

# Protistor® SC Series size 33 aR

550 to 690VAC (IEC) / 760VAC (UL)

## SEMICONDUCTOR PROTECTION FUSES

## SQUARE BODY HIGH-SPEED FUSE-LINKS AC PROTECTION



The 690/760V Protistor® SC Series is a specific range to offer cost effective protection without concession on performance for power conversion equipment. These fuses have been engineered to provide protection for all semiconductors: diodes, thyristors and IGBT devices. They are assembled with bimetal silver and copper elements embedded in solidified sand, which helps control arcing characteristics for a lower  $I^2t$  and high interrupting rating level. Contact surfaces are tin plated to get an optimized interface with the best quality/price ratio.

This SC Series has been conceived and specially optimized to match integrators' and equipment manufacturers' main requirements while offering competitive prices.

## TECHNICAL DATA OVERVIEW

Voltage Range AC	550 ... 690 VAC
Ampere Range (A)	800 ... 2000 A
Speed/Characteristic	aR
I.R. AC (IEC)	200 kA
Product Size	33

## FEATURES & BENEFITS

- “One rating, one size” range
- aR Class according to IEC 60269-4 and VDE 636-23
- Very low  $I^2t$  for improved semiconductor protection
- High speed AC & DC protection
- Current limiting

## APPLICATIONS

- Protection of standard power conversion systems such as low voltage drives, UPS, inverter systems and similar
- All AC standard networks (up to 690V) or DC standard networks

## STANDARDS

- IEC 60269-4 Compliance in AC and DC voltage
- UL/CSA Recognized E76491 in AC and DC voltage
- CCC GB 1539.4



# Protistor® SC Series size 33 aR

550 to 690VAC (IEC) / 760VAC (UL)

## PRODUCT RANGE



SC33AR55V20CTFU

### Size 33 type TTF without indicator

Catalog number	Item number	Rated voltage AC (IEC)	Rated voltage AC (UL)	Rated voltage DC (UL)	Rated current I <sub>n</sub>	Pre-arcing I <sup>2</sup> t	Clearing I <sup>2</sup> t at Rated Voltage	Rated breaking capacity AC	Power dissipation at I <sub>n</sub>	Package	Weight
SC33AR69V800TFU	N1046972	690 V	760 V	500 V	800 A	93 kA <sup>2</sup> s	580 kA <sup>2</sup> s	200 kA	132 W	6	0.77 kg
SC33AR69V900TFU	P1046973	690 V	760 V	500 V	900 A	129 kA <sup>2</sup> s	805 kA <sup>2</sup> s	200 kA	132 W	6	0.77 kg
SC33AR69V10CTFU	Q1046974	690 V	760 V	500 V	1000 A	171 kA <sup>2</sup> s	1070 kA <sup>2</sup> s	200 kA	149 W	6	0.77 kg
SC33AR69V11CTFU	R1046975	690 V	760 V	500 V	1100 A	250 kA <sup>2</sup> s	1570 kA <sup>2</sup> s	200 kA	149 W	6	0.77 kg
SC33AR69V13CTFU	T1046977	690 V	760 V	500 V	1250 A	353 kA <sup>2</sup> s	2210 kA <sup>2</sup> s	200 kA	172 W	6	0.77 kg
SC33AR69V14CTFU	V1046978	690 V	760 V	500 V	1400 A	484 kA <sup>2</sup> s	3030 kA <sup>2</sup> s	200 kA	172 W	6	0.77 kg
SC33AR60V15CTFU	W1046979	600 V	650 V	450 V	1500 A	496 kA <sup>2</sup> s	2610 kA <sup>2</sup> s	200 kA	210 W	6	0.77 kg
SC33AR60V16CTFU	Y1046981	600 V	650 V	450 V	1600 A	555 kA <sup>2</sup> s	3000 kA <sup>2</sup> s	200 kA	221 W	6	0.77 kg
SC33AR60V18CTFU	Z1046982	600 V	650 V	450 V	1800 A	720 kA <sup>2</sup> s	3800 kA <sup>2</sup> s	200 kA	263 W	6	0.77 kg
SC33AR55V20CTFU	A1046983	550 V	605 V	450 V	2000 A	988 kA <sup>2</sup> s	4720 kA <sup>2</sup> s	200 kA	283 W	6	0.77 kg



SC33AR55V20CTF

### Size 33 type TTF with indicator

Catalog number	Item number	Rated voltage AC (IEC)	Rated voltage AC (UL)	Rated voltage DC (UL)	Rated current I <sub>n</sub>	Pre-arcing I <sup>2</sup> t	Clearing I <sup>2</sup> t at Rated Voltage	Rated breaking capacity AC	Power dissipation at I <sub>n</sub>	Package	Weight
SC33AR69V800TF	W1046956	690 V	760 V	500 V	800 A	93 kA <sup>2</sup> s	580 kA <sup>2</sup> s	200 kA	132 W	6	0.77 kg
SC33AR69V900TF	X1046957	690 V	760 V	500 V	900 A	129 kA <sup>2</sup> s	805 kA <sup>2</sup> s	200 kA	132 W	6	0.77 kg
SC33AR69V10CTF	Y1046958	690 V	760 V	500 V	1000 A	171 kA <sup>2</sup> s	1070 kA <sup>2</sup> s	200 kA	149 W	6	0.77 kg
SC33AR69V11CTF	Z1046959	690 V	760 V	500 V	1100 A	250 kA <sup>2</sup> s	1570 kA <sup>2</sup> s	200 kA	149 W	6	0.77 kg
SC33AR69V13CTF	A1046960	690 V	760 V	500 V	1250 A	353 kA <sup>2</sup> s	2210 kA <sup>2</sup> s	200 kA	172 W	6	0.77 kg
SC33AR69V14CTF	B1046961	690 V	760 V	500 V	1400 A	484 kA <sup>2</sup> s	3030 kA <sup>2</sup> s	200 kA	172 W	6	0.77 kg
SC33AR60V15CTF	F1046965	600 V	650 V	450 V	1500 A	496 kA <sup>2</sup> s	2610 kA <sup>2</sup> s	200 kA	210 W	6	0.77 kg
SC33AR60V16CTF	G1046966	600 V	650 V	450 V	1600 A	555 kA <sup>2</sup> s	3000 kA <sup>2</sup> s	200 kA	221 W	6	0.77 kg
SC33AR60V18CTF	J1046968	600 V	650 V	450 V	1800 A	720 kA <sup>2</sup> s	3800 kA <sup>2</sup> s	200 kA	263 W	6	0.77 kg
SC33AR55V20CTF	K1046969	550 V	605 V	450 V	2000 A	988 kA <sup>2</sup> s	4720 kA <sup>2</sup> s	200 kA	283 W	6	0.77 kg

# Protistor® SC Series size 33 aR

550 to 690VAC (IEC) / 760VAC (UL)

## PRODUCT RANGE



SC33AR55V20CTFM

### Size 33 type TTF with microswitch

Catalog number	Item number	Rated voltage AC (IEC)	Rated voltage AC (UL)	Rated voltage DC (UL)	Rated current I <sub>n</sub>	Pre-arcing I <sup>2</sup> t	Clearing I <sup>2</sup> t at Rated Voltage	Rated breaking capacity AC	Power dissipation at I <sub>n</sub>	Package	Weight
SC33AR69V800TFM	K1046946	690 V	760 V	500 V	800 A	93 kA <sup>2</sup> s	580 kA <sup>2</sup> s	200 kA	132 W	6	0.82 kg
SC33AR69V900TFM	L1046947	690 V	760 V	500 V	900 A	129 kA <sup>2</sup> s	805 kA <sup>2</sup> s	200 kA	132 W	6	0.82 kg
SC33AR69V10CTFM	M1046948	690 V	760 V	500 V	1000 A	171 kA <sup>2</sup> s	1070 kA <sup>2</sup> s	200 kA	149 W	6	0.82 kg
SC33AR69V11CTFM	N1046949	690 V	760 V	500 V	1100 A	250 kA <sup>2</sup> s	1570 kA <sup>2</sup> s	200 kA	149 W	6	0.82 kg
SC33AR69V13CTFM	P1046950	690 V	760 V	500 V	1250 A	353 kA <sup>2</sup> s	2210 kA <sup>2</sup> s	200 kA	172 W	6	0.82 kg
SC33AR69V14CTFM	Q1046951	690 V	760 V	500 V	1400 A	484 kA <sup>2</sup> s	3030 kA <sup>2</sup> s	200 kA	172 W	6	0.82 kg
SC33AR60V15CTFM	R1046952	600 V	650 V	450 V	1500 A	496 kA <sup>2</sup> s	2610 kA <sup>2</sup> s	200 kA	210 W	6	0.82 kg
SC33AR60V16CTFM	S1046953	600 V	650 V	450 V	1600 A	555 kA <sup>2</sup> s	3000 kA <sup>2</sup> s	200 kA	221 W	6	0.82 kg
SC33AR60V18CTFM	T1046954	600 V	650 V	450 V	1800 A	720 kA <sup>2</sup> s	3800 kA <sup>2</sup> s	200 kA	263 W	6	0.82 kg
SC33AR55V20CTFM	V1046955	550 V	605 V	450 V	2000 A	988 kA <sup>2</sup> s	4720 kA <sup>2</sup> s	200 kA	283 W	6	0.82 kg



SC33AR55V20CTIU

### Size 33 type TTI without indicator

Catalog number	Item number	Rated voltage AC (IEC)	Rated voltage AC (UL)	Rated voltage DC (UL)	Rated current I <sub>n</sub>	Pre-arcing I <sup>2</sup> t	Clearing I <sup>2</sup> t at Rated Voltage	Rated breaking capacity AC	Power dissipation at I <sub>n</sub>	Package	Weight
SC33AR69V800TIU	R1047090	690 V	760 V	500 V	800 A	93 kA <sup>2</sup> s	580 kA <sup>2</sup> s	200 kA	132 W	6	0.77 kg
SC33AR69V900TIU	S1047091	690 V	760 V	500 V	900 A	129 kA <sup>2</sup> s	805 kA <sup>2</sup> s	200 kA	132 W	6	0.77 kg
SC33AR69V10CTIU	T1047092	690 V	760 V	500 V	1000 A	171 kA <sup>2</sup> s	1070 kA <sup>2</sup> s	200 kA	149 W	6	0.77 kg
SC33AR69V11CTIU	V1047093	690 V	760 V	500 V	1100 A	250 kA <sup>2</sup> s	1570 kA <sup>2</sup> s	200 kA	149 W	6	0.77 kg
SC33AR69V13CTIU	W1047094	690 V	760 V	500 V	1250 A	353 kA <sup>2</sup> s	2210 kA <sup>2</sup> s	200 kA	172 W	6	0.77 kg
SC33AR69V14CTIU	X1047095	690 V	760 V	500 V	1400 A	484 kA <sup>2</sup> s	3030 kA <sup>2</sup> s	200 kA	172 W	6	0.77 kg
SC33AR60V15CTIU	Y1047096	600 V	650 V	450 V	1500 A	496 kA <sup>2</sup> s	2610 kA <sup>2</sup> s	200 kA	210 W	6	0.77 kg
SC33AR60V16CTIU	Z1047097	600 V	650 V	450 V	1600 A	555 kA <sup>2</sup> s	3000 kA <sup>2</sup> s	200 kA	221 W	6	0.77 kg
SC33AR60V18CTIU	A1047098	600 V	650 V	450 V	1800 A	720 kA <sup>2</sup> s	3800 kA <sup>2</sup> s	200 kA	263 W	6	0.77 kg
SC33AR55V20CTIU	B1047099	550 V	605 V	450 V	2000 A	988 kA <sup>2</sup> s	4720 kA <sup>2</sup> s	200 kA	283 W	6	0.77 kg

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## PRODUCT RANGE



SC33AR55V20CTI

### Size 33 type TTI with indicator

Catalog number	Item number	Rated voltage AC (IEC)	Rated voltage AC (UL)	Rated voltage DC (UL)	Rated current I <sub>n</sub>	Pre-arcing I <sup>2</sup> t	Clearing I <sup>2</sup> t at Rated Voltage	Rated breaking capacity AC	Power dissipation at I <sub>n</sub>	Package	Weight
SC33AR69V800TI	F1047080	690 V	760 V	500 V	800 A	93 kA <sup>2</sup> s	580 kA <sup>2</sup> s	200 kA	132 W	6	0.77 kg
SC33AR69V900TI	G1047081	690 V	760 V	500 V	900 A	129 kA <sup>2</sup> s	805 kA <sup>2</sup> s	200 kA	132 W	6	0.77 kg
SC33AR69V10CTI	H1047082	690 V	760 V	500 V	1000 A	171 kA <sup>2</sup> s	1070 kA <sup>2</sup> s	200 kA	149 W	6	0.77 kg
SC33AR69V11CTI	J1047083	690 V	760 V	500 V	1100 A	250 kA <sup>2</sup> s	1570 kA <sup>2</sup> s	200 kA	149 W	6	0.77 kg
SC33AR69V13CTI	K1047084	690 V	760 V	500 V	1250 A	353 kA <sup>2</sup> s	2210 kA <sup>2</sup> s	200 kA	172 W	6	0.77 kg
SC33AR69V14CTI	L1047085	690 V	760 V	500 V	1400 A	484 kA <sup>2</sup> s	3030 kA <sup>2</sup> s	200 kA	172 W	6	0.77 kg
SC33AR60V15CTI	M1047086	600 V	650 V	450 V	1500 A	496 kA <sup>2</sup> s	2610 kA <sup>2</sup> s	200 kA	210 W	6	0.77 kg
SC33AR60V16CTI	N1047087	600 V	650 V	450 V	1600 A	555 kA <sup>2</sup> s	3000 kA <sup>2</sup> s	200 kA	221 W	6	0.77 kg
SC33AR60V18CTI	P1047088	600 V	650 V	450 V	1800 A	720 kA <sup>2</sup> s	3800 kA <sup>2</sup> s	200 kA	263 W	6	0.77 kg
SC33AR55V20CTI	Q1047089	550 V	605 V	450 V	2000 A	988 kA <sup>2</sup> s	4720 kA <sup>2</sup> s	200 kA	283 W	6	0.77 kg

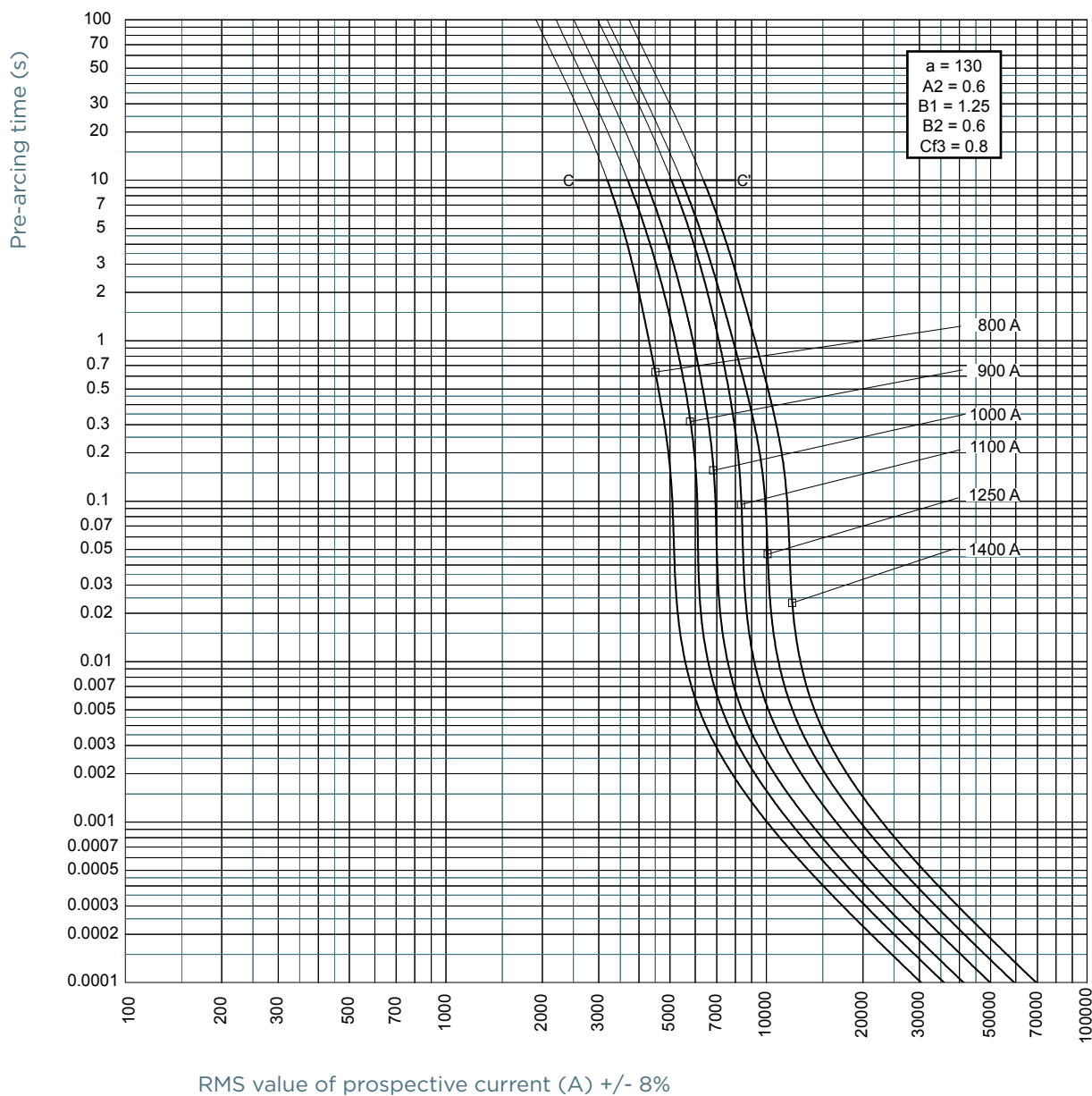


SC33AR55V20CTIM

### Size 33 type TTI with microswitch

Catalog number	Item number	Rated voltage AC (IEC)	Rated voltage AC (UL)	Rated voltage DC (UL)	Rated current I <sub>n</sub>	Pre-arcing I <sup>2</sup> t	Clearing I <sup>2</sup> t at Rated Voltage	Rated breaking capacity AC	Power dissipation at I <sub>n</sub>	Package	Weight
SC33AR69V800TIM	V1047070	690 V	760 V	500 V	800 A	93 kA <sup>2</sup> s	580 kA <sup>2</sup> s	200 kA	132 W	6	0.82 kg
SC33AR69V900TIM	W1047071	690 V	760 V	500 V	900 A	129 kA <sup>2</sup> s	805 kA <sup>2</sup> s	200 kA	132 W	6	0.82 kg
SC33AR69V10CTIM	X1047072	690 V	760 V	500 V	1000 A	171 kA <sup>2</sup> s	1070 kA <sup>2</sup> s	200 kA	149 W	6	0.82 kg
SC33AR69V11CTIM	Y1047073	690 V	760 V	500 V	1100 A	250 kA <sup>2</sup> s	1570 kA <sup>2</sup> s	200 kA	149 W	6	0.82 kg
SC33AR69V13CTIM	Z1047074	690 V	760 V	500 V	1250 A	353 kA <sup>2</sup> s	2210 kA <sup>2</sup> s	200 kA	172 W	6	0.82 kg
SC33AR69V14CTIM	A1047075	690 V	760 V	500 V	1400 A	484 kA <sup>2</sup> s	3030 kA <sup>2</sup> s	200 kA	172 W	6	0.82 kg
SC33AR60V15CTIM	B1047076	600 V	650 V	450 V	1500 A	496 kA <sup>2</sup> s	2610 kA <sup>2</sup> s	200 kA	210 W	6	0.82 kg
SC33AR60V16CTIM	C1047077	600 V	650 V	450 V	1600 A	555 kA <sup>2</sup> s	3000 kA <sup>2</sup> s	200 kA	221 W	6	0.82 kg
SC33AR60V18CTIM	D1047078	600 V	650 V	450 V	1800 A	720 kA <sup>2</sup> s	3800 kA <sup>2</sup> s	200 kA	263 W	6	0.82 kg
SC33AR55V20CTIM	E1047079	550 V	605 V	450 V	2000 A	988 kA <sup>2</sup> s	4720 kA <sup>2</sup> s	200 kA	283 W	6	0.82 kg

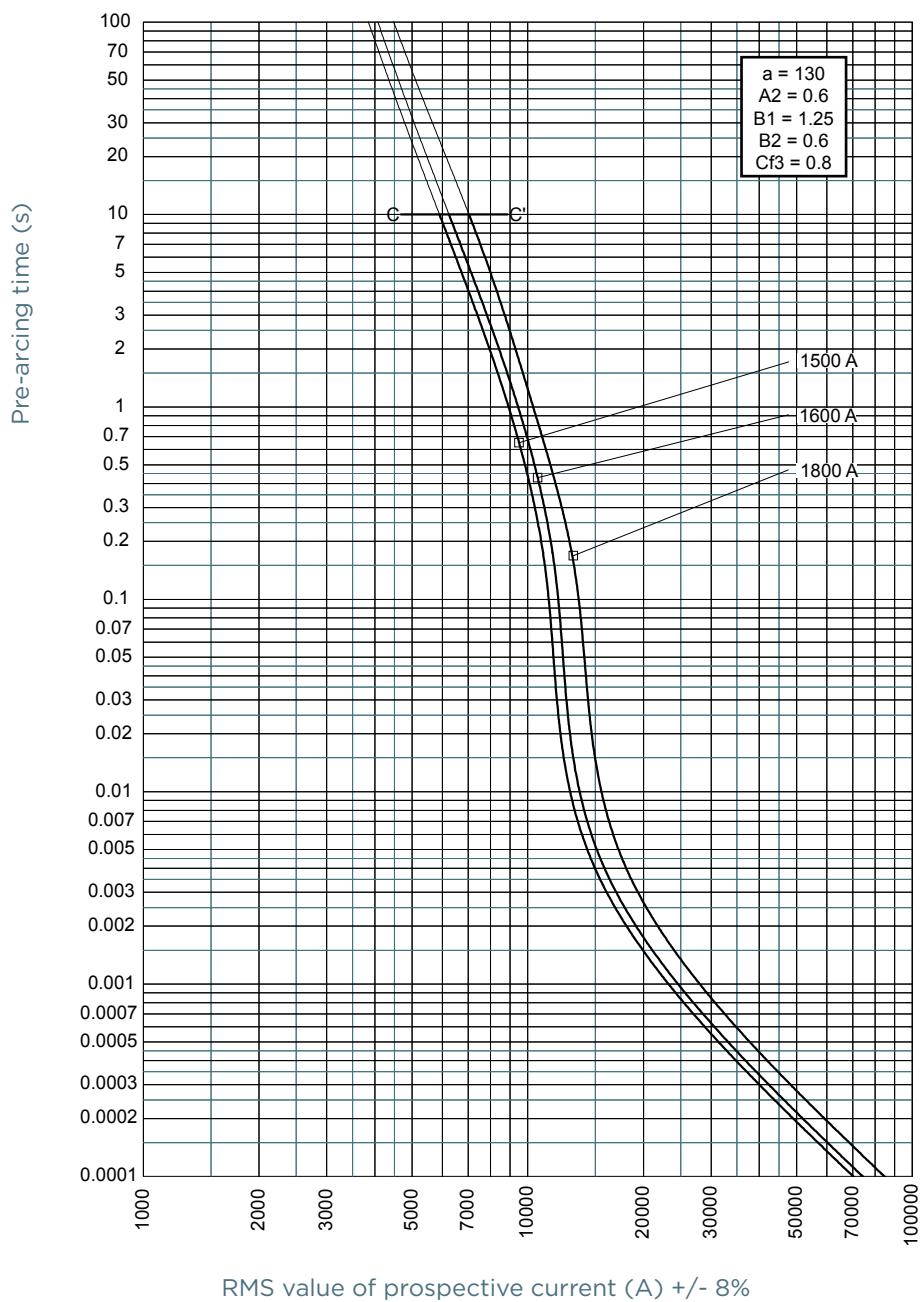
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# Protistor® SC Series size 33 aR

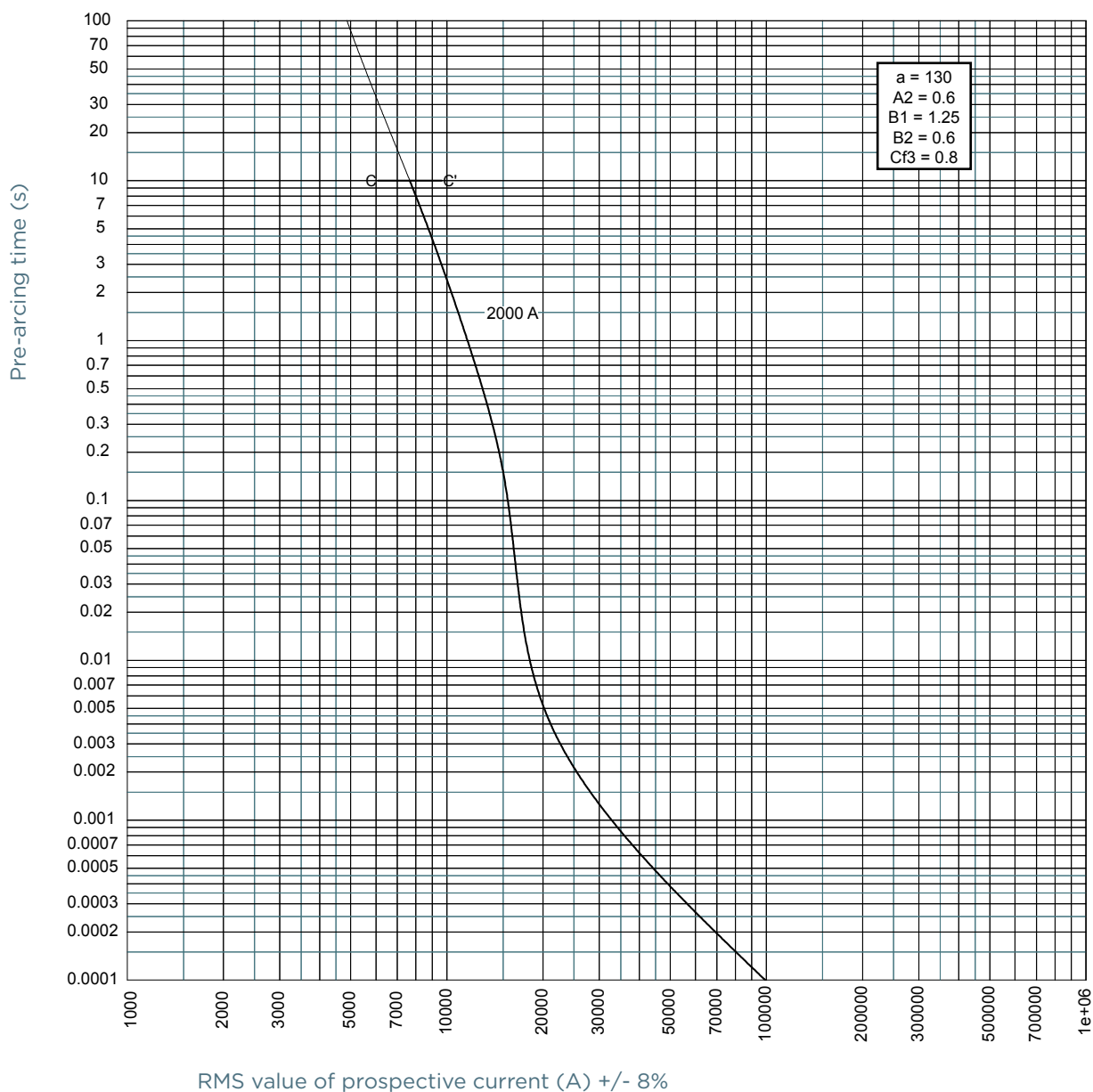
550 to 690VAC (IEC) / 760VAC (UL)

## TIME CURRENT CHARACTERISTIC CURVES



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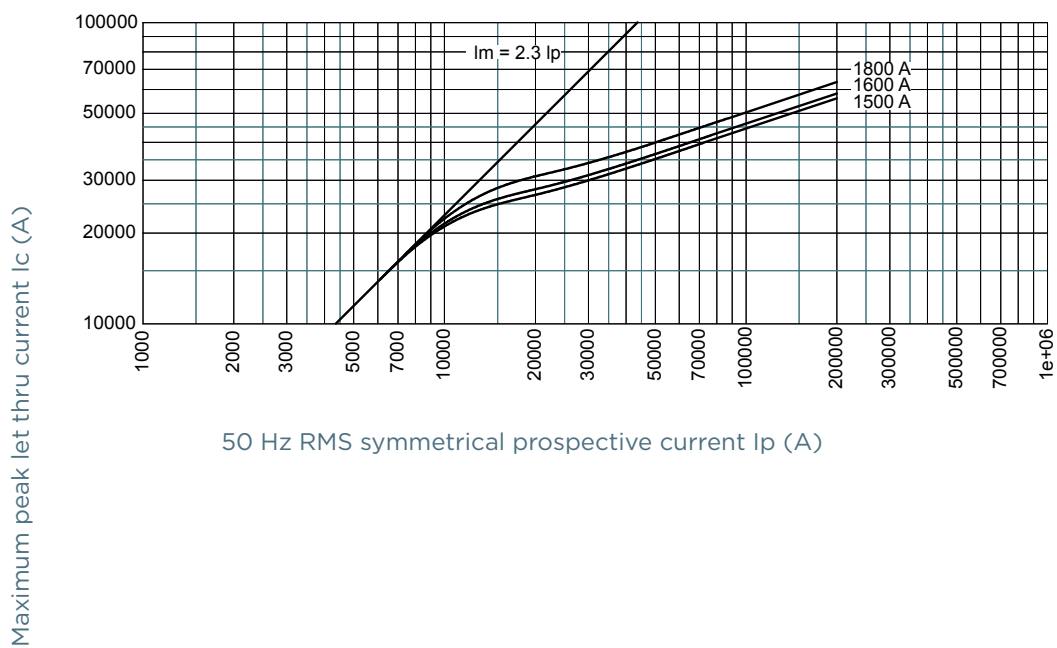
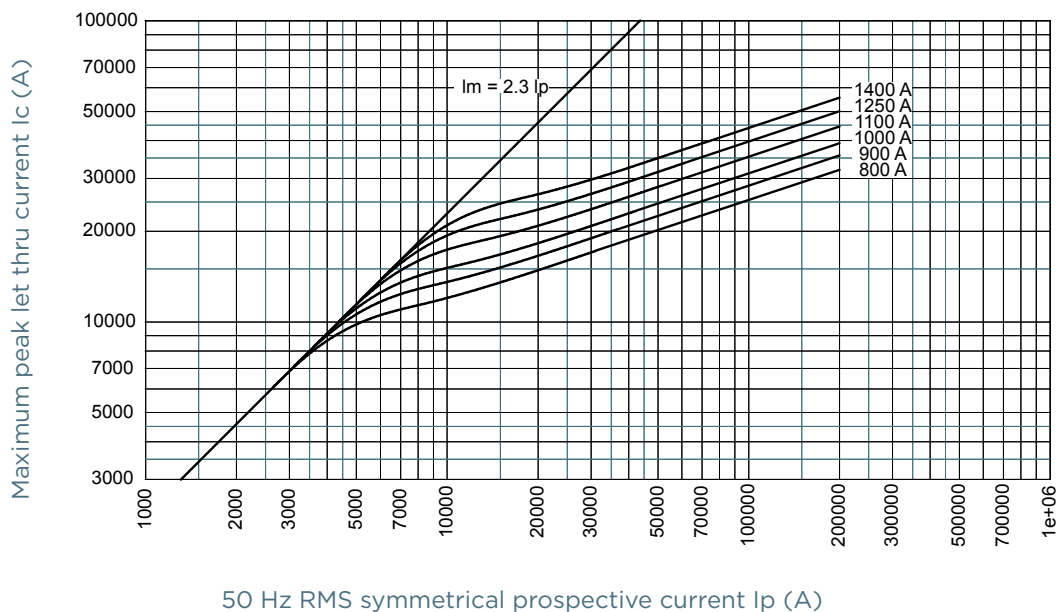
## TIME CURRENT CHARACTERISTIC CURVES



# Protistor® SC Series size 33 aR

550 to 690VAC (IEC) / 760VAC (UL)

## CUT-OFF CURRENT CHARACTERISTIC



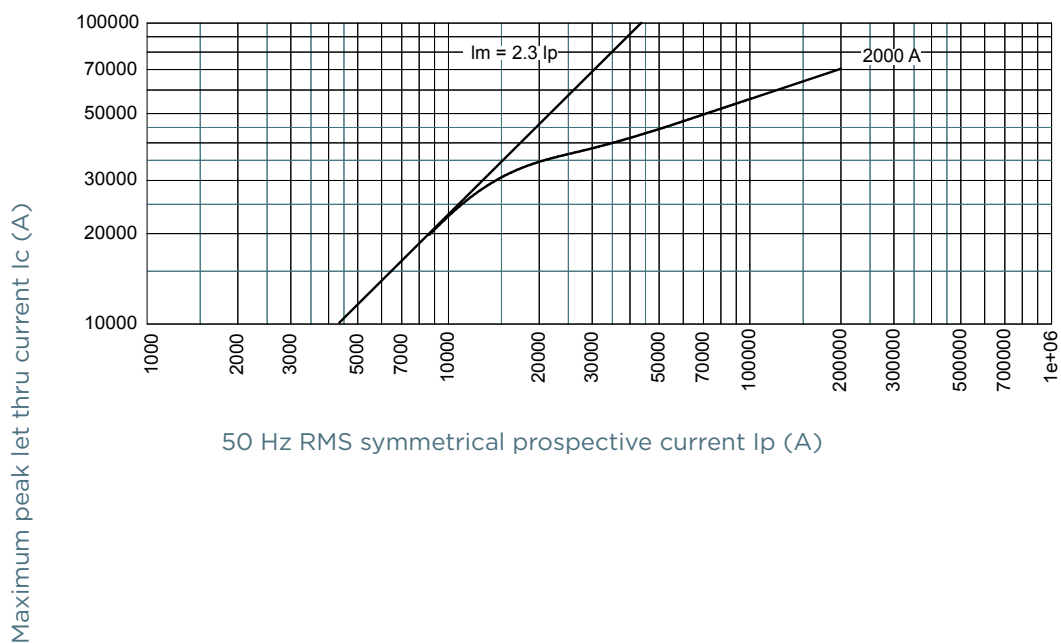
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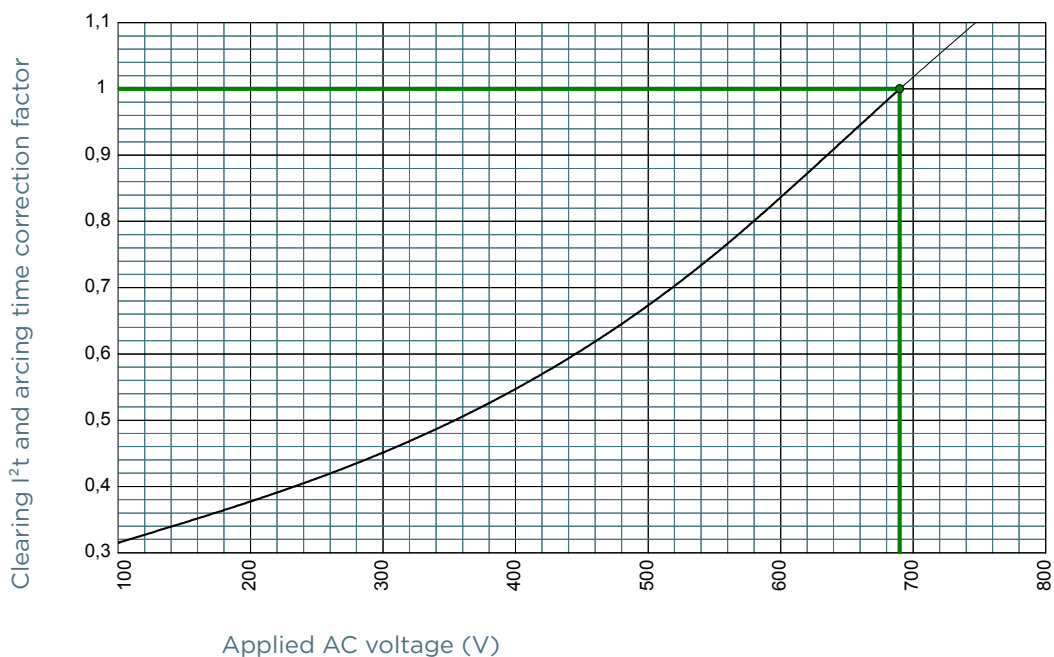
# Protistor® SC Series size 33 aR

550 to 690VAC (IEC) / 760VAC (UL)

## CUT-OFF CURRENT CHARACTERISTIC



## I<sup>2</sup>T MULTIPLIER COEFFICIENT

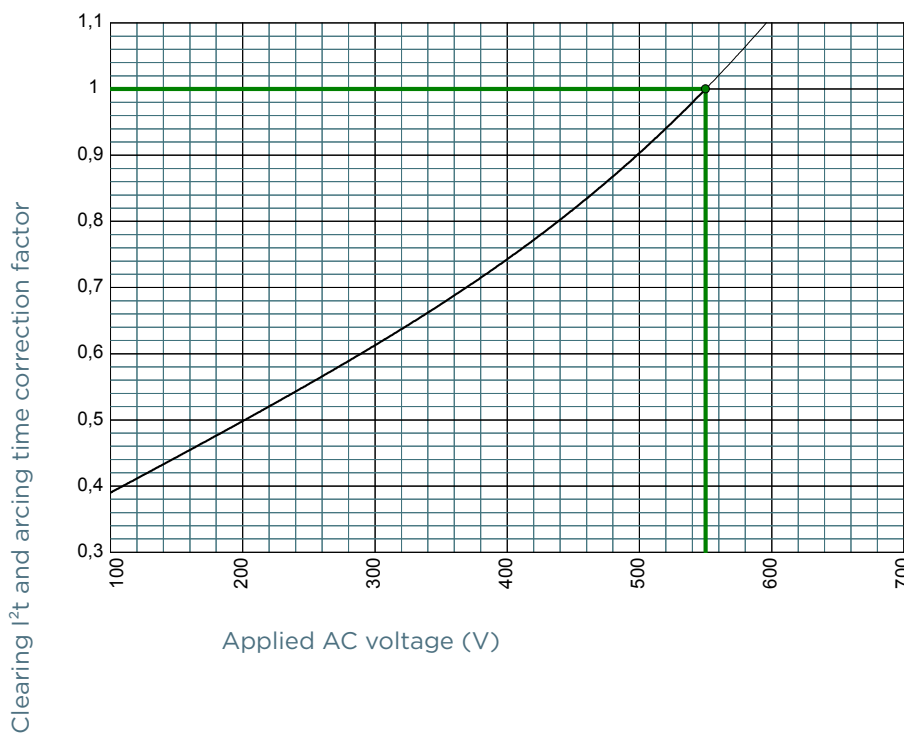
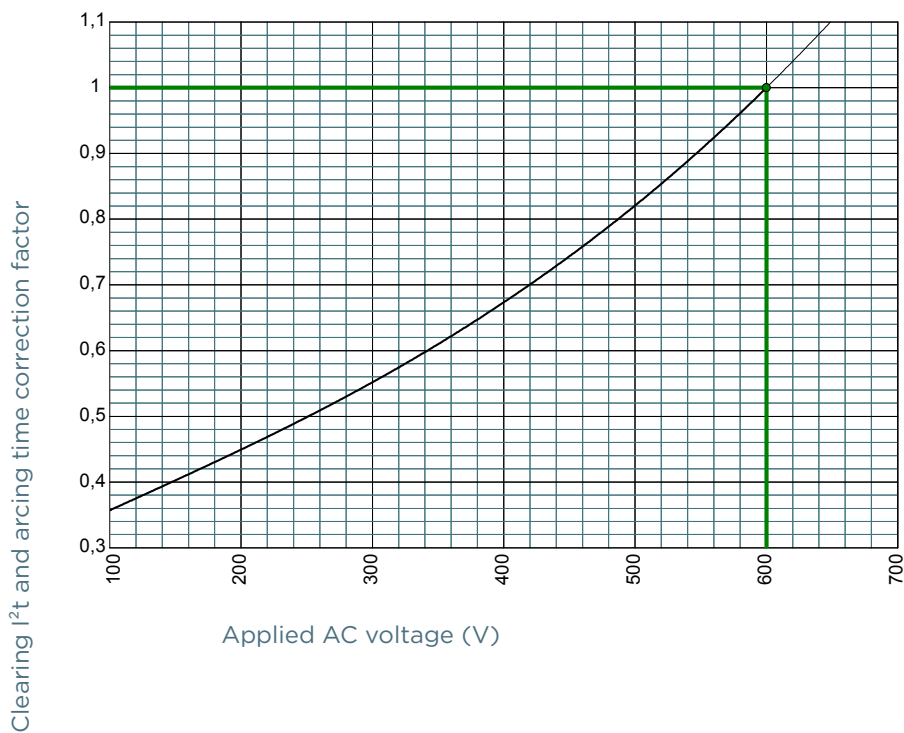


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# Protistor® SC Series size 33 aR

550 to 690VAC (IEC) / 760VAC (UL)

## I<sup>2</sup>T MULTIPLIER COEFFICIENT

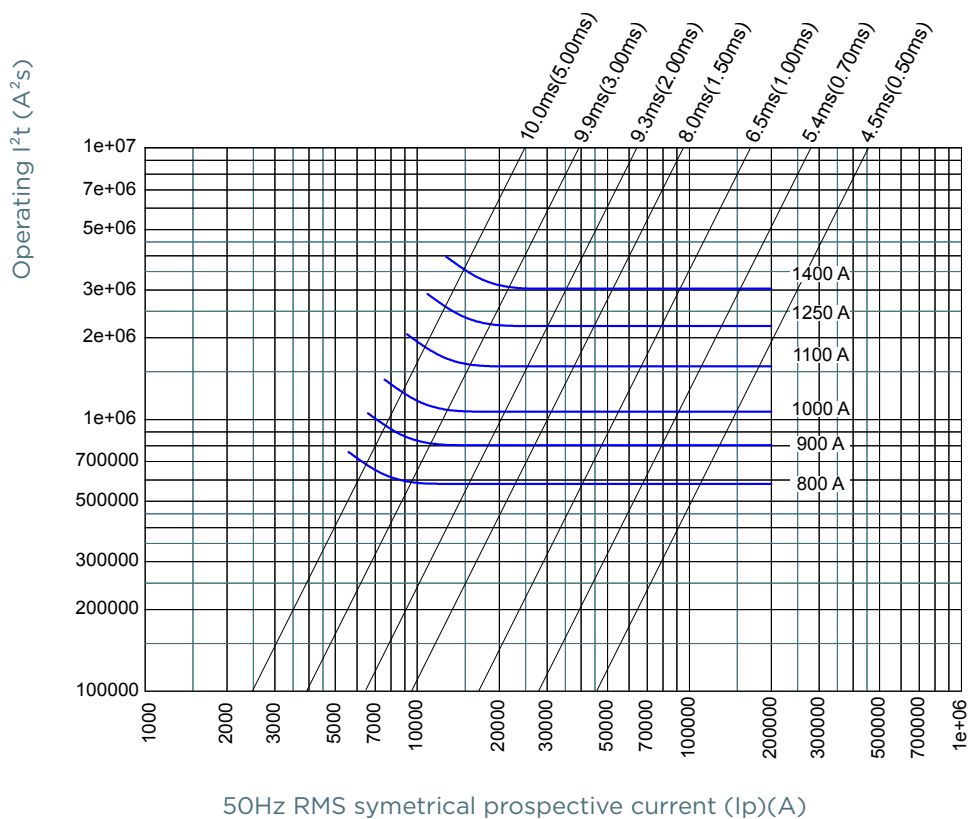


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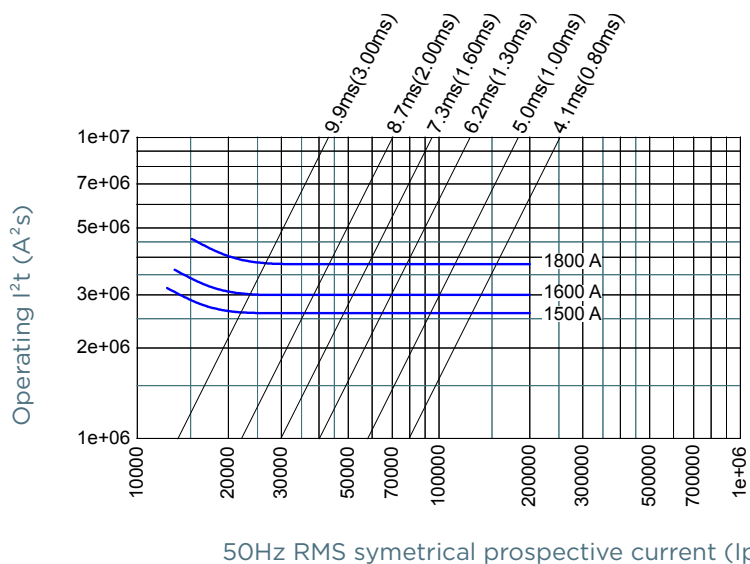
# Protistor® SC Series size 33 aR

550 to 690VAC (IEC) / 760VAC (UL)

## CHARACTERISTICS TOTAL I<sup>2</sup>T CURVE



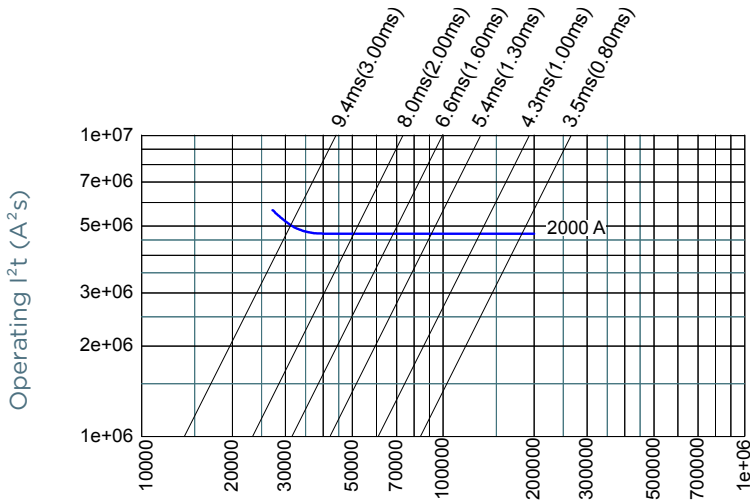
50Hz RMS symmetrical prospective current (Ip)(A)



50Hz RMS symmetrical prospective current (Ip)(A)

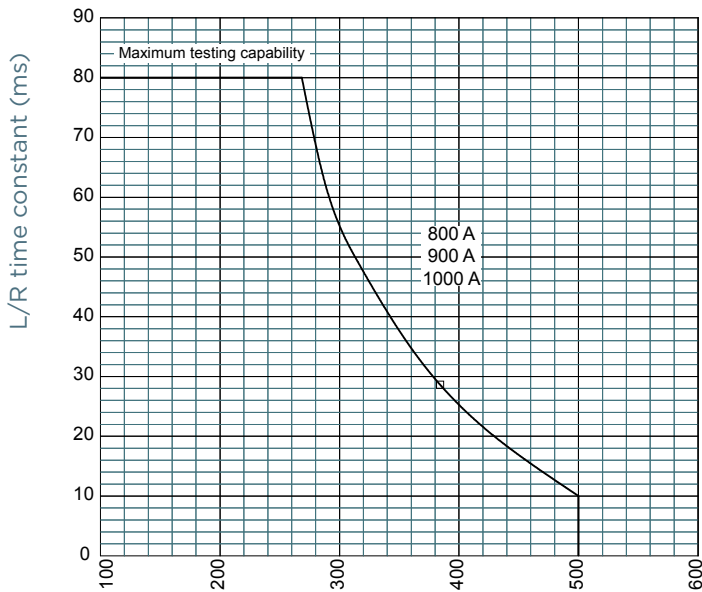
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CHARACTERISTICS TOTAL I<sup>2</sup>T CURVE



50Hz RMS symmetrical prospective current (Ip)(A)

L/R TIME CONSTANT VS DC VOLTAGE CAPABILITY



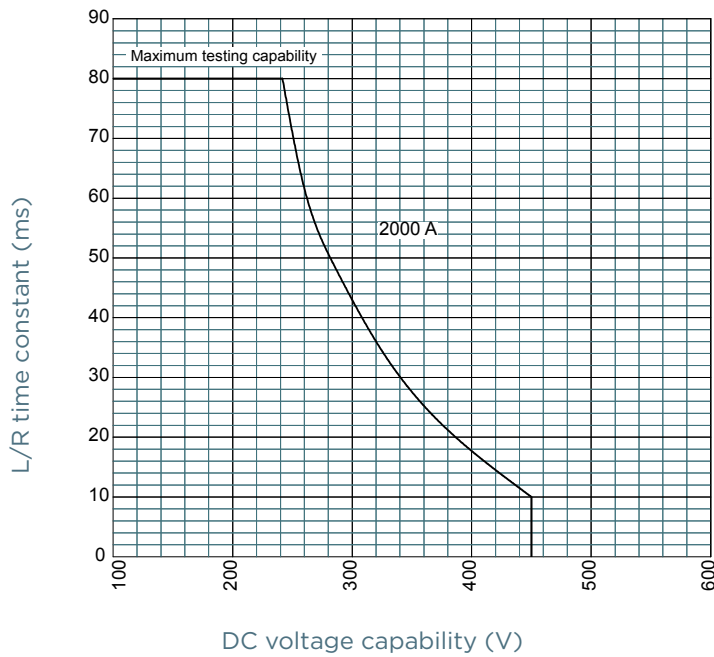
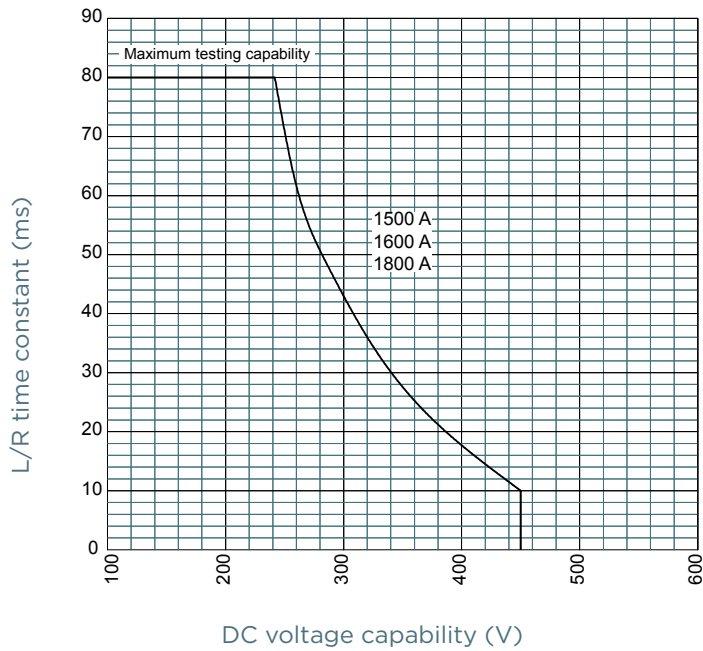
DC voltage capability (V)

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# Protistor® SC Series size 33 aR

550 to 690VAC (IEC) / 760VAC (UL)

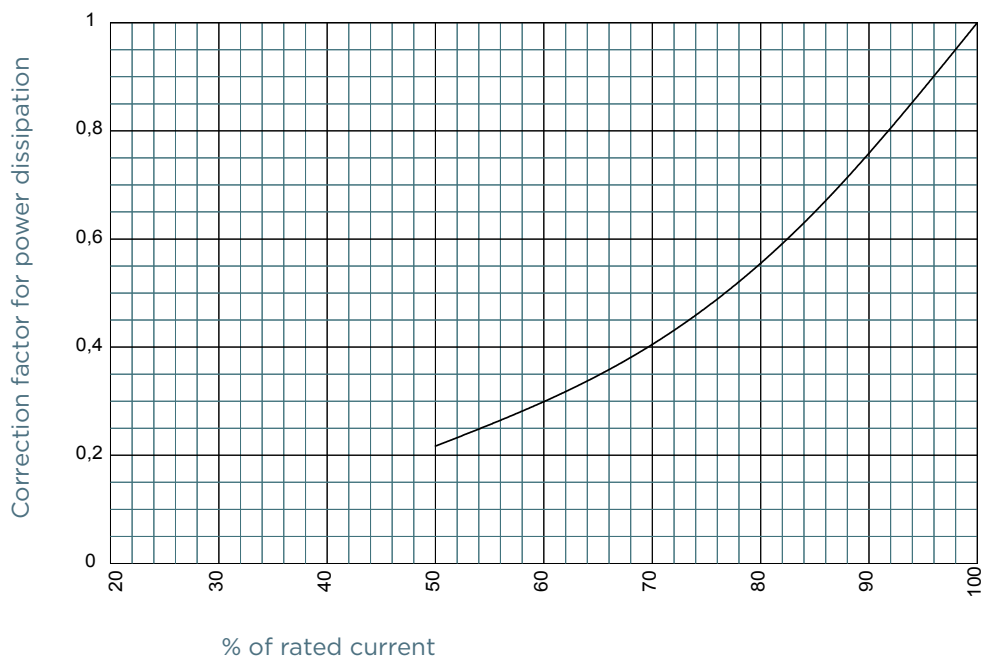
## L/R TIME CONSTANT VS DC VOLTAGE CAPABILITY



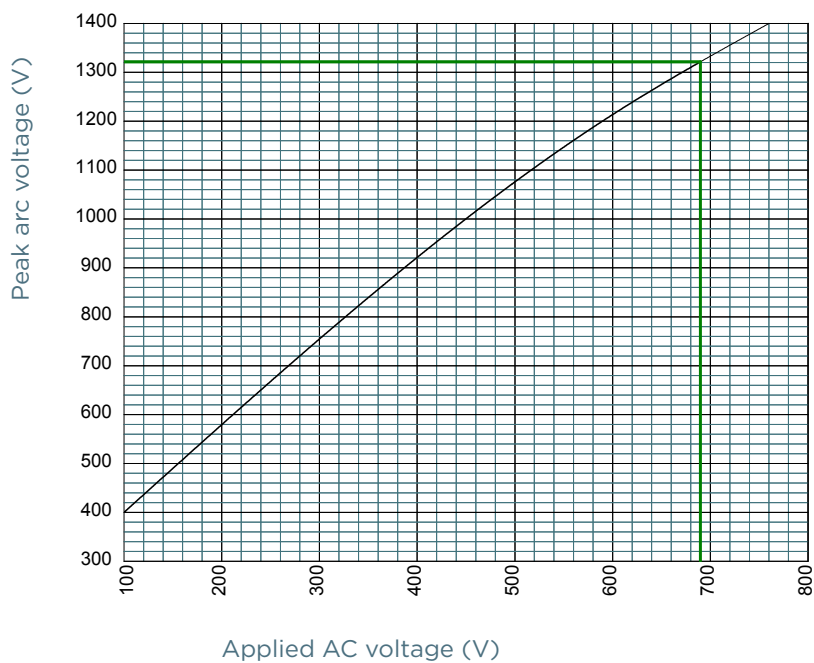
# Protistor® SC Series size 33 aR

550 to 690VAC (IEC) / 760VAC (UL)

## POWER DISSIPATION



## PEAK ARC VOLTAGE

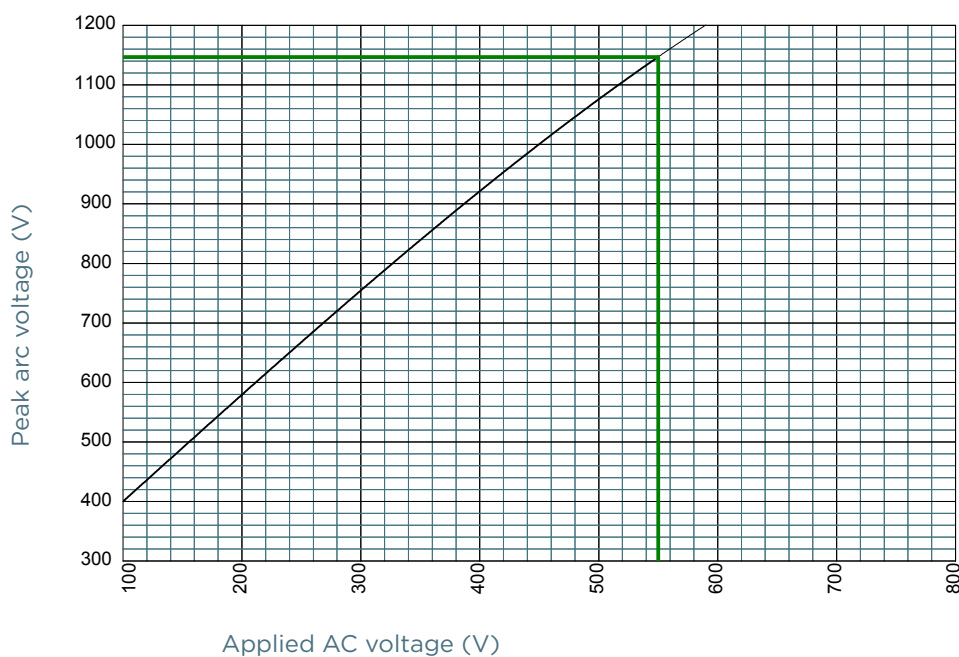
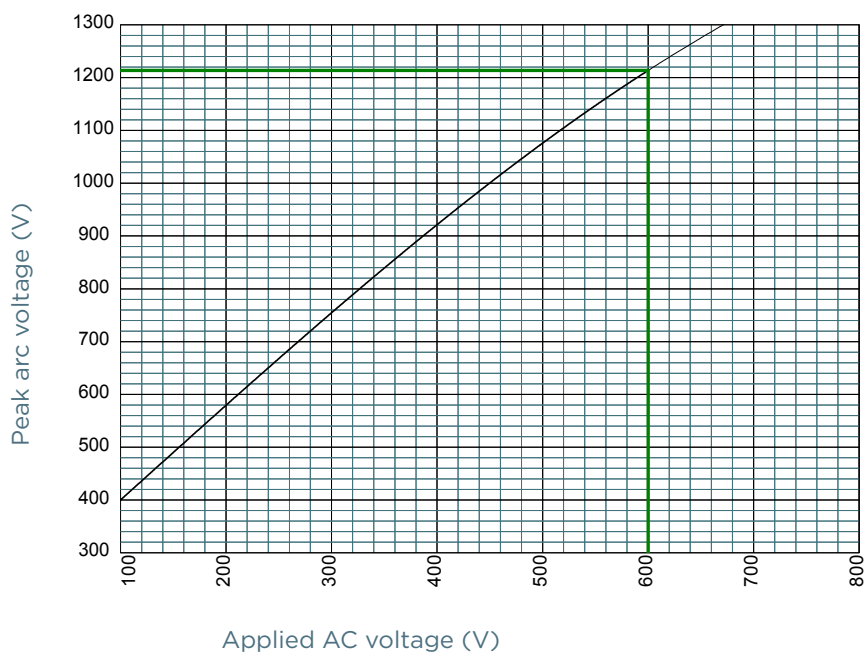


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# Protistor® SC Series size 33 aR

550 to 690VAC (IEC) / 760VAC (UL)

## PEAK ARC VOLTAGE



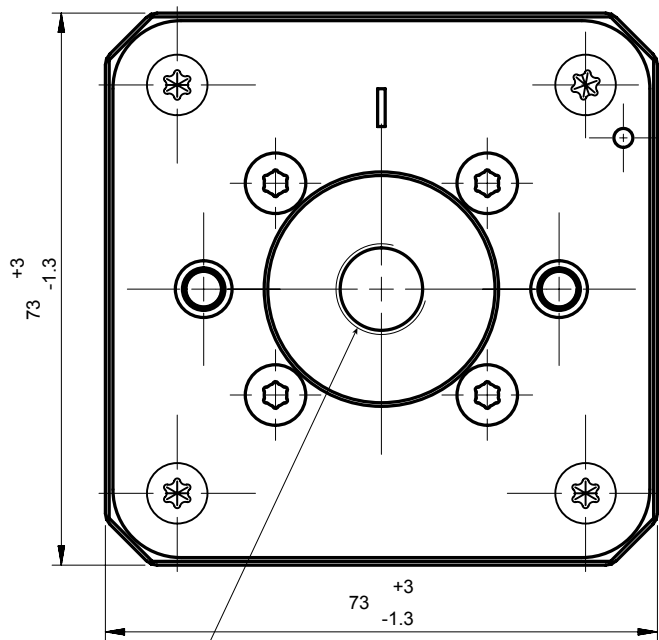
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# Protistor® SC Series size 33 aR

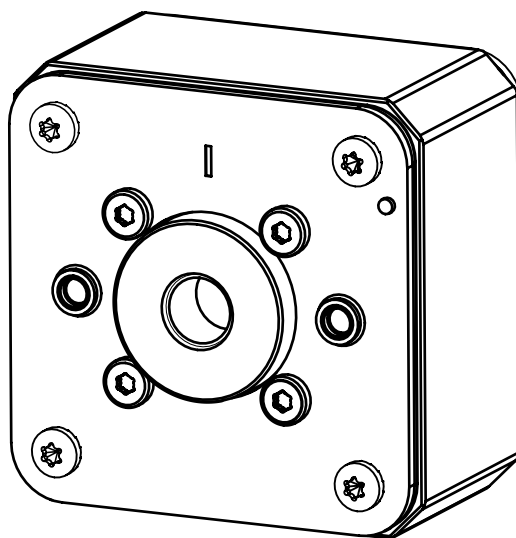
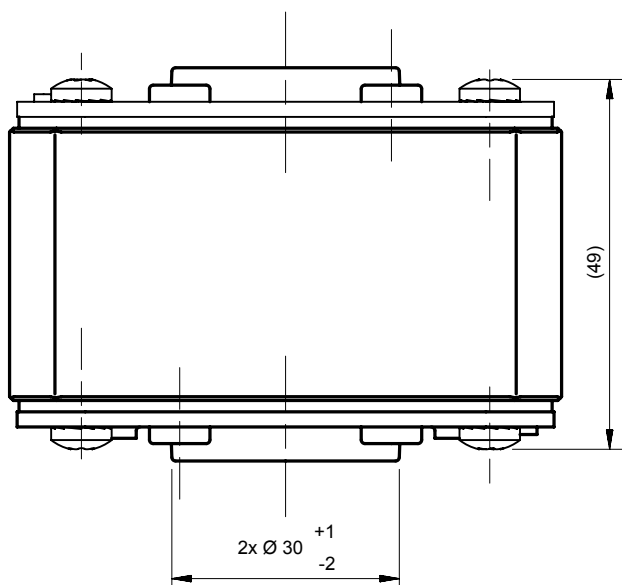
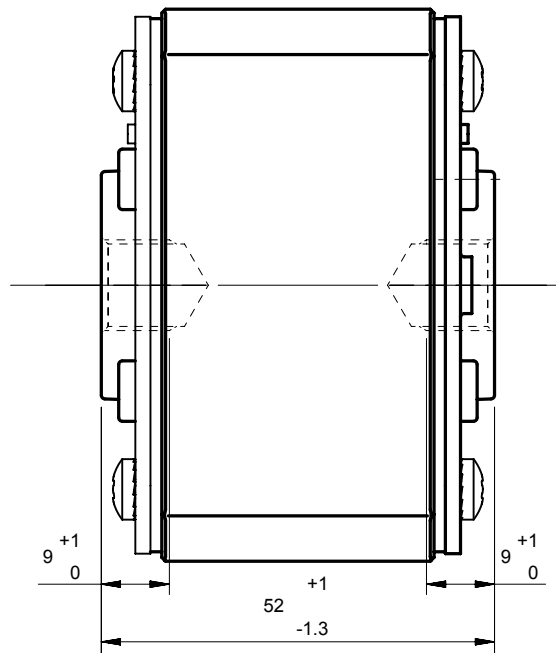
550 to 690VAC (IEC) / 760VAC (UL)

## DIMENSIONS

TTF / TTI without indicator



TTI: 2x Ø 1/2 - 13 UNC  
TTF: 2x M 12



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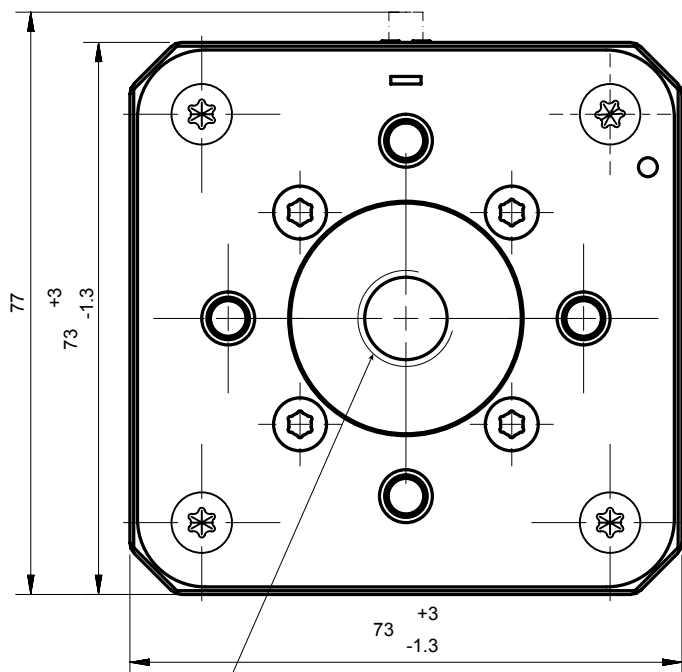


# Protistor® SC Series size 33 aR

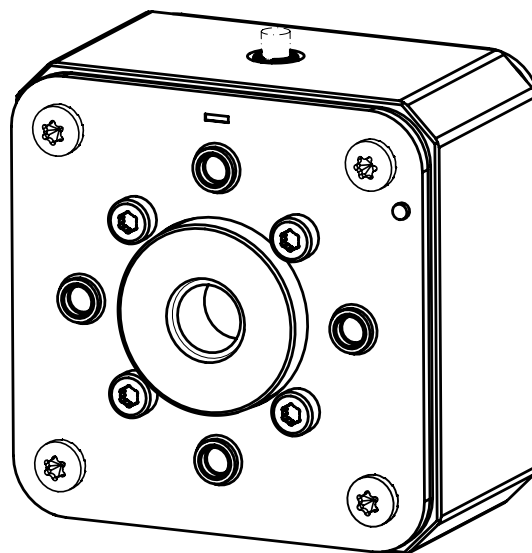
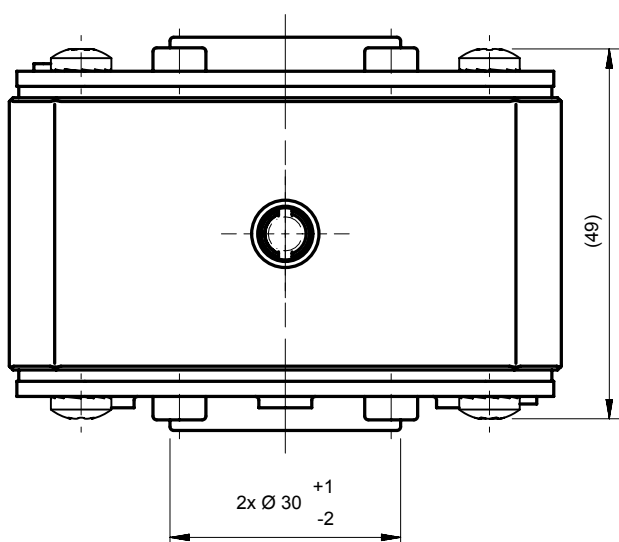
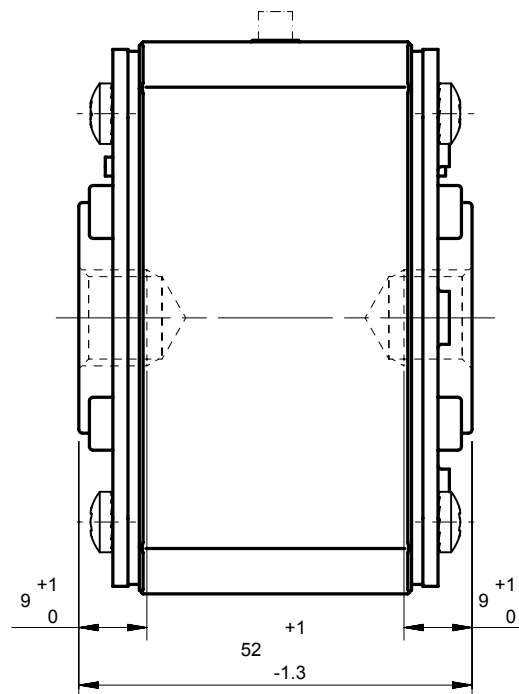
550 to 690VAC (IEC) / 760VAC (UL)

## DIMENSIONS

### TTF / TTI with indicator



TTI: 2x Ø 1/2 - 13 UNC  
TTF: 2x M 12



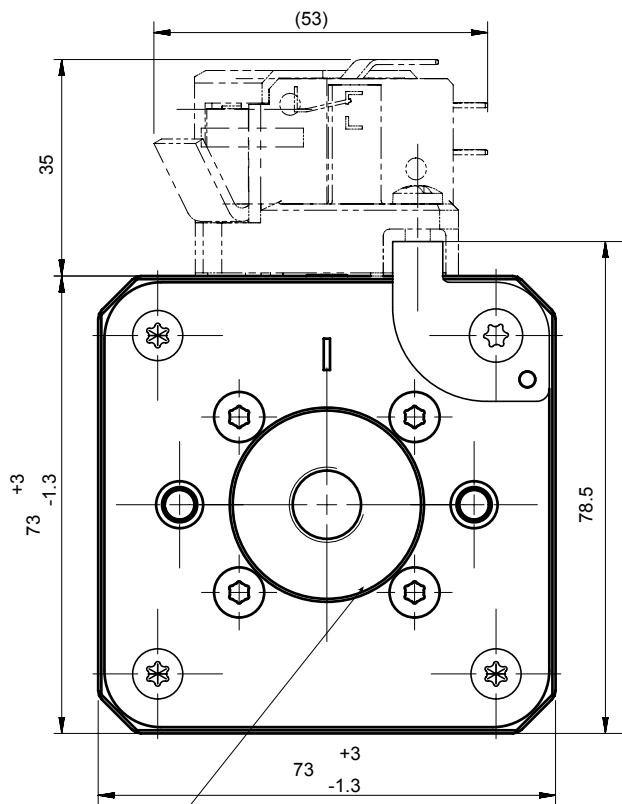
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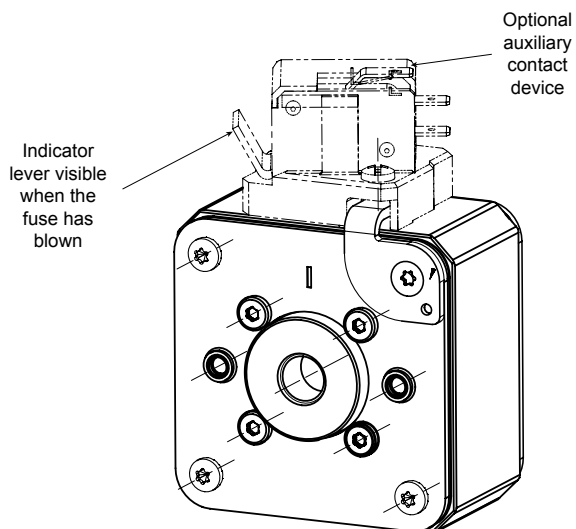
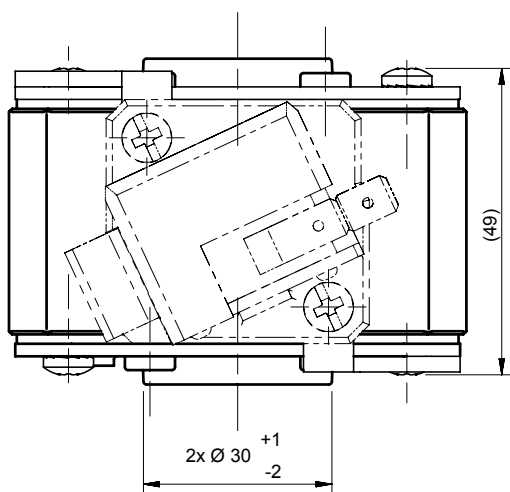
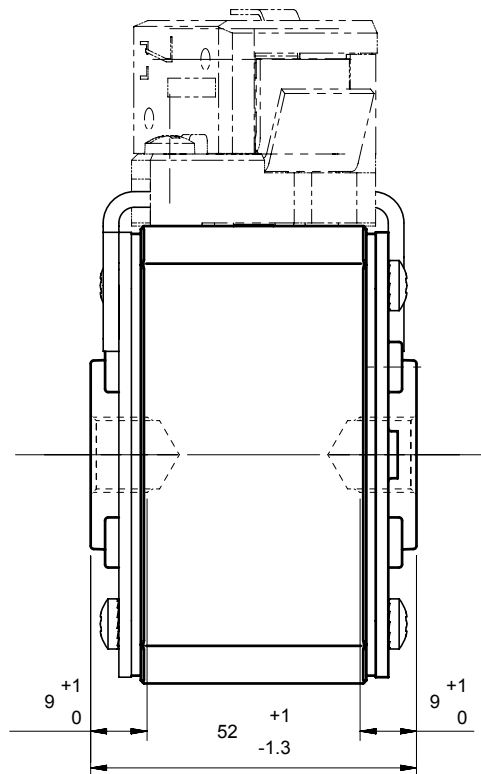
550 to 690VAC (IEC) / 760VAC (UL)

## DIMENSIONS

### TTF / TTI with microswitch



TTI: 2x Ø 1/2 - 13 UNC  
TTF: 2x M 12



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