

# 6,9 gRB-URB

## SEMICONDUCTOR PROTECTION FUSES



**690V**

**gRB-URB FROM 12 TO 100A**

**SIZE: 17 x 49**

### Features/Benefits

- **Extremely high Interrupting rating Fuses:**  
Protection of power Semiconductors as per IEC standard 269.4
- **690V Voltage Rating** as per IEC 33
- **gR Class** [Current rating 12 to 90A] as per VDE 636-23
  - Full range protection
  - Improved safety and protection
  - Allows selective coordination
- **aR Class** [Current Rating 100A] According to VDE 636-23 and IEC 269.4
- **Connections as per:**
  - German standard DIN 43653/00C
  - British standard BS 88-4

➤ **These fuses are UL Recognized**



### APPLICATIONS DATA

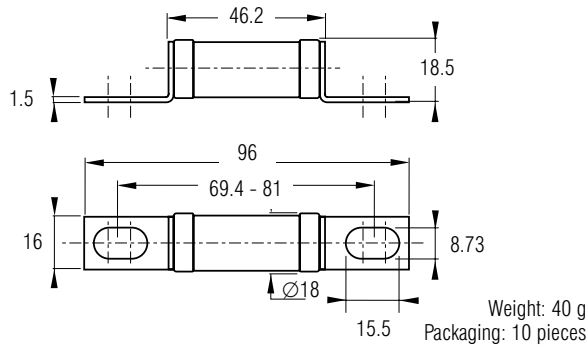
VOLTAGE RATING $U_N$ ( V )	CLASS	CURRENT RATING $I_N$ ( A )	MELTING $I^2t @ 1 \text{ ms}$ ( $A^2s$ )	TOTAL CLEARING $I^2t @$ RATED VOLTAGE ( $A^2s$ )	WATT LOSSES		TESTED INTERRUPTING RATING	ESTIMATED INTERRUPTING RATING
					0.8 $I_N$	$I_N$		
690	gRB	12	4.2	30	1.95	3.5	200 k A @ 690 V	300 k A @ 690 V
		16	9.6	65	2.2	4.0		
		20	17.1	110	3.0	5.5		
		25	26.8	170	4.4	8.0		
		32	52.5	330	5.0	9.0		
		35	69	430	5.2	9.5		
		40	96	610	5.8	10.5		
		45	130	820	6.3	11.5		
		50	154	970	7.2	13		
		55	210	1320	7.4	13.5		
		63	310	1950	8.0	14.5		
		75	520	3250	8.8	16		
		80	620	3900	9.4	17		
		90	840	5300	11	20		
690	URB	100	965	6150	13	23.5	200 k A @ 690 V	300 k A @ 690 V

Minimum operating voltage for separate trip-indicator: 20 V

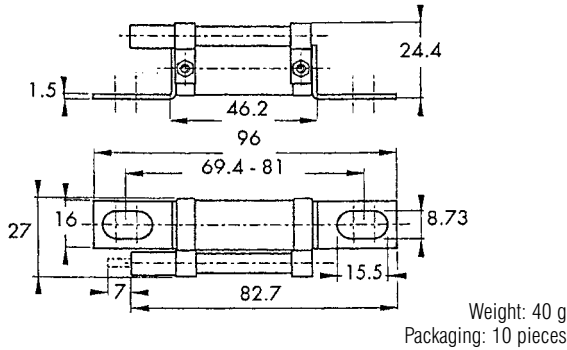
# 6,9 gRB-URB

## SEMICONDUCTOR PROTECTION FUSES

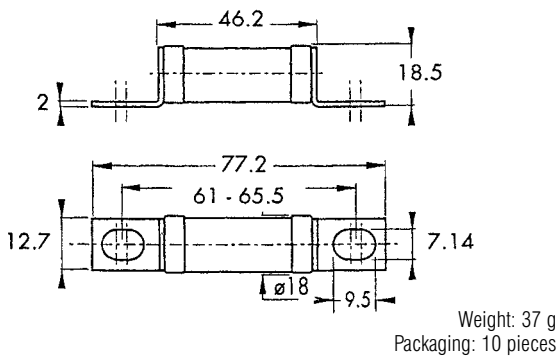
### German Standard without blown fuse indication



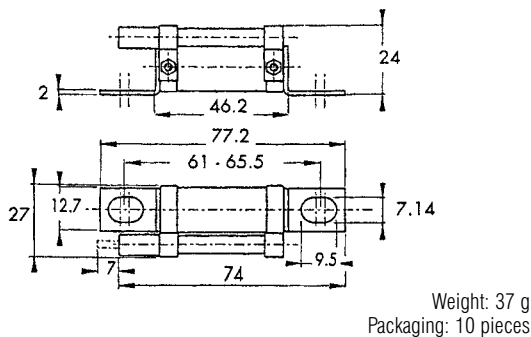
### German Standard with separate blown fuse trip-indicator DIN 43623/00C



### British Standard without blown fuse indication



### British Standard with separate blown fuse trip-indicator BS 88-4



CURRENT RATING	CATALOG NO.	REF #
12	6,9gRB17D08/12	M220972
16	6,9gRB17D08/16	N220973
20	6,9gRB17D08/20	P220974
25	6,9gRB17D08/25	Q220975
32	6,9gRB17D08/32	R220976
35	6,9gRB17D08/35	S220977
40	6,9gRB17D08/40	T220978
45	6,9gRB17D08/45	V220979
50	6,9gRB17D08/50	W220980
55	6,9gRB17D08/55	X220981
63	6,9gRB17D08/63	Y220982
75	6,9gRB17D08/75	Z220983
80	6,9gRB17D08/80	A220984
90	6,9gRB17D08/90	B220985
100	6,9URB17D08/100	C220986

CURRENT RATING	CATALOG NO.	REF #
12	6,9gRB17D08P12	X221004
16	6,9gRB17D08P16	Y221005
20	6,9gRB17D08P20	Z221006
25	6,9gRB17D08P25	A221007
32	6,9gRB17D08P32	B221008
35	6,9gRB17D08P35	C221009
40	6,9gRB17D08P40	D221010
45	6,9gRB17D08P45	E221011
50	6,9gRB17D08P50	F221012
55	6,9gRB17D08P55	G221013
63	6,9gRB17D08P63	H221014
75	6,9gRB17D08P75	J221015
80	6,9gRB17D08P80	K221016
90	6,9gRB17D08P90	L221017
100	6,9URB17D08P100	M221018

CURRENT RATING	CATALOG NO.	REF #
12	6,9gRB17/12	W220957
16	6,9gRB17/16	X220958
20	6,9gRB17/20	Y220959
25	6,9gRB17/25	Z220960
32	6,9gRB17/32	A220961
35	6,9gRB17/35	B220962
40	6,9gRB17/40	C220963
45	6,9gRB17/45	D220964
50	6,9gRB17/50	E220965
55	6,9gRB17/55	F220966
63	6,9gRB17/63	G220967
75	6,9gRB17/75	H220968
80	6,9gRB17/80	J220969
90	6,9gRB17/90	K220970
100	6,9URB17/100	L220971

CURRENT RATING	CATALOG NO.	REF #
12	6,9gRB17P12	D220987
16	6,9gRB17P16	E220988
20	6,9gRB17P20	F220989
25	6,9gRB17P25	G220990
32	6,9gRB17P32	H220991
35	6,9gRB17P35	J220992
40	6,9gRB17P40	K220993
45	6,9gRB17P45	L220994
50	6,9gRB17P50	M220995
55	6,9gRB17P55	N220996
63	6,9gRB17P63	P220997
75	6,9gRB17P75	Q220998
80	6,9gRB17P80	R220999
90	6,9gRB17P90	S221000
100	6,9URB17P100	T221001



# 6,9 gRB-URB

## SEMICONDUCTOR PROTECTION FUSES



### GERMAN STANDARD

500 - 690 V AC

gRB-URB FROM 20 TO 400A

SIZE: 000

#### Features/Benefits

- **Extremely high Interrupting rating Fuses:**  
Protection of power Semiconductors according to 269.1 and 4
- **500-690V Voltage Rating** [Rating 20 to 400A]
- **gR Class** [gRB Ratings 20 to 125A] according to VDE 636-23
  - Full range protection
  - Improved safety and protection
  - Allows selective coordination
- **aR Class** [Current Rating 100A] According to VDE 636-23 and IEC 269.4
- **3 Models complying with DIN 43653-00C are:** c US
  - With or without blown fuse indication
  - With trip indicator
- **Model complying with DIN 43620 (00C)**
  - Standard with or without blown fuse indication
  - With trip indicator

### APPLICATIONS DATA

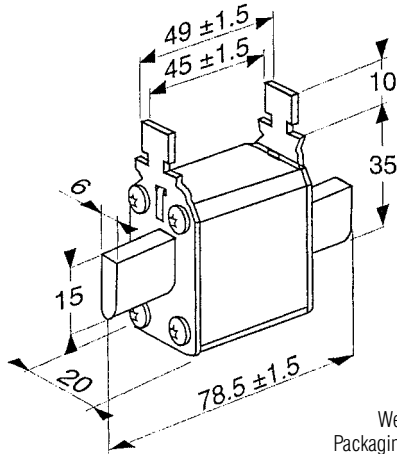
VOLTAGE RATING $U_N$ ( V )	CLASS	CURRENT RATING $I_N$ ( A )	MELTING $I^2t @ 1 \text{ ms}$ ( $A^2s$ )	TOTAL CLEARING $I^2t @ 660 \text{ VAC}$ ( $A^2s$ )	WATT LOSSES		TESTED INTERRUPTING RATING	ESTIMATED INTERRUPTING RATING
					$0.8 I_N$	$I_N$		
690	gRB	20	12	80	3.8	7	200 k A @ 660 V	300 k A @ 660 V
		25	20	150	5.0	9		
		32	39	270	5.5	10		
		40	70	460	6.6	12		
		50	102	730	7.7	14		
		63	210	1500	8.8	16		
		80	475	2900	9.9	18		
		100	970	6000	11	20		
		125	1900	11800	11.6	21		
		690	URB	80	390	2500		
100	690			4200	12.7	23		
125	1300			8900	14.3	26		
160	2700			16000	17.0	31		
200	5250			31500	19.8	36		
250	9900			52000	24.8	45		
660 500	URB	315	15500	82000	31.9	58	120 k A @ 500 V	
		350	22400	110000	31.9	58		
		400	33200	160000	36.3	66		

Minimum operating voltage for blown fuse indicator: 20 V

# 6,9 gRB-URB

## SEMICONDUCTOR PROTECTION FUSES

### German Standard blade-type DIN 43620\*\*



Weight: 150 g  
Packaging: 3 pieces

Microswitches  
MS 4L 2-5 B6 + PRES Ref. F210156  
MS 4L 2-5 B2 + PRES Ref. G210157

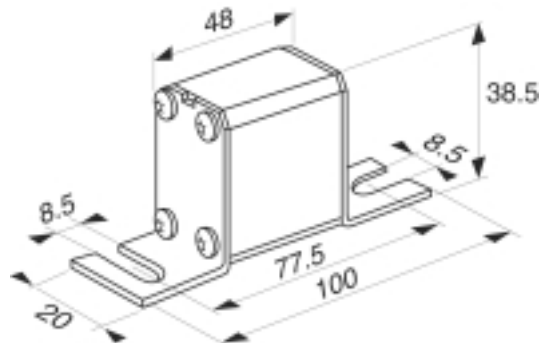
\* Fuse Base: 41002-G

SIZE	CATALOG NO.**	REF #	I/IN
16	6,9GRB000PV016	Y210609	1
20	6,9GRB000PV020	Z210610	1
25	6,9GRB000PV025	A210611	1
32	6,9GRB000PV032	B210612	1
40	6,9GRB000PV040	C210613	1
50	6,9GRB000PV050	D210614	1
63	6,9GRB000PV063	E210615	1
80	6,9GRB000PV080	F210616	1
100	6,9GRB000PV100	G210617	1
125	6,9GRB000PV125	H210618	1
80	6,9URD000PV0080	Q320059	1
100	6,9URD000PV0100	V320063	1
125	6,9URD000PV0125	X320065	0,95
160	6,9URD000PV0160	B320069	0,85
200	6,9URD000PV0200	D320071	0,85
250	6,9URD000PV0250	H320075	0,8
315	6,9URD000PV0315	M320079	0,7
350	5URB000PV350	R210626	0,7
400	5URB000PV400	S210627	0,65

\*\* These Fuses are not UL recognized



### German Standard without blown fuse indicator



Weight: 110 g  
Packaging: 6 pieces

\* Fuse Base: SI 000 DIN 80  
Ref. Number: C 220710



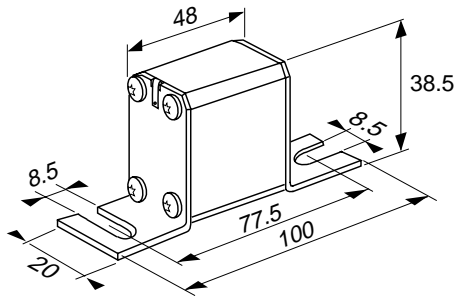
SIZE	CATALOG NO.	REF #	I/IN*
20	6,6GRB000D08/020	D330030	1
25	6,6GRB000D08/025	E330031	1
32	6,6GRB000D08/032	F330032	1
40	6,6GRB000D08/040	G330033	1
50	6,6GRB000D08/050	H330034	1
63	6,6GRB000D08/063	J330035	1
80	6,6GRB000D08/080	A330073	1
100	6,6GRB000D08/100	S330112	1
125	6,6GRB000D08/125	T330113	0,9
80	6,6URB000D08/080	K330036	1
100	6,6URB000D08/100	L330037	1
125	6,6URB000D08/120	M330038	0,9
160	6,6URB000D08/160	N330039	0,85
200	6,6URB000D08/200	P330040	0,85
250	6,6URB000D08/250	Q330041	0,8
315	6,6URB000D08/315	R330042	0,7
350	5URB000D08/350	V330114	0,7
400	5URB000D08/400	D330191	0,65

# 6,9 gRB-URB

## SEMICONDUCTOR PROTECTION FUSES



German Standard with blown fuse indication

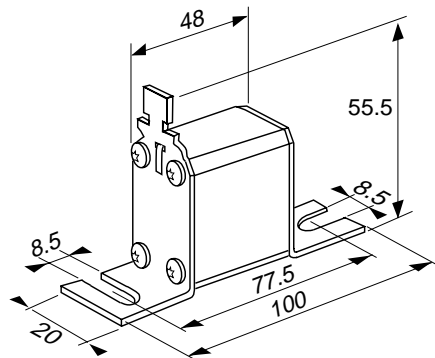


CURRENT RATING	CATALOG NO.	REF #	I/N FUSE BASE*
20	6,9gRB000D08V/020	P330017	1
25	6,9gRB000D08V/025	Q330018	1
32	6,9gRB000D08V/032	R330019	1
40	6,9gRB000D08V/040	S330020	1
50	6,9gRB000D08V/050	T330021	1
63	6,9gRB000D08V/063	V330022	1
80	6,9gRB000D08V/080	G330102	1
100	6,9gRB000D08V/100	Q330110	1
125	6,9gRB000D08V/125	R330111	0,9
80	6,9URB000D08V/080	W330023	1
100	6,9URB000D08V/100	X330024	1
125	6,9URB000D08V/125	Y330025	0,95
160	6,9URB000D08V/160	Z330026	0,85
200	6,9URB000D08V/200	A330027	0,85
250	6,9URB000D08V/250	B330028	0,8
315	6,9URB000D08V/315	C330029	0,7
350	5 URB000D08V/350	W330115	0,7
400	5 URB000D08V/400	E330192	0,65

• Fuse Base: SI 000 DIN 80  
Ref. Number: C 220710



German Standard with separate blown fuse trip-indicator

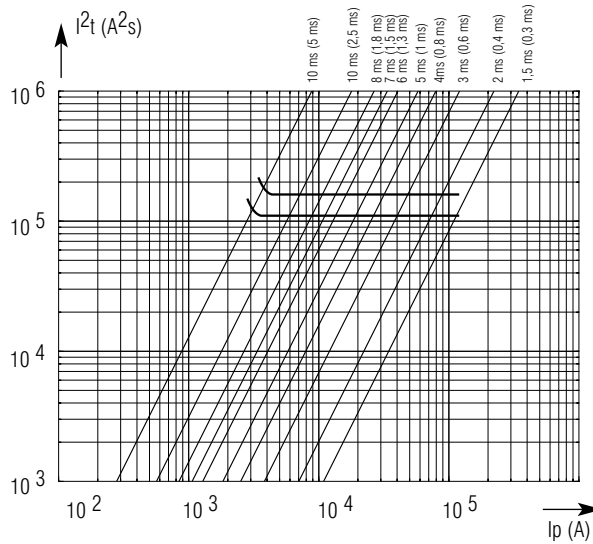


CURRENT RATING	CATALOG NO.	REF #	I/N FUSE BASE*
20	6,9gRB000D08L/020	J330173	1
25	6,9gRB000D08L/025	K330174	1
32	6,9gRB000D08L/032	L330175	1
40	6,9gRB000D08L/040	M330176	1
50	6,9gRB000D08L/050	N330177	1
63	6,9gRB000D08L/063	P330178	1
80	6,9gRB000D08L/080	Q330179	1
100	6,9gRB000D08L/100	R330180	1
125	6,9gRB000D08L/125	S330181	0,9
80	6,9URB000D08L/080	T330182	1
100	6,9URB000D08L/100	V330183	1
125	6,9URB000D08L/125	W330184	0,9
160	6,9URB000D08L/160	X330185	0,85
200	6,9URB000D08L/200	Y330186	0,85
250	6,9URB000D08L/250	Z330187	0,8
315	6,9URB000D08L/315	A330188	0,7
350	5URB000D08L/350	B330189	0,7
400	5URB000D08L/400	F330193	0,65

Microswitch  
MC 4L 2-5 B6 + PRES Ref. Number: F210156  
MC 4L 2-5 B2 + PRES Ref. Number: G210157  
•Fuse Base: SI 000 DIN 80 Ref. Number: C220710

# 6,9 gRB-URB/5URB SEMICONDUCTOR PROTECTION FUSES

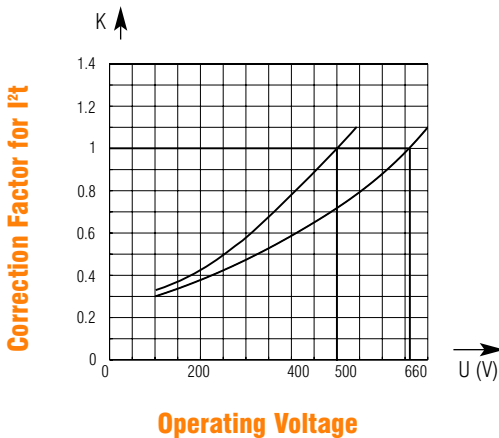
## Total Clearing $I^2t$



Above: Horizontal curves show, for each rated current, values of total clearing  $I^2t$  as a function of prospective current  $I_p$ . @ UN with  $\cos\phi = 0.15$ . Horizontal lines indicate total clearing duration  $t_t$ , with associated pre-arcing duration in brackets.

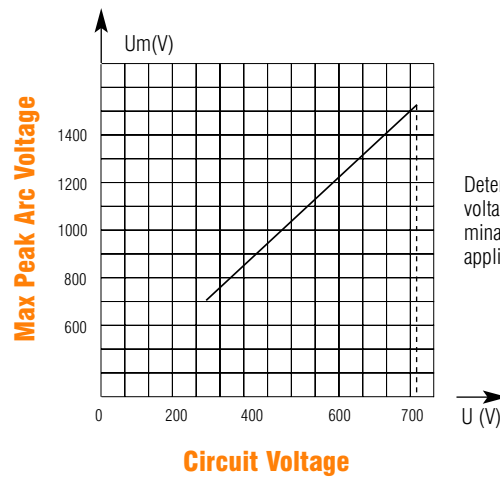


## Clearing $I^2t$ vs. AC Operating Voltage



Correction factor to determine  $I^2t$  value for a fuse operating below its rated voltage.

## Maximum Arc voltage vs. System Voltage

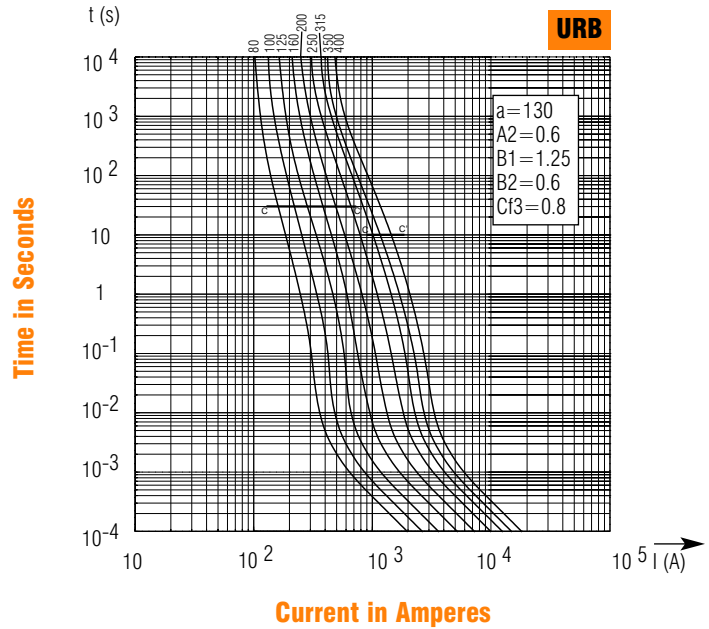
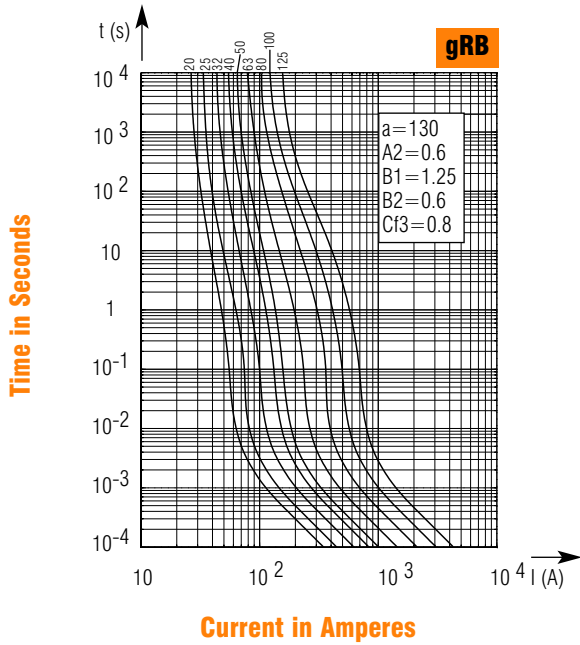


Determines the peak arc voltage across the fuse terminals as a function of applied voltage

# 6,9 gRB-URB

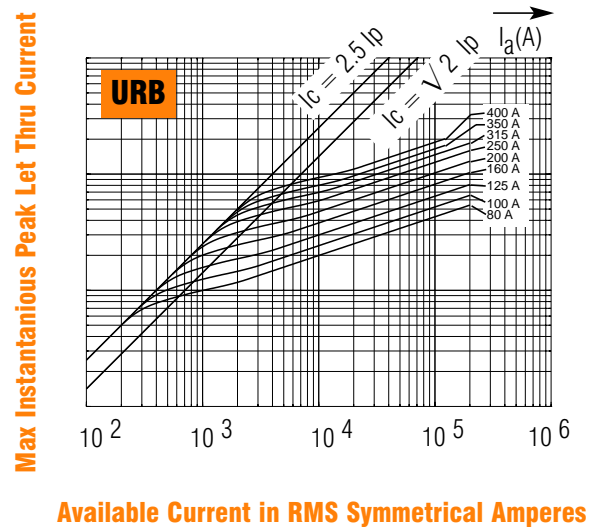
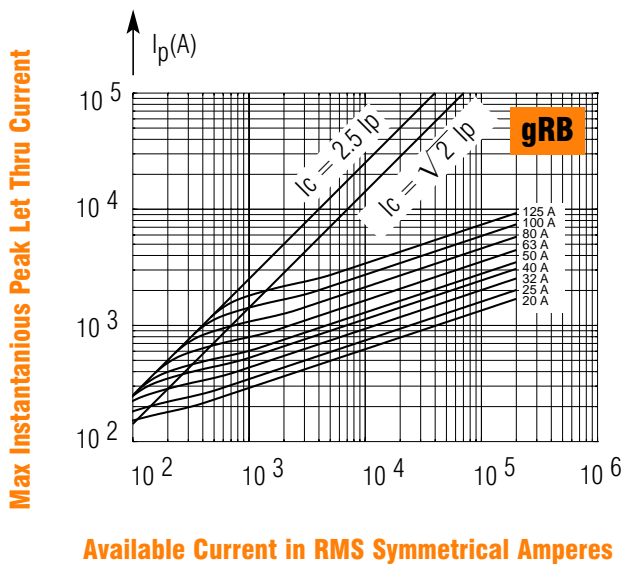
## SEMICONDUCTOR PROTECTION FUSES

### Melting Time - Current data



Curves show, for each rated current, pre-arcing (melt) time vs. R.M.S. pre-arcing current.

### Peak Let Thru Data

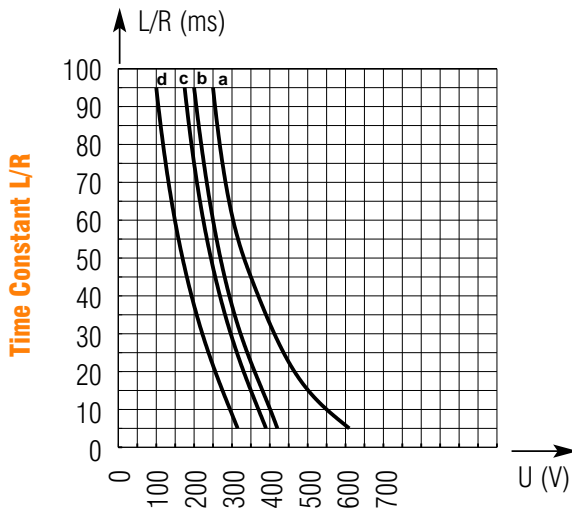


Curves show, for each rating, value of peak-let-through current  $I_c$  as a function of available fault current  $I_p$ .

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## SEMICONDUCTOR PROTECTION FUSES

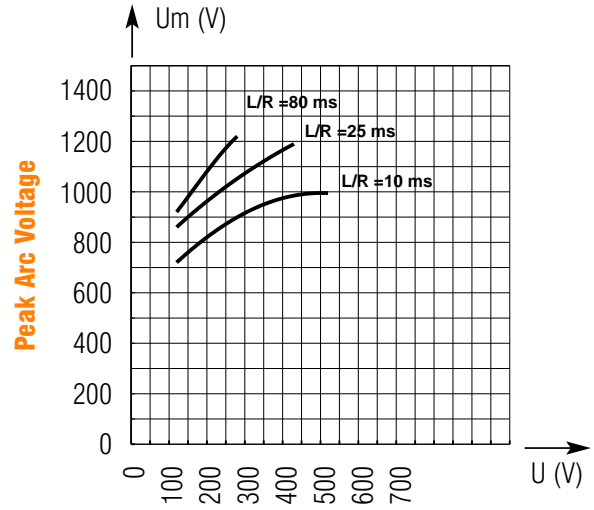
### DC Voltage Capability vs. Time Constant



**DC Voltage Capabilities**

Provides the DC voltage capability of a fuse as a function of circuit time constant (L/R ratio).  
 Curve a: Ratings from 20 to 160 A  
 Curve b: Ratings 200 A  
 Curve c: Ratings from 250 to 315 A  
 Curve d: Ratings from 350 to 400 A

### DC Peak Arc Voltage

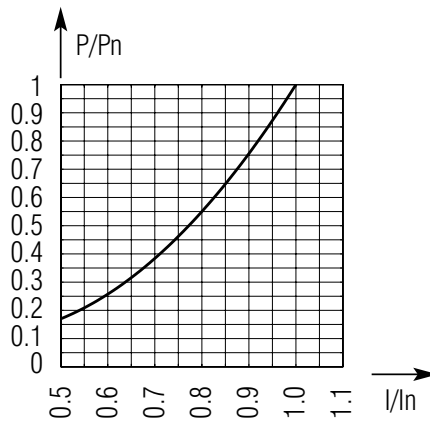


**System Voltage**

Above: Curves indicates peak arc voltage  $U_m$  which may appear across fuse terminals at DC working voltage  $U$ .



### Watts Loss Correction Factor



Above: Correction factor to determine watts loss value for a fuse operating below its rated current.