

## PSC Square body fuses – Size 3X 500-700VAC End Contact Terminals

December 2013 – Issue 2

The IXYS UK range of 700V/690V protistor fuse links provides maximum flexibility in equipment design and ultimate protection for today's power conversion equipment. These square body fuse links are available in different body sizes, each size having multiple worldwide acceptable mounting styles.

These protistors have been designed to provide state-of-the-art protection for all IXYS UK high power semiconductors; diodes, thyristors, GTO's and IGBT devices. These fuses are assembled with pure silver, die-cut elements embedded in solidified sand, which helps control arcing characteristics for a lower  $I^2t$  and high interrupting rate level. All contact surfaces are silver plated and all hardware is non-magnetic

Each fuse link is equipped with a low voltage trip indicator which can operate a field mountable microswitch.



### Features and Benefits

- Ultra-fast acting
- Current limiting
- Very low  $I^2t$  for improved semiconductor protection
- Superior cycling capability
- Multiple body sizes and end contact terminals
- aR class according to VDE 636-23 and IEC 60269-4

### Applications

Protection of inverters, UPS systems, motor drives and similar equipment rated at 700V/690V or less

### Approvals

- UL/CSA recognised component
- AC: UL guide no. E76491
- IEC 60269-4 compliance
- RoHS compliant



**Nomenclature**

The IXYS UK range of 700V/690V protistor fuse links with end contact terminals consists of two different body styles and the following nomenclature details the breakdown of each type

1	2	3	4	5	6
<b>070</b>	<b>US</b>	<b>3</b>	<b>U</b>	<b>0800</b>	<b>B</b>
Rated voltage ÷ 10	Type and standard	Size	Fixing dimension	RMS current rating	Indicator type

**Type and Standard Information**

US – DIN 43 653 US dimensions, large square body

UR – DIN 43 653, German/French dimensions, large square body

**Body Size**

0 – 30

1 – 31

2 – 32

3 – 33

**Fixing Dimension**

S – Stud/threaded hole, metric thread

U – Stud/threaded hole, imperial thread

**Indicator Type**

B – Button type

**Example**

070US3U0800B is – 700V/690VAC (RMS), DIN 43-635 US dimensions, large square body, size 33, stud/threaded hole, imperial threads, 800A nominal RMS current with button indicator

**Size 30 fuses – Part numbers**

Weight – 245g Max.

**USOU fuses – US dimensions**

Rated Voltage (UL/IEC) V	Nominal Current A	Class	Part Number
700/690	50	aR	070USOU0050B
700/690	63	aR	070USOU0063B
700/690	80	aR	070USOU0080B
700/690	100	aR	070USOU0100B
700/690	125	aR	070USOU0125B
700/690	160	aR	070USOU0160B
700/690	200	aR	070USOU0200B
700/690	250	aR	070USOU0250B
700/690	315	aR	070USOU0315B
700/690	350	aR	070USOU0350B
700/690	400	aR	070USOU0400B
700/690	450	aR	070USOU0450B
700/690	500	aR	070USOU0500B
700/690	550	aR	070USOU0550B
650/600	630	aR	065USOU0630B

**UROS fuses – UR dimensions**

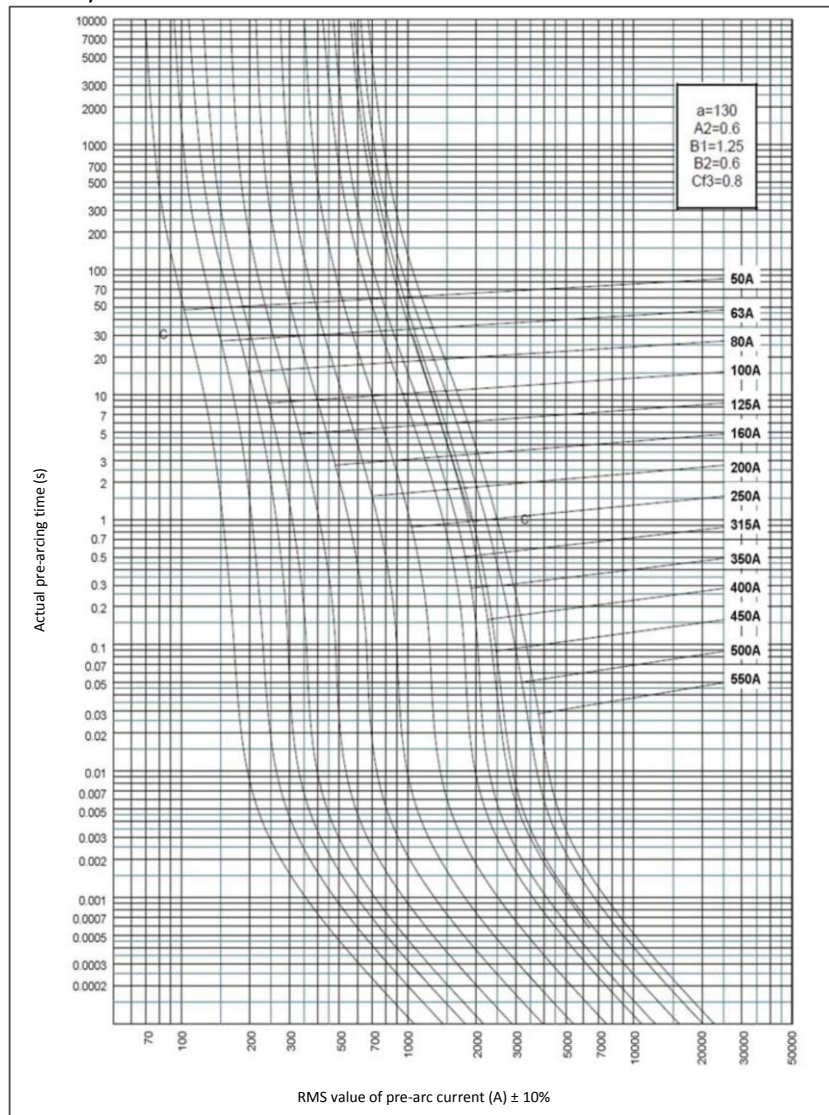
Rated Voltage (UL/IEC) V	Nominal Current A	Class	Part Number
700/690	50	aR	069UROS0050B
700/690	63	aR	069UROS0063B
700/690	80	aR	069UROS0080B
700/690	100	aR	069UROS0100B
700/690	125	aR	069UROS0125B
700/690	160	aR	069UROS0160B
700/690	200	aR	069UROS0200B
700/690	250	aR	069UROS0250B
700/690	315	aR	069UROS0315B
700/690	350	aR	069UROS0350B
700/690	400	aR	069UROS0400B
700/690	450	aR	069UROS0450B
700/690	500	aR	069UROS0500B
700/690	550	aR	069UROS0550B
650/600	630	aR	060UROS0630B

\* - Non UL recognised rating

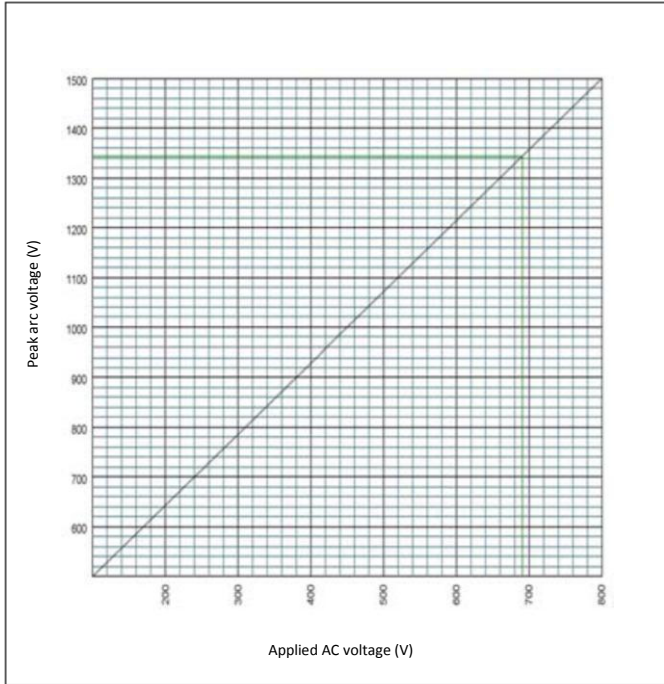
**Size 30 fuses – Rating and curves**

Rated Voltage (UL/IEC) V	Nominal Current A	Class	Pre-arcing $I^2t$ kA <sup>2</sup> s	Clearing $I^2t$ @ rated voltage kA <sup>2</sup> s	Watts loss @ 100% In W	Breaking capacity @ rated voltage kA
700/690	50	aR	0.116	0.62	9	200
700/690	63	aR	0.2	1.1	14	200
700/690	80	aR	0.33	1.8	19	200
700/690	100	aR	0.47	2.5	26	200
700/690	125	aR	0.85	4.5	30	200
700/690	160	aR	1.6	8.5	37	200
700/690	200	aR	3	15.5	43	200
700/690	250	aR	5.8	30	50	200
700/690	315	aR	12	62	55	200
700/690	350	aR	15.5	80	60	200
700/690	400	aR	23	120	65	200
700/690	450	aR	26	150	88	200
700/690	500	aR	41	240	88	200
700/690	550	aR	52	300	90	200
650/600	630	aR	84	450	95	200

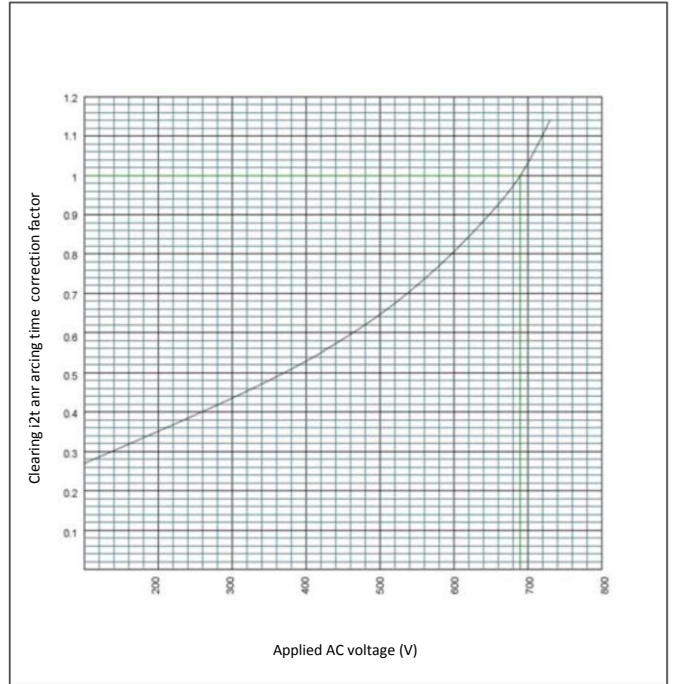
Time/Current characteristics



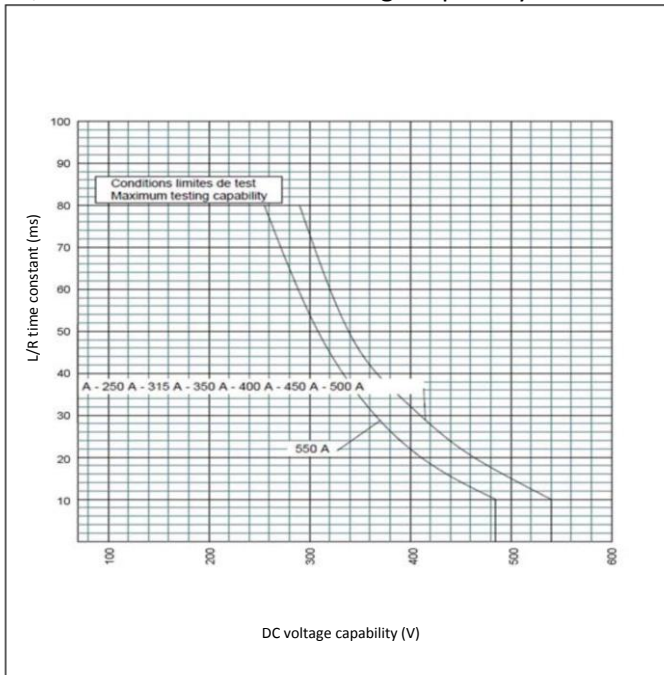
Peak arc voltage



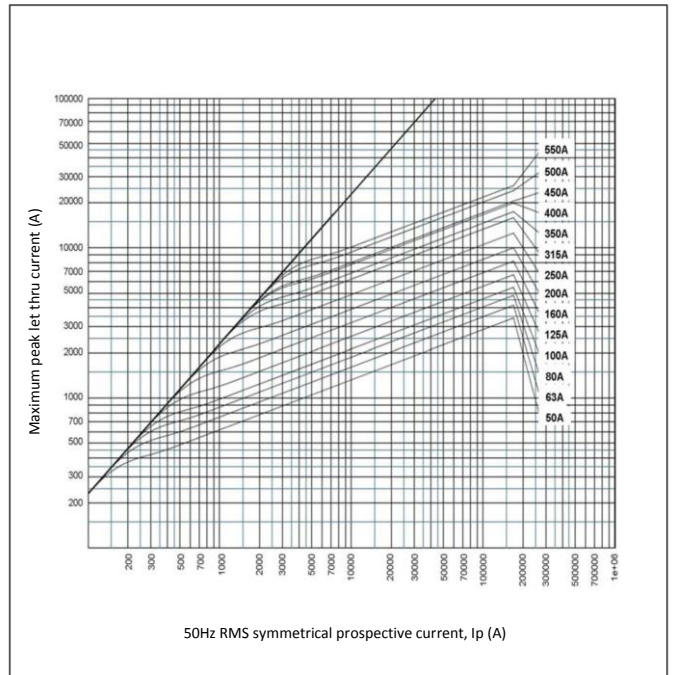
$I^2t$  multiplier coefficient



L/R time constant Vs. DC voltage capability



Peak let thru characteristics



**Size 31 fuses – Part numbers**

Weight – 370g Max.

US1U fuses – US dimensions

Rated Voltage (UL/IEC) V	Nominal Current A	Class	Part Number
700/690	200	aR	070US1U0200B
700/690	250	aR	070US1U0250B
700/690	315	aR	070US1U0315B
700/690	350	aR	070US1U0350B
700/690	400	aR	070US1U0400B
700/690	450	aR	070US1U0450B
700/690	500	aR	070US1U0500B
700/690	550	aR	070US1U0550B
700/690	630	aR	065US1U0630B
700/690	700	aR	070US1U0700B
700/690	800	aR	070US1U0800B

UR1S fuses – UR dimensions

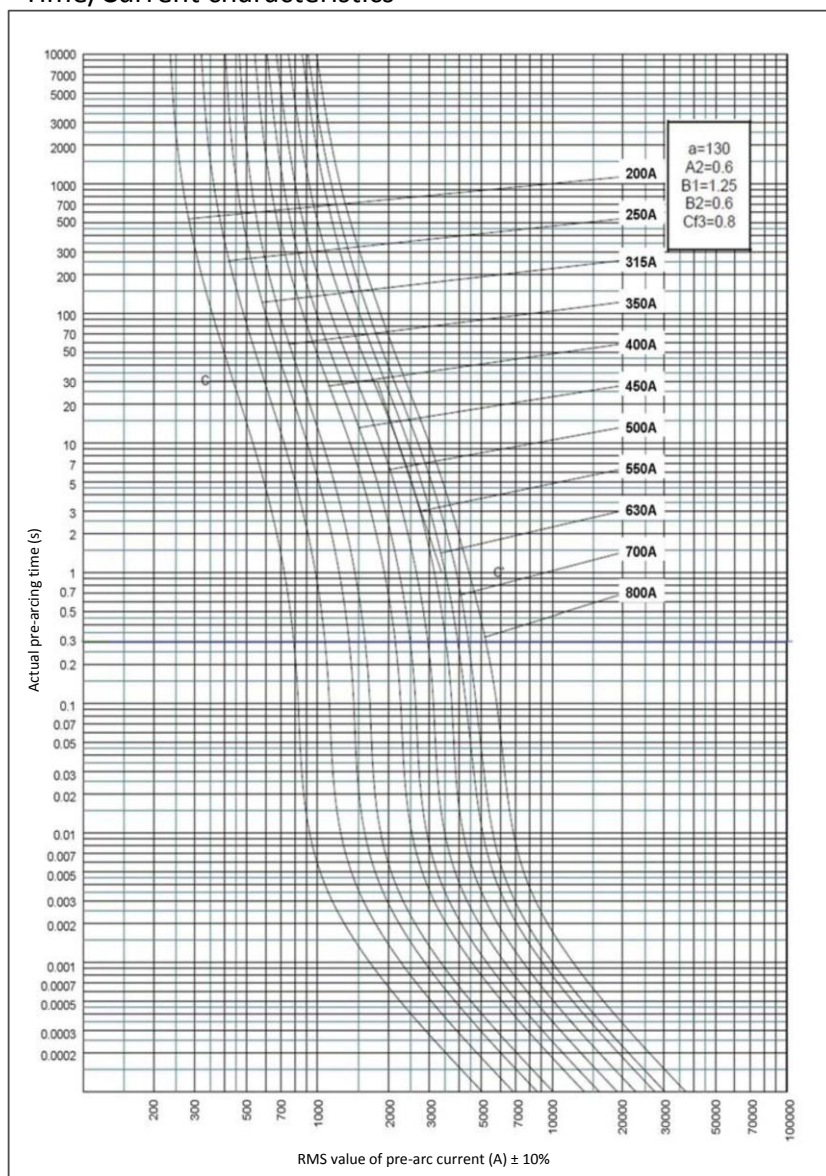
Rated Voltage (UL/IEC) V	Nominal Current A	Class	Part Number
700/690	160	aR	069UR1S0160B*
700/690	200	aR	069UR1S0200B
700/690	250	aR	069UR1S0250B
700/690	315	aR	069UR1S0315B
700/690	350	aR	069UR1S0350B
700/690	400	aR	069UR1S0400B
700/690	450	aR	069UR1S0450B
700/690	500	aR	069UR1S0500B
700/690	550	aR	069UR1S0550B
700/690	630	aR	069UR1S0630B
700/690	700	aR	069UR1S0700B
700/690	800	aR	069UR1S0800B

\* - Non UL recognised rating

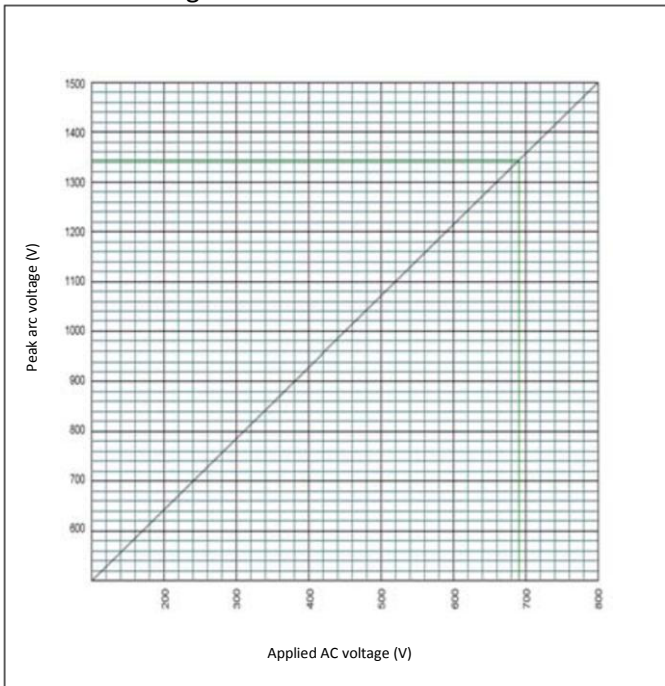
**Size 31 fuses – Rating and curves**

Rated Voltage (UL/IEC) V	Nominal Current A	Class	Pre-arcing I <sup>2</sup> t kA <sup>2</sup> s	Clearing I <sup>2</sup> t @ rated voltage kA <sup>2</sup> s	Watts loss @ 100% In W	Breaking capacity @ rated voltage kA
700/690	160	aR	1.3	7	35	200
700/690	200	aR	2.6	13.5	45	200
700/690	250	aR	4.7	25	52	200
700/690	315	aR	7.5	40	65	200
700/690	350	aR	10.5	55	67	200
700/690	400	aR	19	100	68	200
700/690	450	aR	26.5	140	70	200
700/690	500	aR	37	195	72	200
700/690	550	aR	52	280	75	200
700/690	630	aR	75	390	85	200
700/690	700	aR	95	490	95	200
700/690	800	aR	140	800	120	200

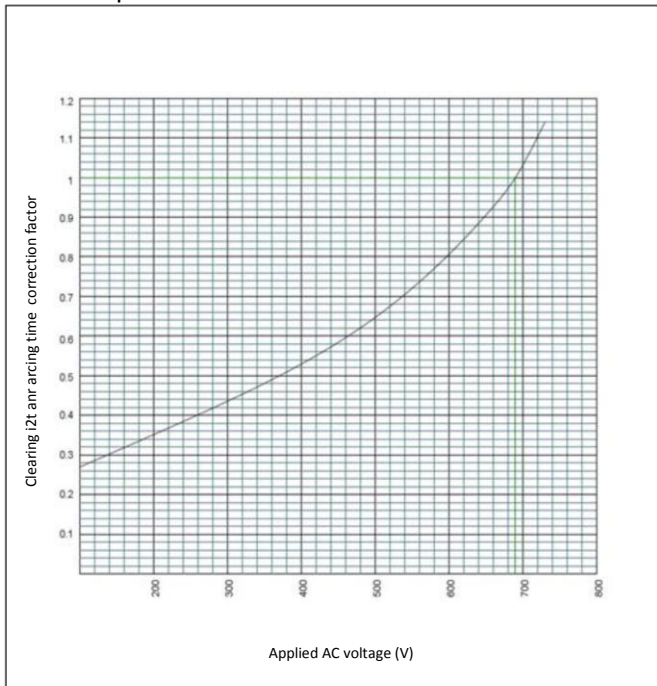
Time/Current characteristics



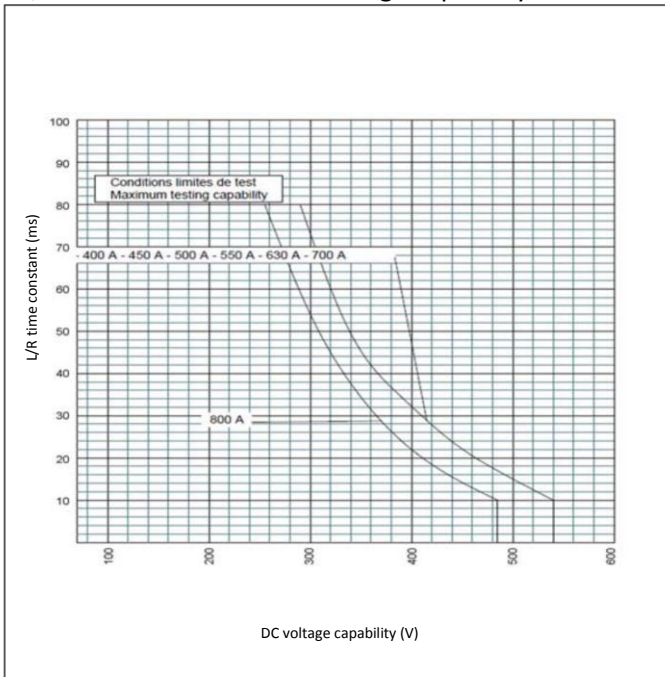
Peak arc voltage



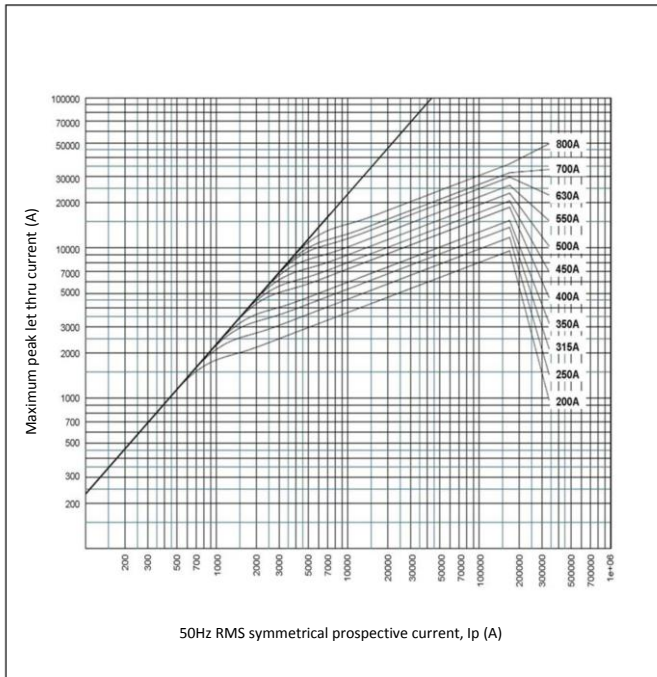
$I^2t$  multiplier coefficient



L/R time constant Vs. DC voltage capability



Peak let thru characteristics





**Size 32 and 32-R fuses – Part numbers**

Weight – 540g Max. (600g max for 32-R reinforced terminals)

US2U fuses – US dimensions

Rated Voltage (UL/IEC) V	Nominal Current A	Class	Part Number
700/690	400	aR	070US2U0400B
700/690	450	aR	070US2U0450B
700/690	500	aR	070US2U0500B
700/690	550	aR	070US2U0550B
700/690	630	aR	065US2U0630B
700/690	700	aR	070US2U0700B
700/690	800	aR	070US2U0800B
700/690	900	aR	070US2U0900B†
700/690	1000	aR	070US2U1000B†
650/600	1100	aR	070US2U1100B†
600/550	1250	aR	060US2U1250B†
550/500	1400	aR	055US2U1400B†
550/500	1600	aR	055US2U1600B†
500/450	1800	aR	050US2U1800B†

UR2S fuses – UR dimensions

Rated Voltage (UL/IEC) V	Nominal Current A	Class	Part Number
700/690	315	aR	069UR2S0315B
700/690	350	aR	069UR2S0350B
700/690	400	aR	069UR2S0400B
700/690	450	aR	069UR2S0450B
700/690	500	aR	069UR2S0500B
700/690	550	aR	069UR2S0550B
700/690	630	aR	069UR2S0630B
700/690	700	aR	069UR2S0700B
700/690	800	aR	069UR2S0800B
700/690	900	aR	069UR2S0900B†
700/690	1000	aR	069UR2S1000B†
650/600	1100	aR	060UR2S1100B†
600/550	1250	aR	055UR2S1250B†
550/500	1400	aR	050UR2S1400B†*
550/500	1600	aR	050UR2S1600B†*
500/450	1800	aR	045UR2S1800B†*

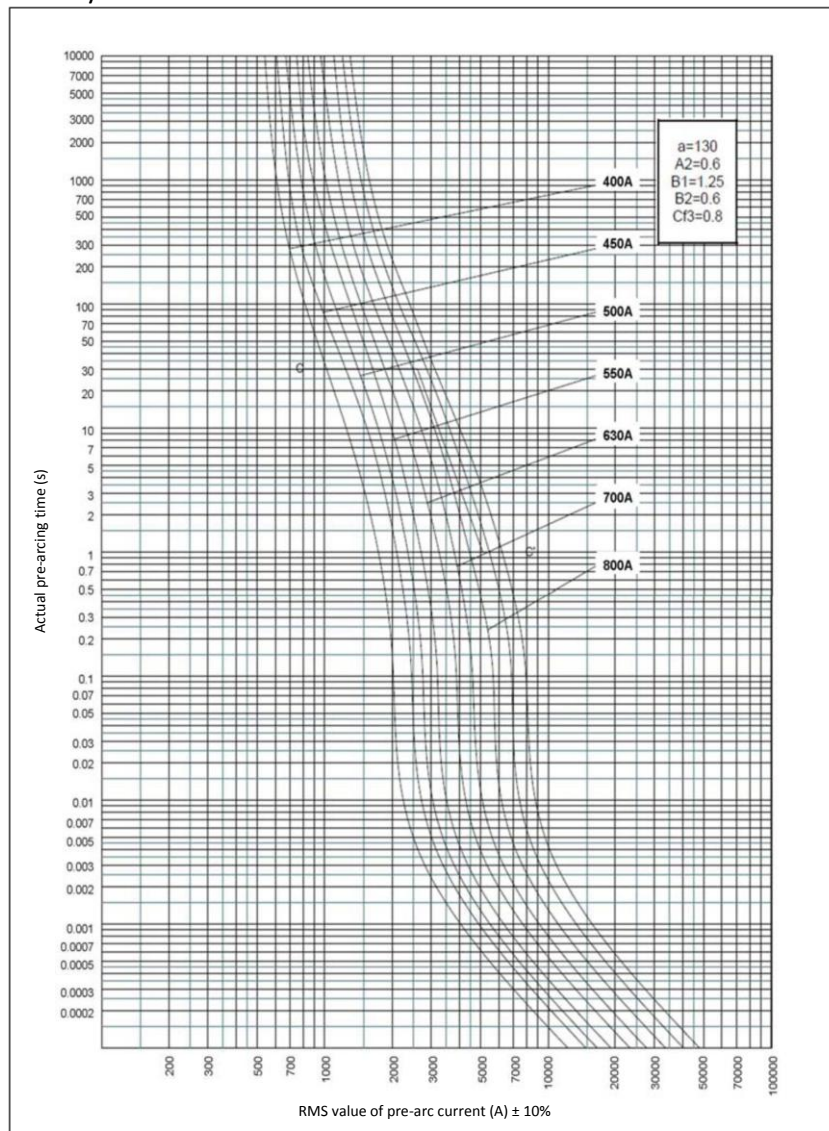
\* - Non UL recognised rating

† - Size 32-R reinforced terminal

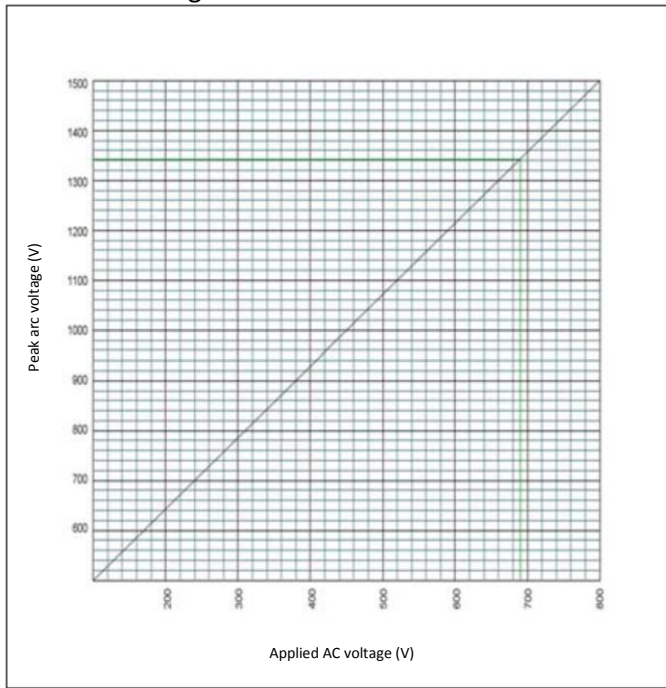
**Size 32 fuses – Rating and curves**

Rated Voltage (UL/IEC) V	Nominal Current A	Class	Pre-arcing I <sup>2</sup> t kA <sup>2</sup> s	Clearing I <sup>2</sup> t @ rated voltage kA <sup>2</sup> s	Watts loss @ 100% In W	Breaking capacity @ rated voltage kA
700/690	315	aR	5.2	28.9	71	200
700/690	350	aR	8.9	48.8	74	200
700/690	400	aR	15	80	75	200
700/690	450	aR	22	115	80	200
700/690	500	aR	28	145	90	200
700/690	550	aR	37	195	95	200
700/690	630	aR	54	280	105	200
700/690	700	aR	76	400	110	200
700/690	800	aR	115	600	120	200
700/690	900	aR	170	900	125	200
700/690	1000	aR	240	1250	135	200
650/600	1100	aR	270	1450	165	160
600/550	1250	aR	410	1950	180	150
550/500	1400	aR	555	2300	200	130
550/500	1600	aR	870	3600	205	130
500/450	1800	aR	1050	3700	230	110

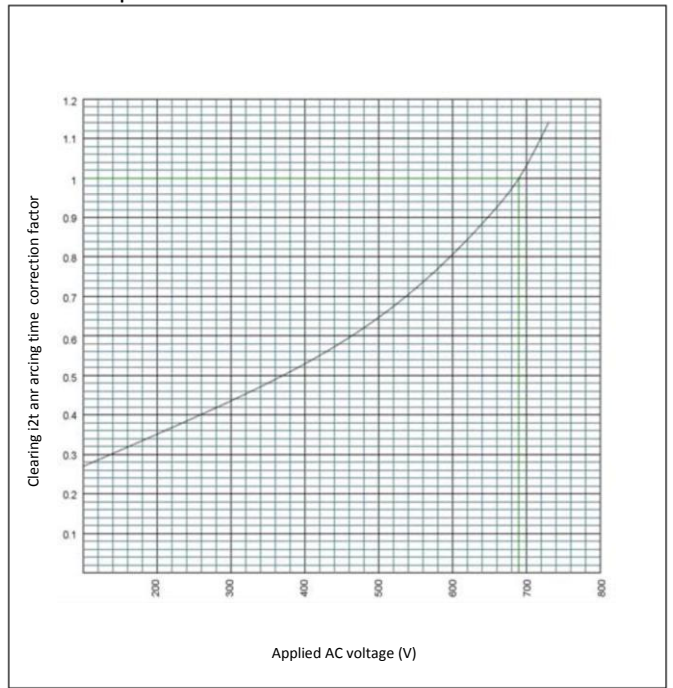
Time/Current characteristics



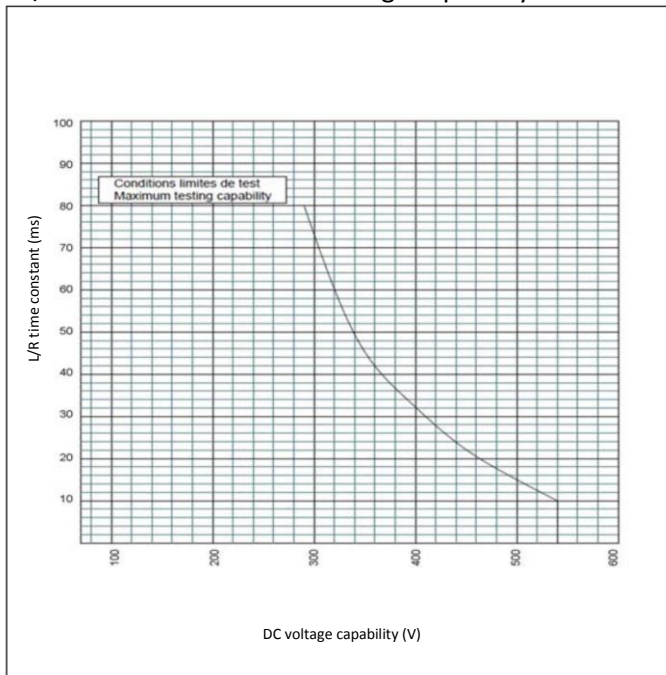
Peak arc voltage



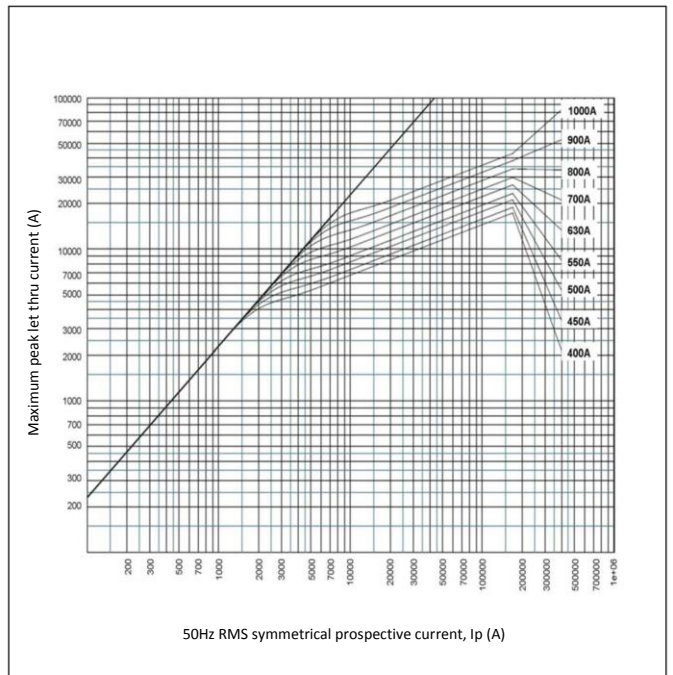
$I^2t$  multiplier coefficient



L/R time constant Vs. DC voltage capability



Peak let thru characteristics



**Size 33 fuses – Part numbers**

Weight – 790g Max. (910g max. for 33-R reinforced terminals)

US3U fuses – US dimensions

Rated Voltage (UL/IEC) V	Nominal Current A	Class	Part Number
700/690	450	aR	070US3U0450B
700/690	500	aR	070US3U0500B
700/690	550	aR	070US3U0550B
700/690	630	aR	065US3U0630B
700/690	700	aR	070US3U0700B
700/690	800	aR	070US3U0800B
700/690	900	aR	070US3U0900B
700/690	1000	aR	070US3U1000B
700/690	1100	aR	070US3U1100B
700/690	1250	aR	070US3U1250B†
700/690	1400	aR	070US3U1400B†
650/600	1500	aR	065US3U1500B†
650/600	1600	aR	065US3U1600B†
600/600	1800	aR	065US3U1800B†
600/550	2000	aR	060US3U2000B†
550/500	2250	aR	055US3U2250B†
500/450	2500	aR	050US3U2500B†

UR3S fuses – UR dimensions

Rated Voltage (UL/IEC) V	Nominal Current A	Class	Part Number
700/690	450	aR	069UR3S0450B*
700/690	500	aR	069UR3S0500B
700/690	550	aR	069UR3S0550B
700/690	630	aR	069UR3S0630B
700/690	700	aR	069UR3S0700B
700/690	800	aR	069UR3S0800B
700/690	900	aR	069UR3S0900B
700/690	1000	aR	069UR3S1000B
700/690	1100	aR	069UR3S1100B
700/690	1250	aR	069UR3S1250B†
700/690	1400	aR	069UR3S1400B†
700/690	1500	aR	069UR3S1500B†
700/690	1600	aR	069UR3S1600B†
700/690	1800	aR	069UR3S1800B†
600/550	2000	aR	055UR3S2000B†
550/500	2250	aR	050UR3S2250B†
500/450	2500	aR	045UR3S2500B†

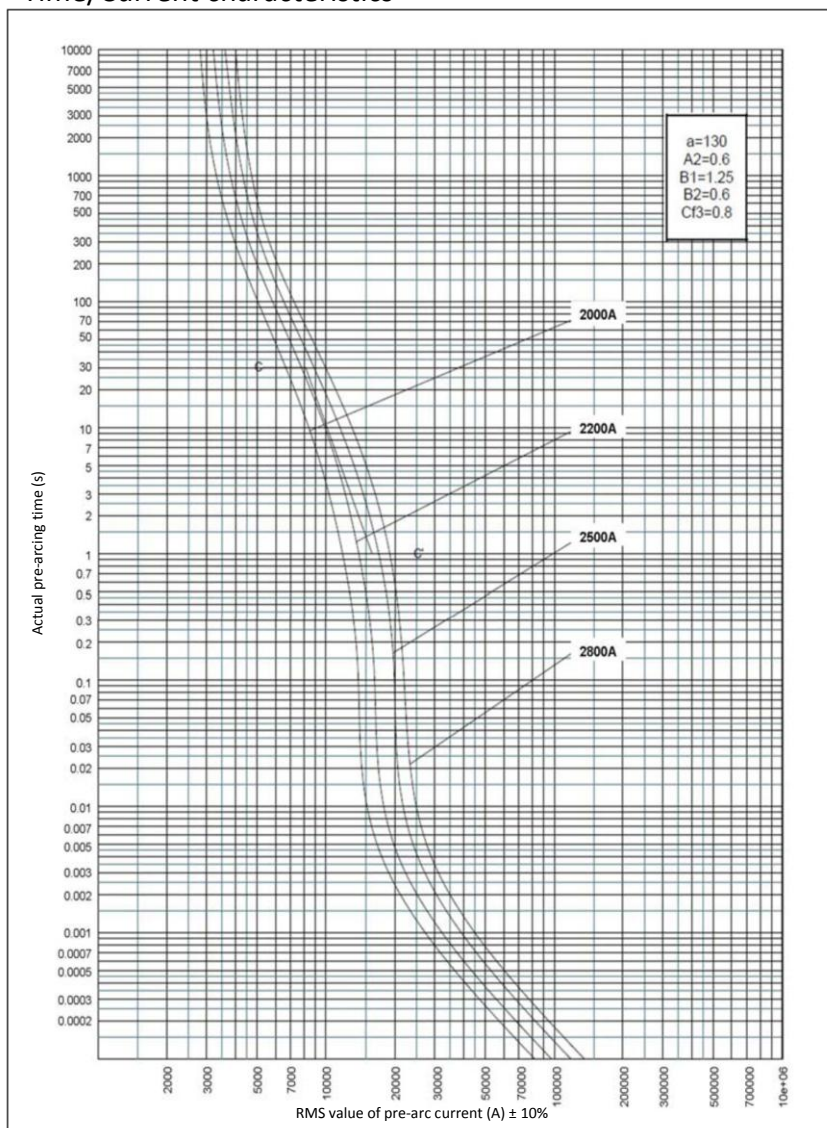
\* - Non UL recognised rating

† - Size 33-R reinforced terminal

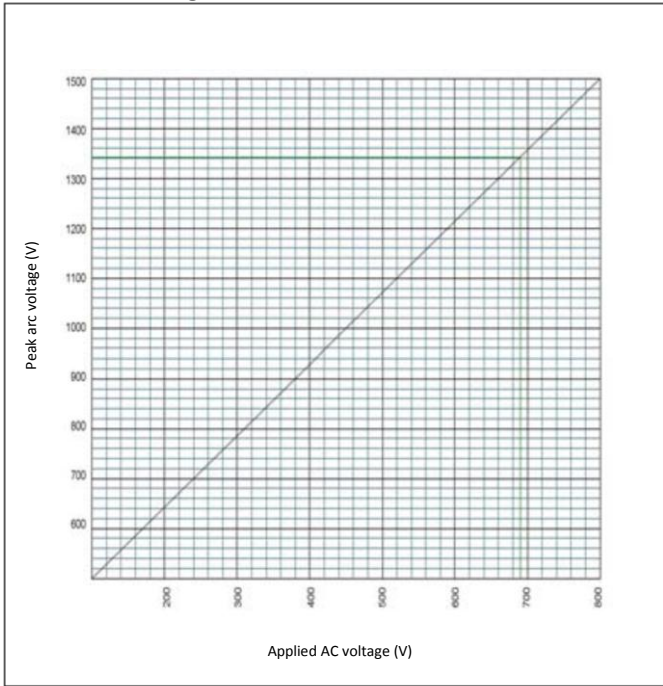
**Size 33 fuses – Rating and curves**

Rated Voltage (UL/IEC) V	Nominal Current A	Class	Pre-arcing I <sup>2</sup> t kA <sup>2</sup> s	Clearing I <sup>2</sup> t @ rated voltage kA <sup>2</sup> s	Watts loss @ 100% In W	Breaking capacity @ rated voltage kA
700/690	450	aR	13.45	74.1	88	200
700/690	500	aR	19	100	105	200
700/690	550	aR	27	140	110	200
700/690	630	aR	40	210	120	200
700/690	700	aR	55	300	125	200
700/690	800	aR	95	490	130	200
700/690	900	aR	135	700	135	200
700/690	1000	aR	170	900	155	200
700/690	1100	aR	240	1260	160	200
700/690	1250	aR	350	1850	180	200
700/690	1400	aR	480	2500	200	200
700/690	1500	aR	500	2500	210	160
700/690	1600	aR	555	2900	240	160
700/690	1800	aR	720	3870	260	160
600/550	2000	aR	950	4500	290	150
550/500	2250	aR	1250	5160	320	130
500/450	2500	aR	1870	6540	330	110

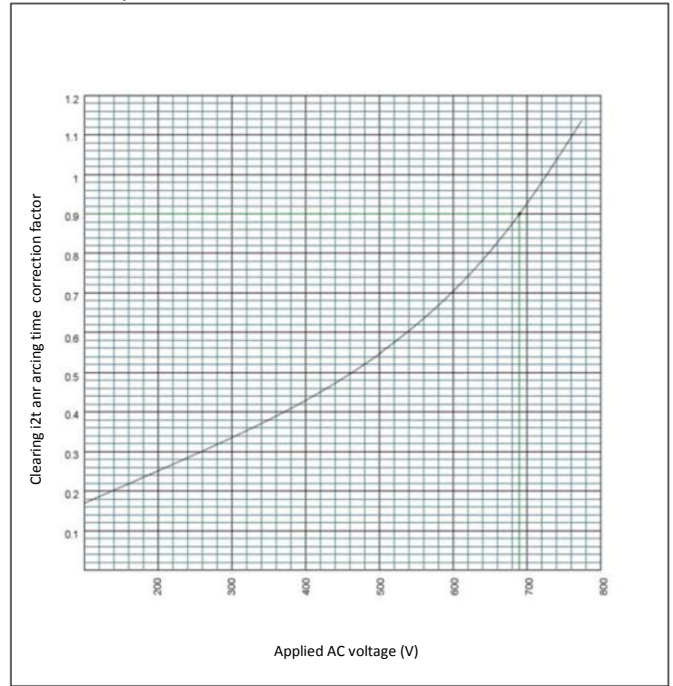
Time/Current characteristics



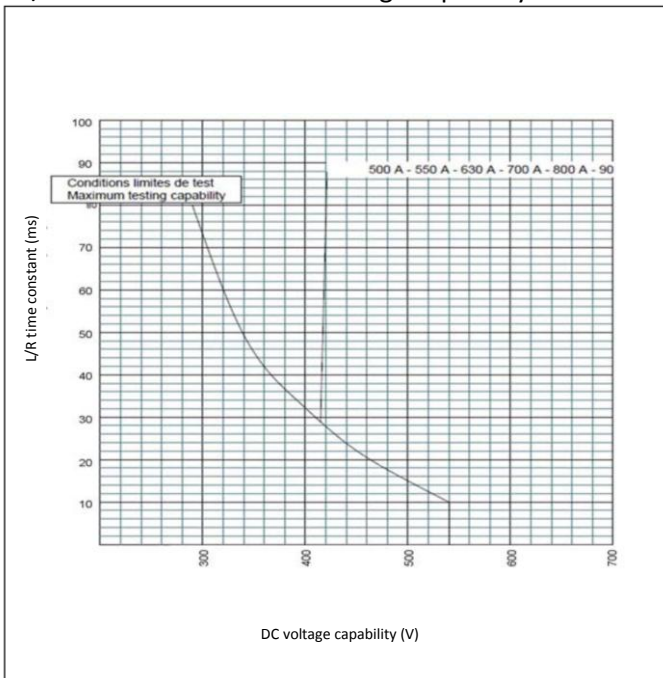
Peak arc voltage



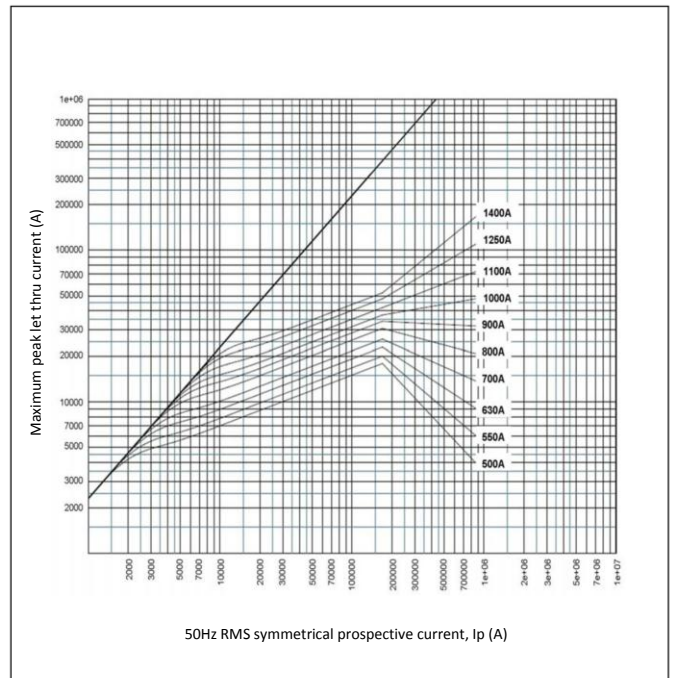
$I^2t$  multiplier coefficient



L/R time constant Vs. DC voltage capability



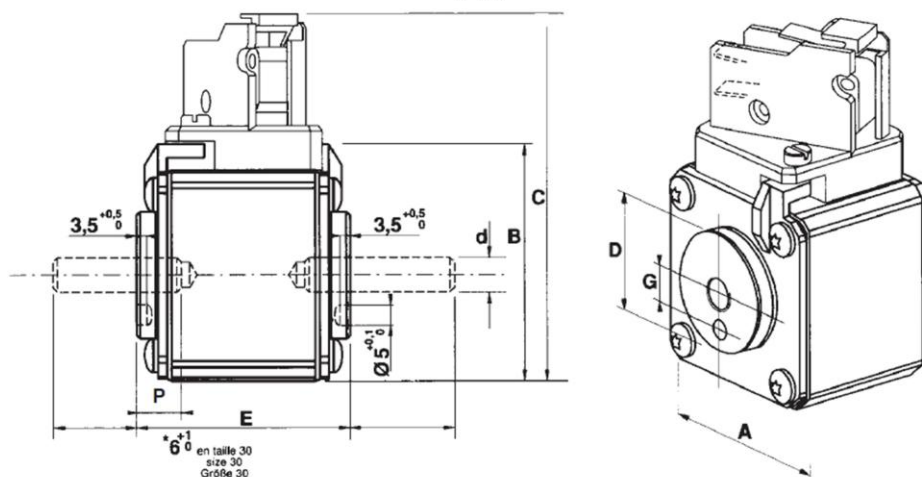
Peak let thru characteristics



## Drawings and Dimensions

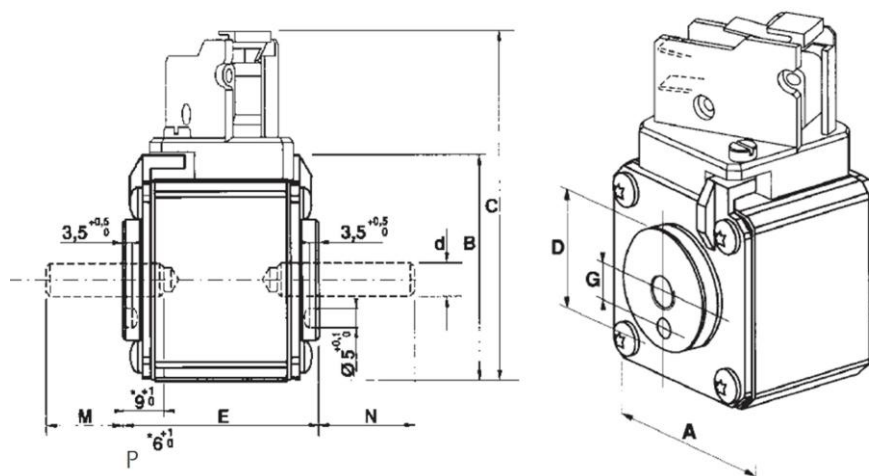
### USxU fuses

Size	A	B	C	D	d	E	G	P
US0U	40	46.5	82	26	5/16"-18	50.6	9	6
US1U	51	56.5	91	30	5/16"-18	50.6	9	9
US2U	60	65.5	100	38	3/8"-16	50.6	15	9
US2U (32-R) Reinforced terminals	60	65.5	100	42	3/8"-16	50.6	15	9
US3U	74.5	79.5	114	46	1/2"-13	50.6	15	9
US3U (33-R) Reinforced terminals	74.5	79.5	114	52	1/2"-13	50.6	15	9



### URxS fuses

Size	A	B	C	D	d	G	M	N	P	E
UR0S	40	46.5	82	26	M8	9	22	27	6	50.6
UR1S	51	56.5	91	30	M8	9	19	24	9	50.6
UR2S	60	65.5	100	38	M10	15	19	39	9	50.6
UR2S(32-R) Reinforced terminals	60	65.5	100	42	M10	15	19	39	9	50.6
UR3S	74.5	79.5	114	46	M12	15	24	39	9	50.6
UR3S (33-R) Reinforced terminals	74.5	79.5	114	52	M12	15	24	39	9	50.6

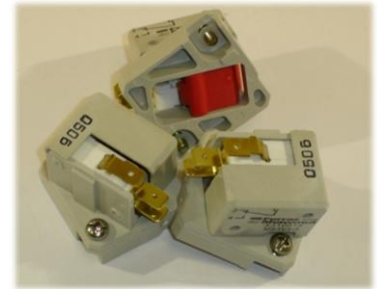


All dimensions in mm unless specified  
Microswitch supplied separately

## Microswitches

IXYS UK can offer a range of microswitches to suit our PSC square-bodied fuse ranges

System: MS 3V 1  
 Fuse sizes: 30, 31, 32, 33  
 Indication style: MS 3V 1-5 = Standard NO-NC  
 MS 3V 1-5 BS = Low Level NO-NC  
 MS 3V 1-5 ET = Low Level NO-NC IP 50 (9)  
 MS 3V 1-9 BS = Low Level NO-NC

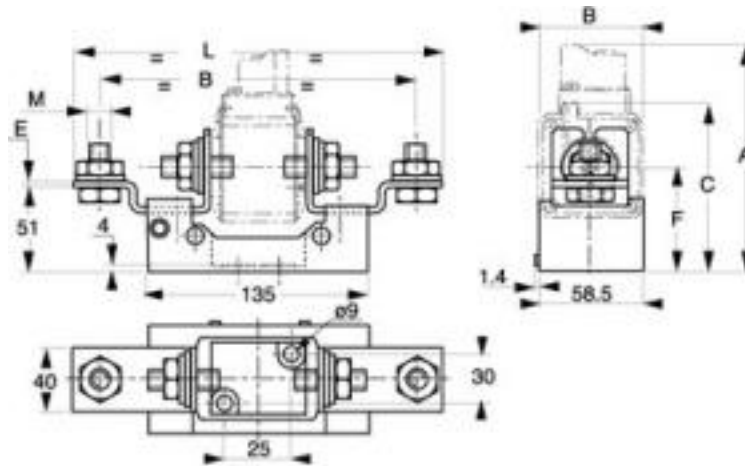


Part number	AC Insulation Voltage Rating *** (V)	Positive Operating Voltage/Current (V/mA)	Current Rating (A)	Interrupting Rating (A)						AC Voltage Withstand * (kV)	Impulse Voltage test Vimp 1.2/50µs ** (kV)	Fire Class according to UL 94	
				Current (A)	Non inductive circuit			Inductive Circuit: L/R = 25ms					
					30V	110V	250V	30V	110V				250V
MS 3V 1-5	1000	20/50	10	AC 50/60Hz	10	10	10	10	10	10	8.5	14	H.B.
				DC	8	0.4	0.2	4	0.2	0.1	12	20	
MS 3V 1-5 BS		10/10	3	AC 50/60Hz	3	3	3	2	1	1	8.5	14	
				DC	3	0.5	0.25	3	0.2	0.1	12	20	
MS 3V 1-5 ET		10/10	3	AC 50/60Hz	3	3	3	2	1	1	8.5	14	
				DC	3	0.5	-	2	0.2	-	12	20	
MS 3V 1-9 BS		10/10	3	AC 50/60Hz	3	3	3	2	1	1	8.5	14	
				DC	3	0.5	0.25	2	0.2	0.1	12	20	

## Fuse Holder

Part Number	Fuse size	Fuse Type	Insulation Voltage (V) AC, 50/60Hz & DC	Rated Current (A)	Dimensions								
					A	B	C	D	E	G	L	M	F
SI TT 30/31	30	Stud	1500	1000	118	170	83	42	4	50.6	202	M8	57
	31				123								
SI TT 32/33	32			137	93		60	6				M10	
	33			145	109		75						

All dimensions in mm



Certificate FM26085

IXYS UK Westcode Ltd's BS EN ISO9001 quality system is registered by BSI



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