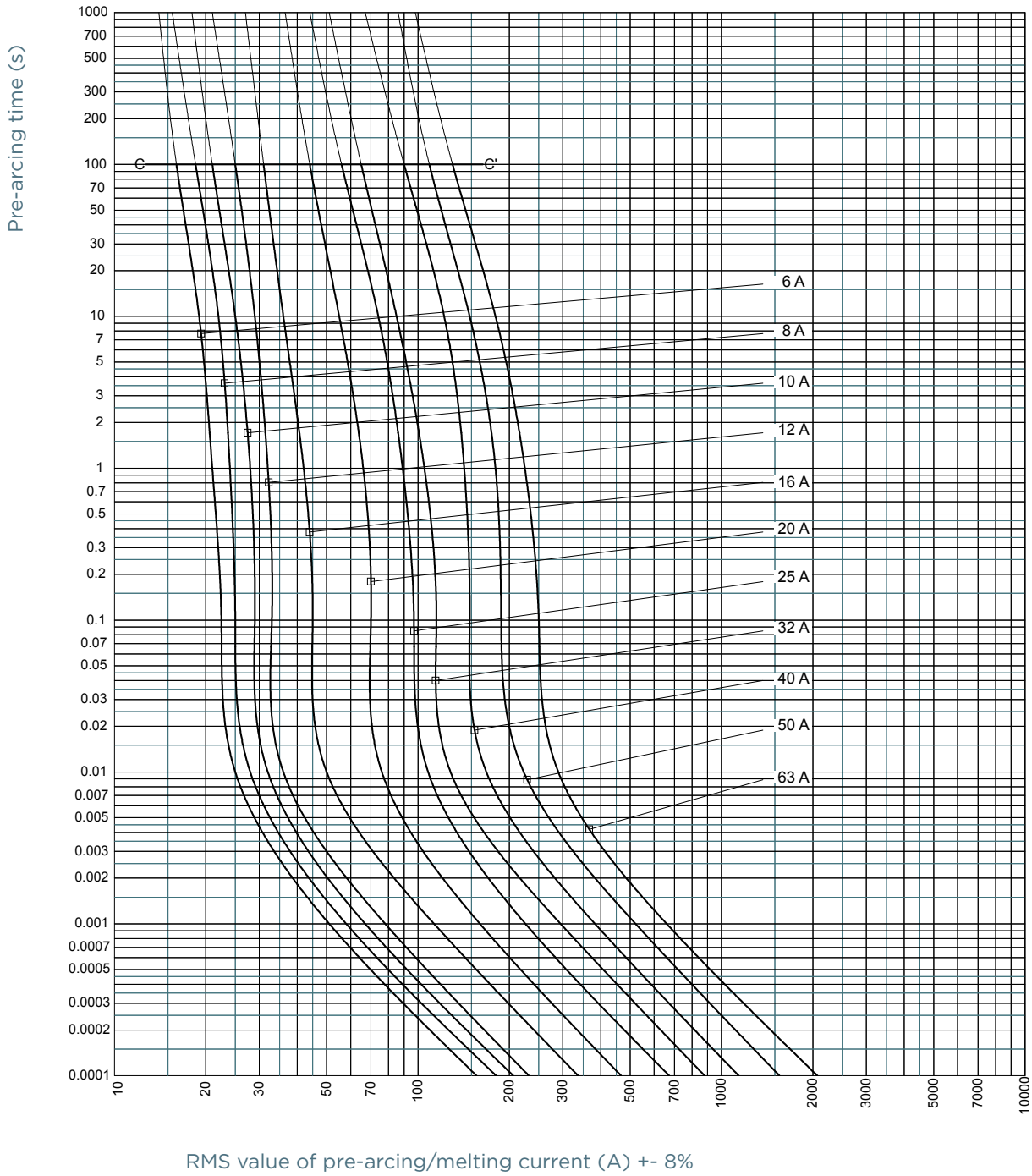


FR14AR69V50

Size 14x51 aR without striker

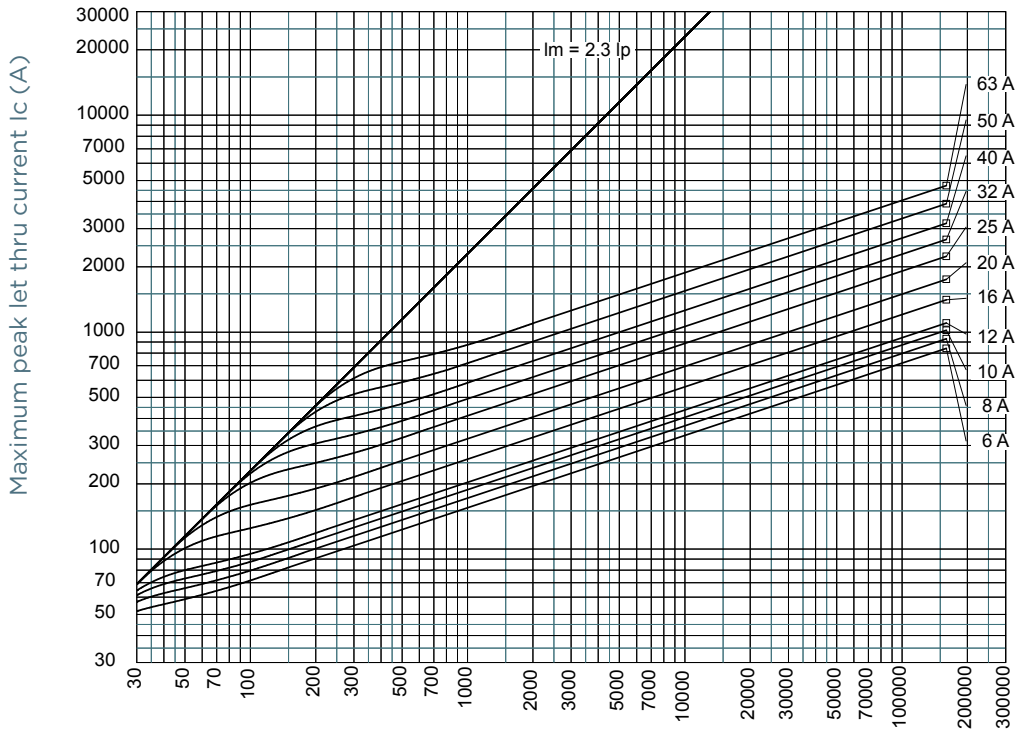
Catalog number	Item number	Rated voltage AC (IEC)	Rated current I _n	Clearing I ² t at Rated Voltage	Rated breaking capacity AC	Power dissipation at I _n	Pre-arcing I ² t	Package	Weight
FR14AR69V6	H1027325	690 V	6 A	20 A ² s	160 kA	1.5 W	2.4 A ² s	10	20 g
FR14AR69V8	J1027326	690 V	8 A	30 A ² s	160 kA	2 W	3.3 A ² s	10	20 g
FR14AR69V10	K1027327	690 V	10 A	40 A ² s	160 kA	3 W	4.3 A ² s	10	20 g
FR14AR69V12	L1027328	690 V	12 A	55 A ² s	160 kA	4 W	5.4 A ² s	10	20 g
FR14AR69V16	M1027329	690 V	16 A	100 A ² s	160 kA	5 W	11.3 A ² s	10	20 g
FR14AR69V20	N1027330	690 V	20 A	160 A ² s	160 kA	5.5 W	21.7 A ² s	10	20 g
FR14AR69V25	P1027331	690 V	25 A	345 A ² s	160 kA	6 W	45.3 A ² s	10	20 g
FR14AR69V32	Q1027332	690 V	32 A	500 A ² s	160 kA	7.7 W	77.4 A ² s	10	20 g
FR14AR69V40	R1027333	690 V	40 A	850 A ² s	160 kA	9.2 W	129.6 A ² s	10	20 g
FR14AR69V50	S1027334	690 V	50 A	1500 A ² s	160 kA	11.2 W	241.1 A ² s	10	20 g
FR14AR69V63	T1027335	690 V	63 A	2600 A ² s	160 kA	14.3 W	428.6 A ² s	10	20 g

TIME CURRENT CHARACTERISTIC CURVES



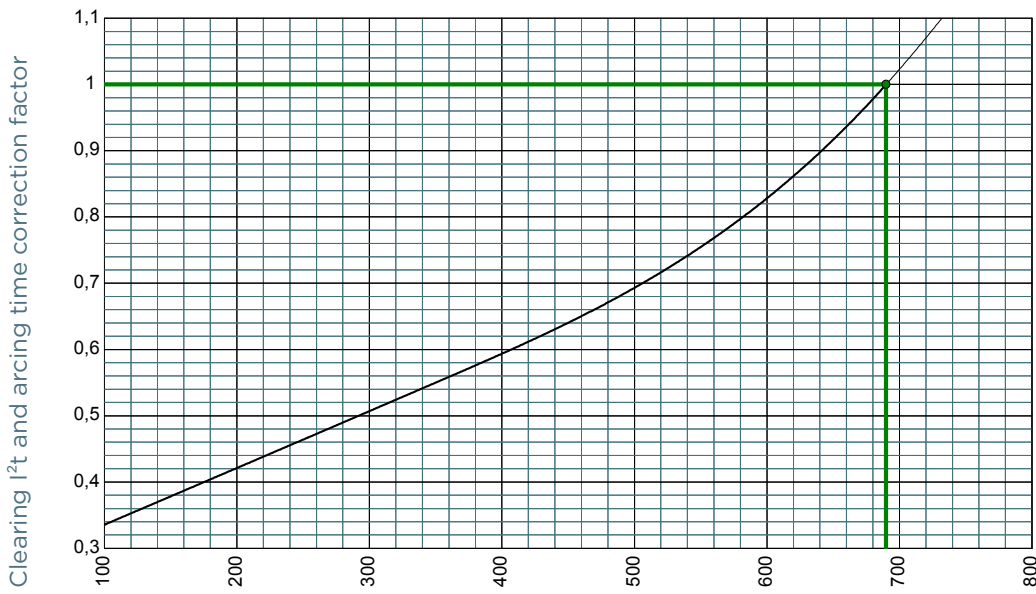
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CUT-OFF CURRENT CHARACTERISTIC



50 Hz RMS symmetrical prospective current I_p (A)

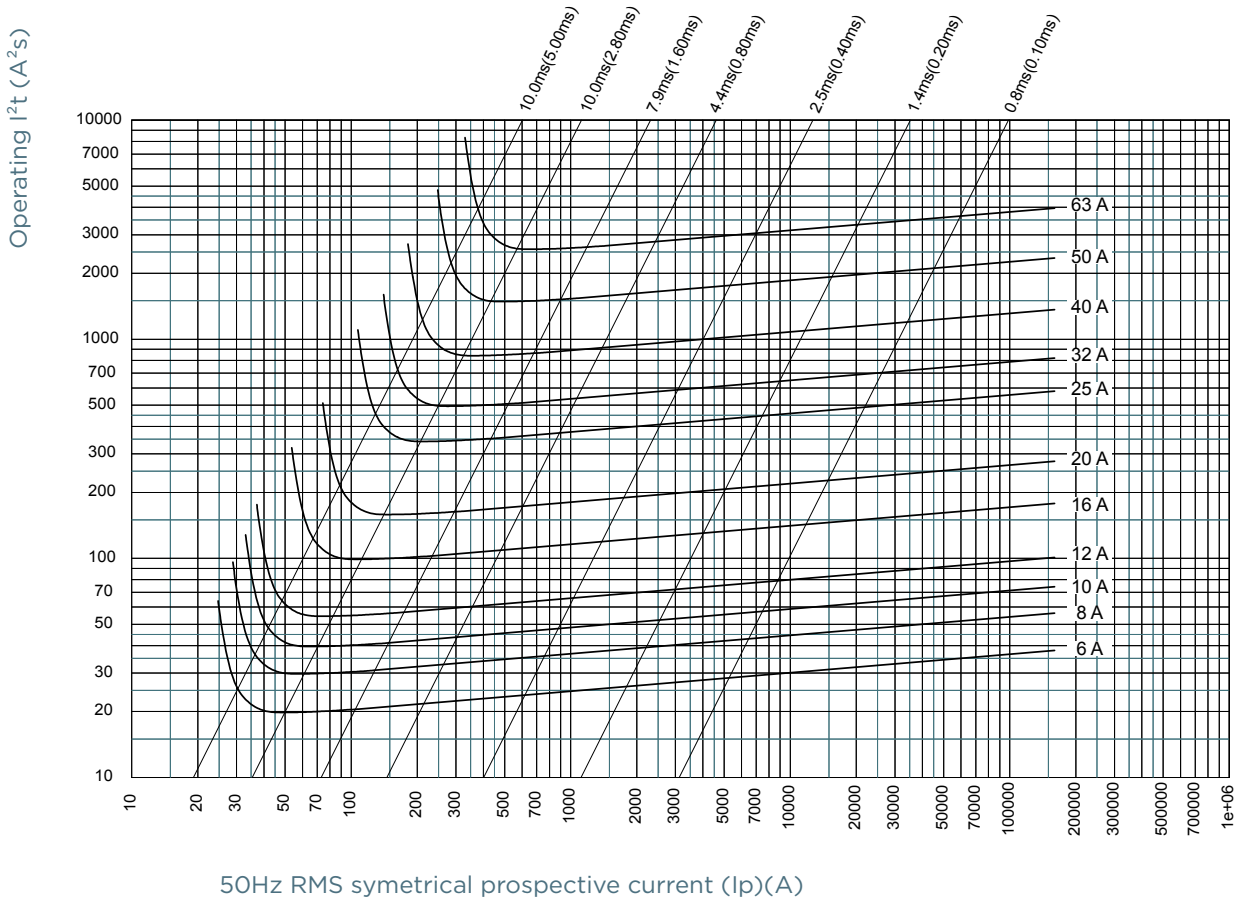
I^2t MULTIPLIER COEFFICIENT



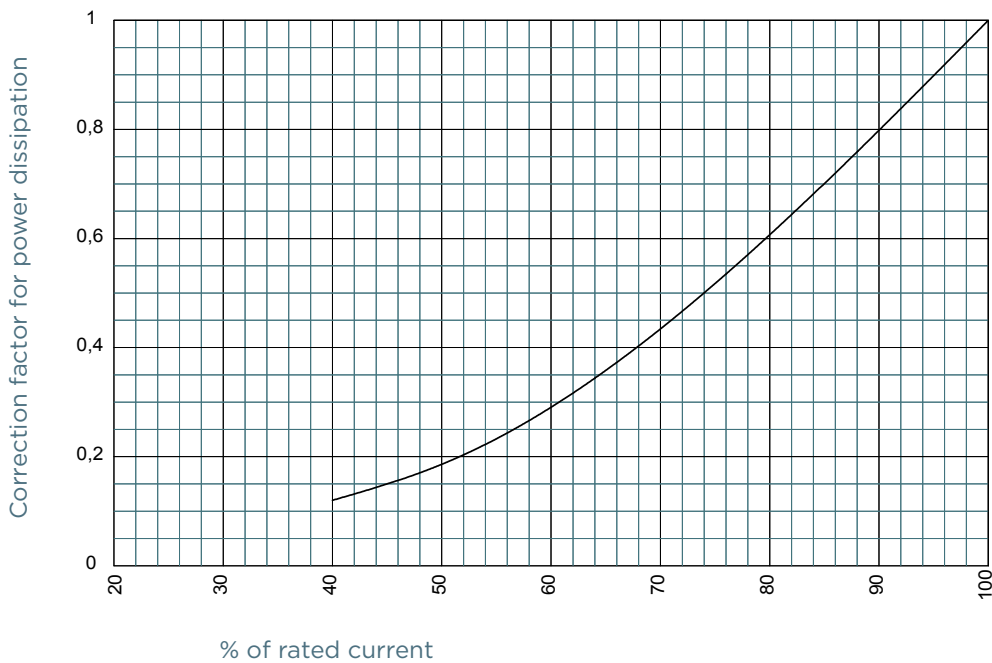
Applied AC voltage (V)

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CHARACTERISTICS TOTAL I²T CURVE



POWER DISSIPATION

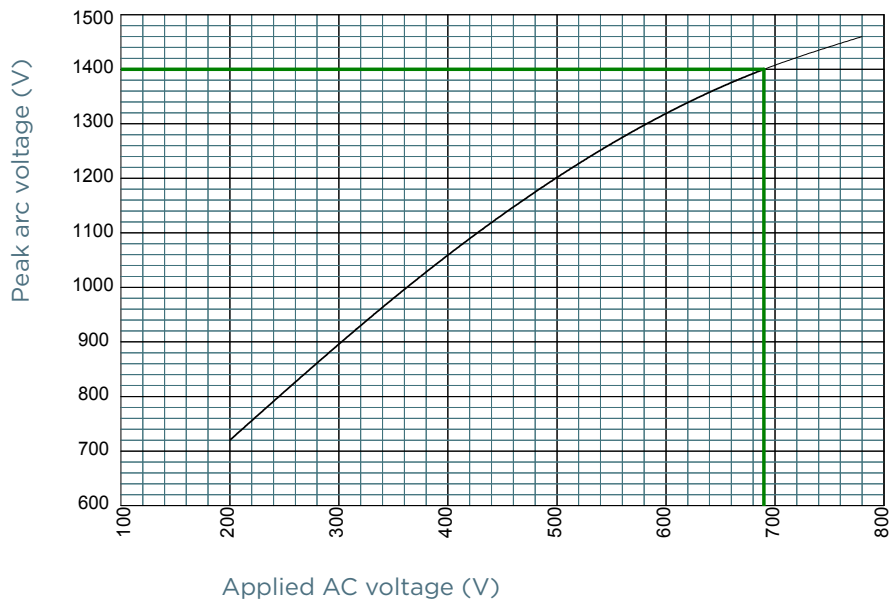


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Protistor® size 14x51 aR

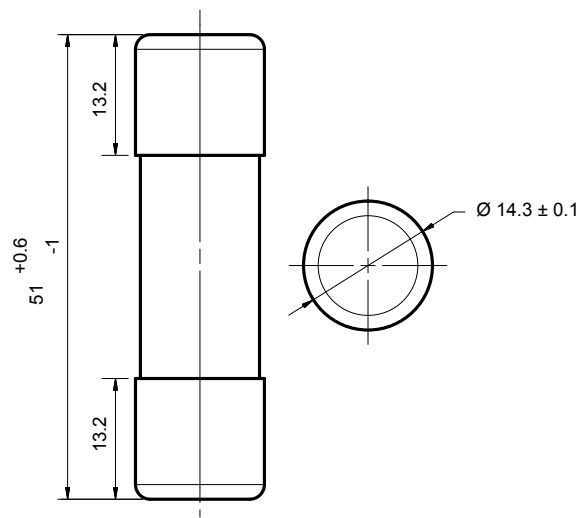
690VAC (IEC) / 700VAC (UL)

PEAK ARC VOLTAGE



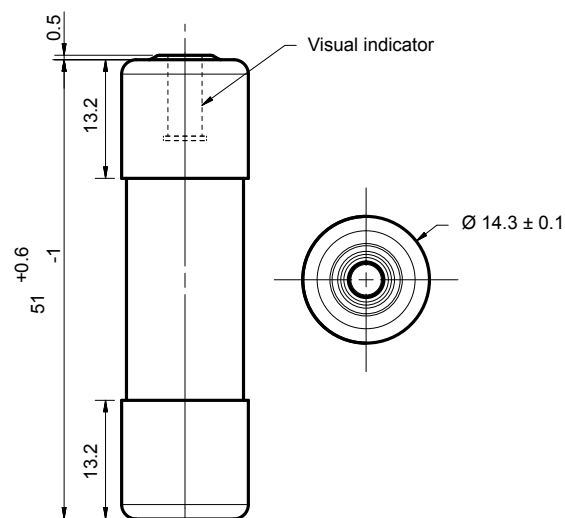
DIMENSIONS

Size 14x51 aR without striker



Dimensions in mm

Size 14x51 aR with striker



Dimensions in mm

Protistor® size 22x58 aR

690VAC (IEC) / 700VAC (UL)

SEMICONDUCTOR PROTECTION FUSES

IEC HIGH-SPEED CYLINDRICAL FUSE-LINKS AC PROTECTION



These Protistor® size 22x58 have been designed to protect power semi conductors, complying with standard IEC 60269-4. They are extremely high interrupting rating fuses with large band of ratings (current rating 25 to 135A).

Two models are existing: with or without striker.

TECHNICAL DATA OVERVIEW

Voltage AC	690 VAC
Rated Voltage	AC IEC: 690V AC UL: 700V DC UL: 500V
Ampere Range (A)	25 ... 135 A
Speed/Characteristic	aR
I.R. AC (IEC)	160 kA
I.R. AC (UL)	200 kA
I.R. DC (UL)	kA

FEATURES & BENEFITS

- Low I²t for improved semiconductor protection
- Extremely fast acting
- Current limiting
- Excellent cycling capability
- UL recognized
- aR-class according to 60269-4

APPLICATIONS

- Protection of small inverters
- Protection of UPS systems
- Protection of variable speed drives
- Protection of other similar 700V or less equipments

STANDARDS

- IEC 60269-4
- UL recognized
- CSA
- RoHS compliant



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Protistor® size 22x58 aR

690VAC (IEC) / 700VAC (UL)

PRODUCT RANGE



FR22AR69V135T

Size 22x58 aR with striker

Catalog number	Item number	Rated voltage AC (IEC)	Rated current I _n	Pre-arcing I ² t	Clearing I ² t at Rated Voltage	Rated breaking capacity AC	Power dissipation at I _n	Package	Weight
FR22AR69V25T	B1056667	690 V	25 A	32.4 A ² s	300 A ² s	160 kA	8.5 W	10	57 g
FR22AR69V32T	C1056668	690 V	32 A	60.3 A ² s	650 A ² s	160 kA	10.5 W	10	57 g
FR22AR69V40T	D1056669	690 V	40 A	101.8 A ² s	950 A ² s	160 kA	12 W	10	57 g
FR22AR69V50T	E1056670	690 V	50 A	217.6 A ² s	1850 A ² s	160 kA	13.4 W	10	57 g
FR22AR69V63T	F1056671	690 V	63 A	386.8 A ² s	3100 A ² s	160 kA	15.5 W	10	57 g
FR22AR69V80T	G1056672	690 V	80 A	840.1 A ² s	6800 A ² s	160 kA	16 W	10	57 g
FR22AR69V100T	H1056673	690 V	100 A	1890 A ² s	13000 A ² s	160 kA	17.8 W	10	57 g
FR22AR69V125T	J1056674	690 V	125 A	2897 A ² s	15500 A ² s	160 kA	22.8 W	10	57 g
FR22AR69V135T	K1056675	690 V	135 A	3360 A ² s	18500 A ² s	160 kA	27 W	10	57 g



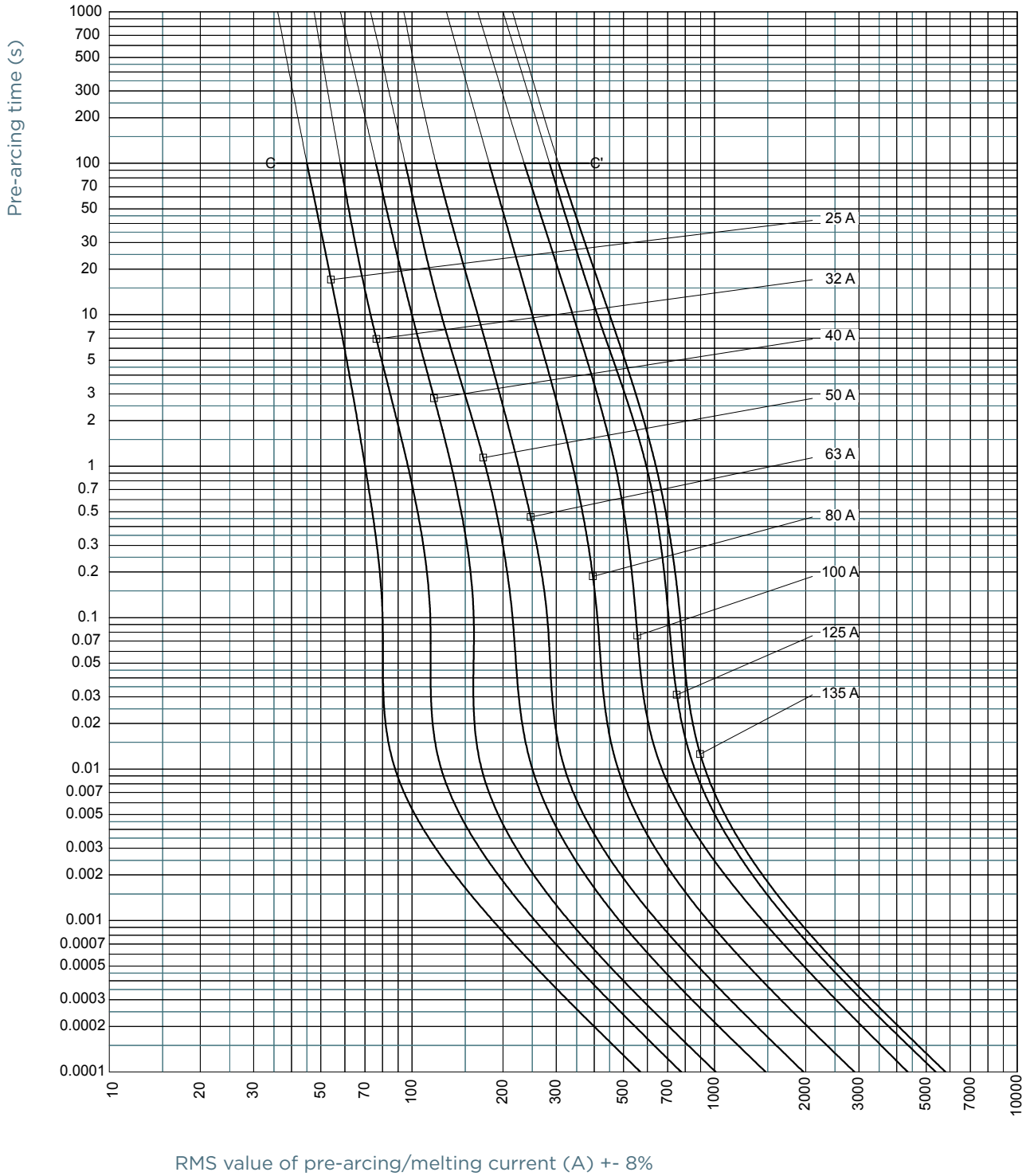
FR22AR69V63

Size 22x58 aR without striker

Catalog number	Item number	Rated voltage AC (IEC)	Rated current I _n	Pre-arcing I ² t	Clearing I ² t at Rated Voltage	Rated breaking capacity AC	Power dissipation at I _n	Package	Weight
FR22AR69V25	Y1027316	690 V	25 A	32.4 A ² s	300 A ² s	160 kA	8.5 W	10	57 g
FR22AR69V32	Z1027317	690 V	32 A	60.3 A ² s	650 A ² s	160 kA	10.5 W	10	57 g
FR22AR69V40	A1027318	690 V	40 A	101.8 A ² s	950 A ² s	160 kA	12 W	10	57 g
FR22AR69V50	B1027319	690 V	50 A	217.6 A ² s	1850 A ² s	160 kA	13.4 W	10	57 g
FR22AR69V63	C1027320	690 V	63 A	386.8 A ² s	3100 A ² s	160 kA	15.5 W	10	57 g
FR22AR69V80	D1027321	690 V	80 A	840.1 A ² s	6800 A ² s	160 kA	16 W	10	57 g
FR22AR69V100	E1027322	690 V	100 A	1890 A ² s	13000 A ² s	160 kA	17.8 W	10	57 g
FR22AR69V125	F1027323	690 V	125 A	2897 A ² s	15500 A ² s	160 kA	22.8 W	10	57 g
FR22AR69V135	G1027324	690 V	135 A	3360 A ² s	18500 A ² s	160 kA	27 W	10	57 g

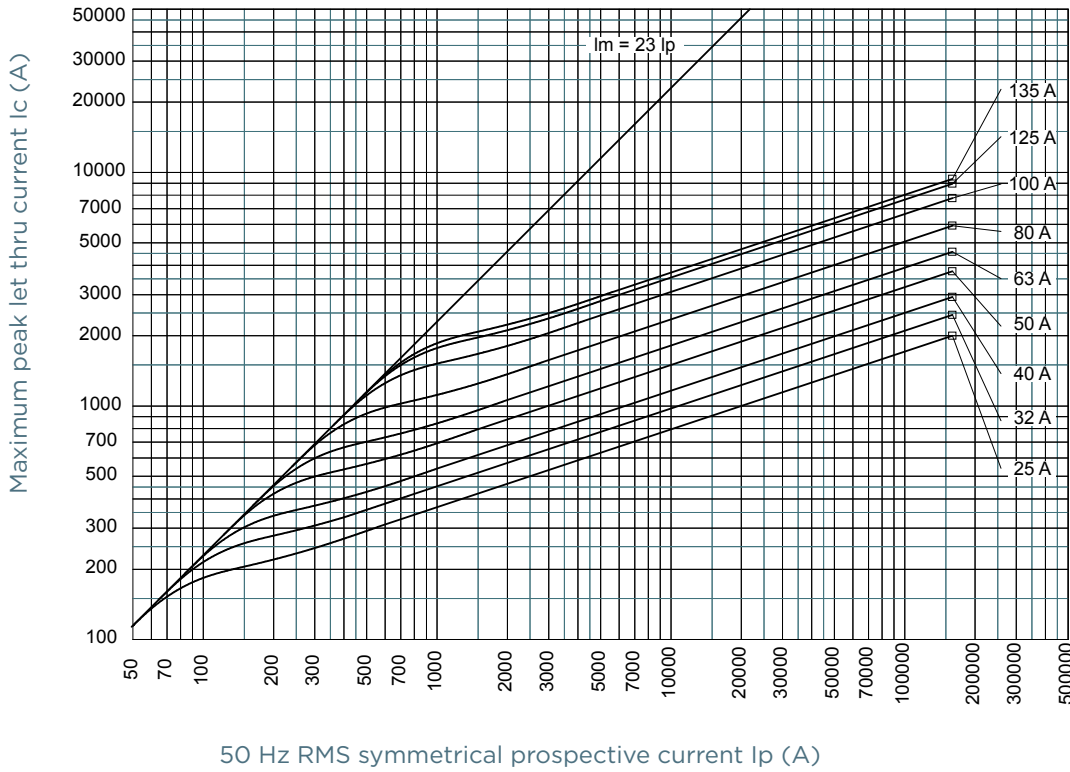
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TIME CURRENT CHARACTERISTIC CURVES

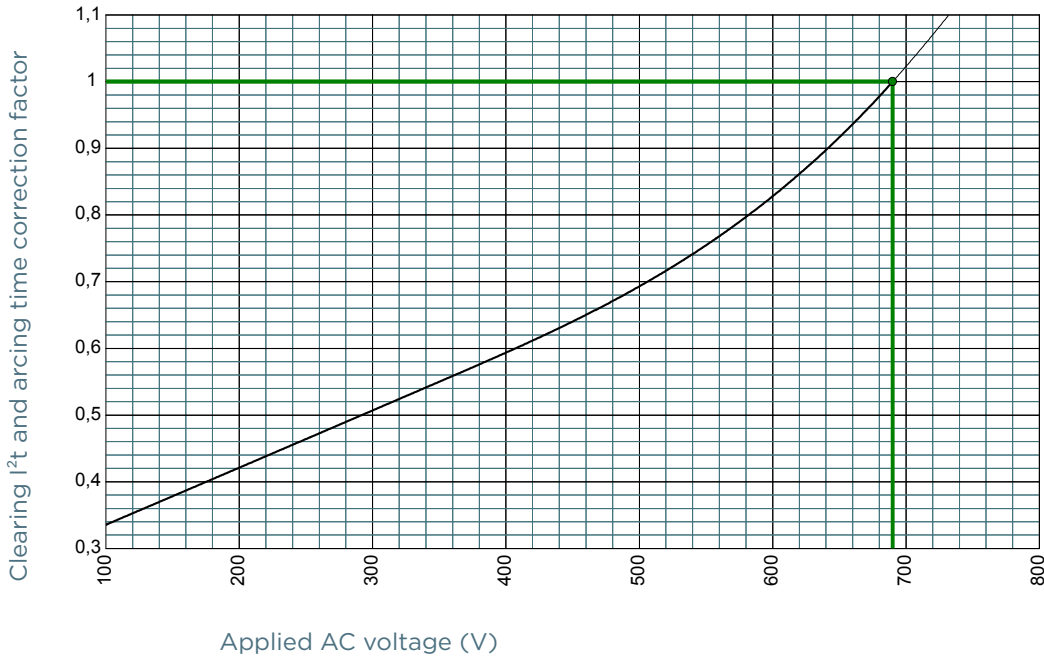


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CUT-OFF CURRENT CHARACTERISTIC

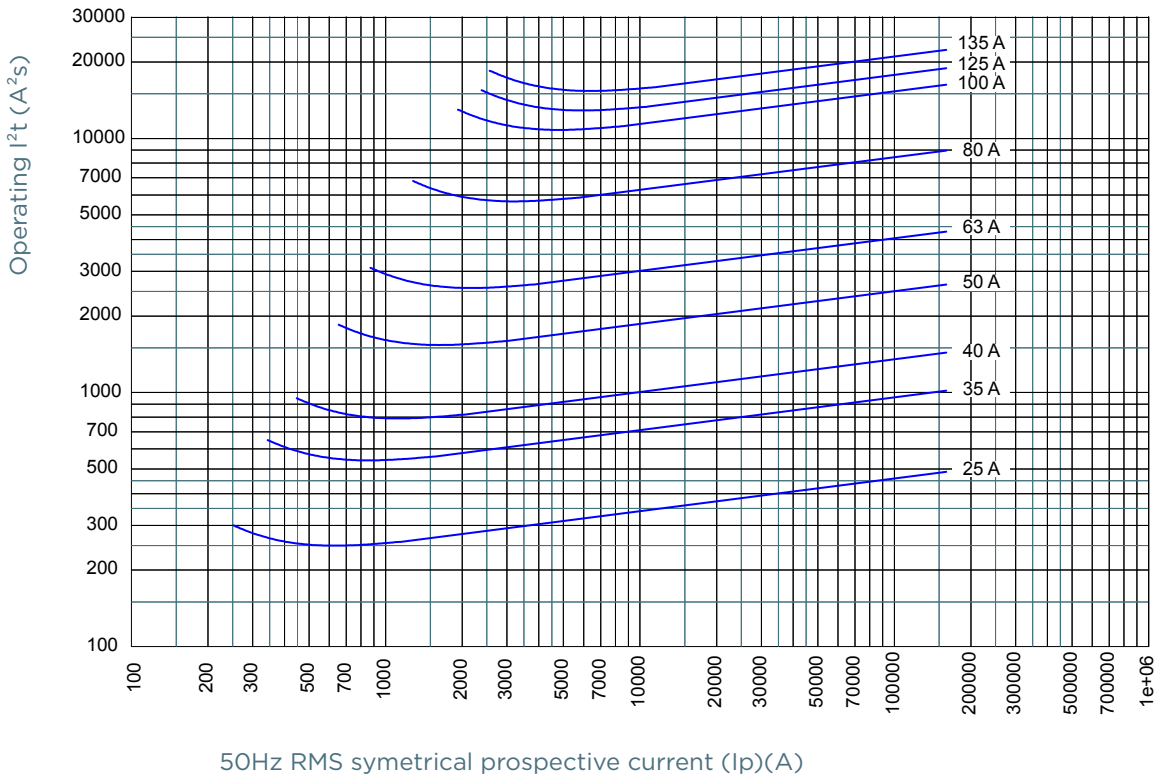


I²T MULTIPLIER COEFFICIENT

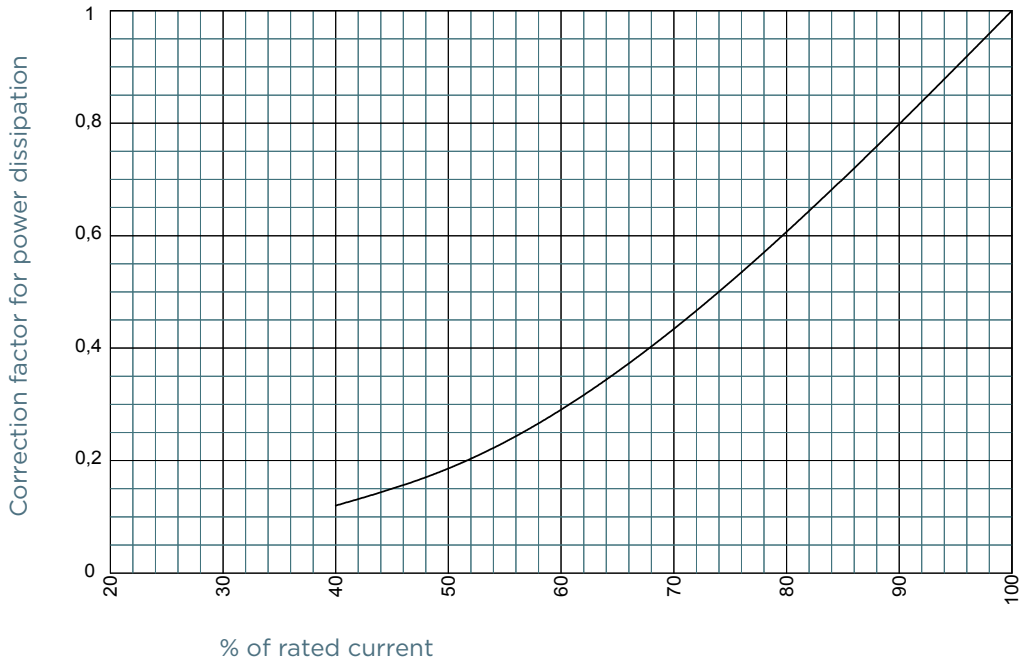


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CHARACTERISTICS TOTAL I²T CURVE



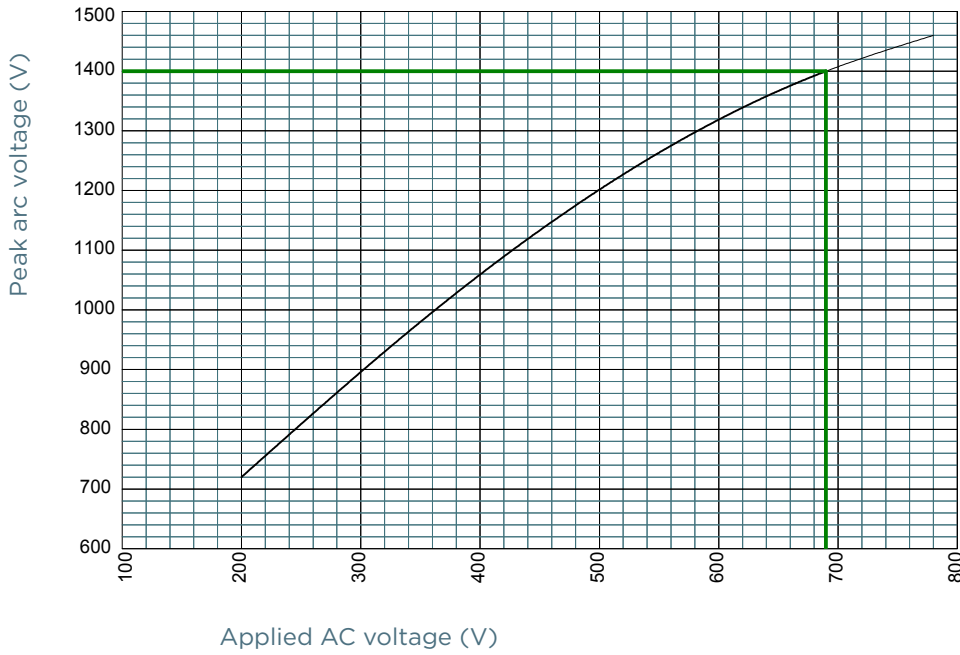
POWER DISSIPATION



Protistor® size 22x58 aR

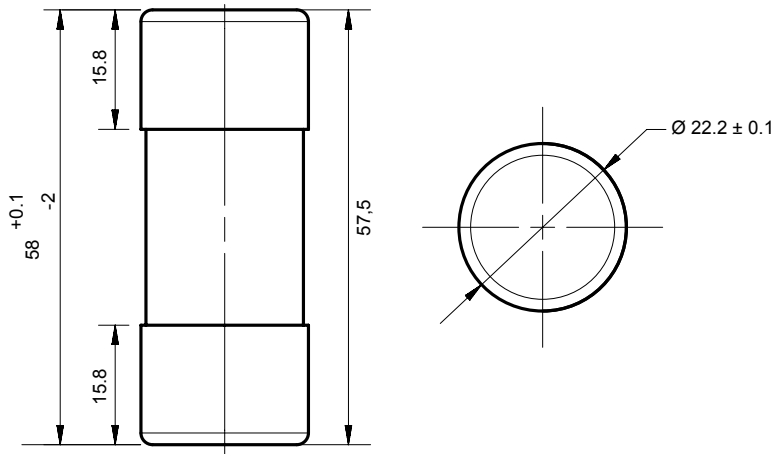
690VAC (IEC) / 700VAC (UL)

PEAK ARC VOLTAGE



DIMENSIONS

Size 22x58 aR without striker



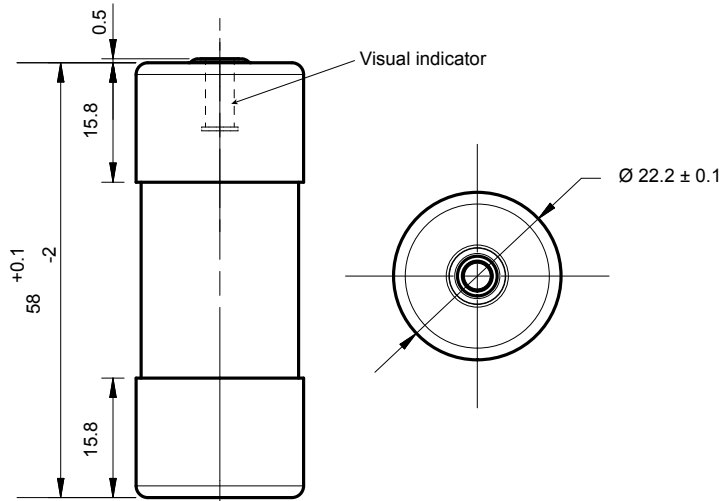
Dimensions in mm

Protistor® size 22x58 aR

690VAC (IEC) / 700VAC (UL)

DIMENSIONS

Size 22x58 aR with striker



Dimensions in mm

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