



Semiconductor (AC) fuses

American Round Fuses Form 101 Range A70QS



French Cylindrical Semiconductor Protection Fuses

These Premium Amp-trap® French Cylindrical Semiconductor Fuses are an extension of the popular A70QS product line. They are solid-fill 14mm and 22mm fuses, IEC rated 690VAC, 200kA Interrupting and 700VDC, 100kA interrupting at 10ms time constant. In addition, these fuses have an 890 VDC rating for capacitor discharge applications up to 2.5ms time constant. All ampere ratings are available with a striker. Applications include small inverter drives and UPS systems, with superior I²t for improved protection and performance.

Features/Benefits

- International 14x51mm (2"x9/16") and 22x58mm (2-1/4"x13/16") sizes for worldwide acceptance
- Ferrule mount up to 100A for design versatility
- Very low I²t for improved semiconductor protection
- 690V IEC rated, tested at 760VAC; can be used up to 750VAC in U.S.
- 700VDC rated for dc protection of equipment with L/R ≤10ms/c
- Superior cycling ability for longer life on difficult cyclic loading applications
- aR characteristic for semiconductor short- circuit protection

Ratings

- AC: 10-100A
690VAC, 200kA I.R.
- IEC tested at 760VAC
- DC: 700VDC, 100kA I.R.
L/R=10ms
890VDC, 127kA I.R.
L/R=2.5ms

Approvals

- UL Recognized Component
- CSA Certified
- IEC 269-4 Compliance

Highlights

- 14 x 51 and 22 x 58 sizes
- 690VAC IEC Rated (760VAC Max.)
- 700VDC rated
- Superior Cycling Ability
- Low Watts Loss
- Optional Striker for Visual/Remote Indication

Applications

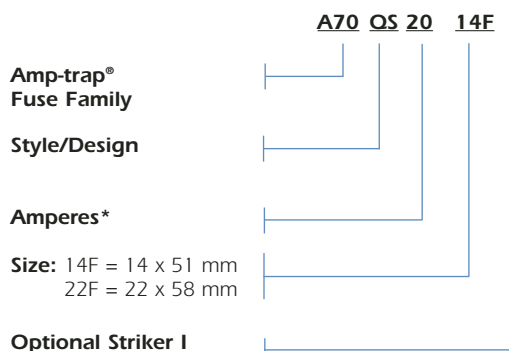
- Small inverters, UPS systems, motor drives and similar 700V or less equipment



Mounting:

- US14 or US22 "finger-safe" IP 20 grade holders, DIN rail or screw mount, with striker actuated microswitch indication available.
- 703 Series open fuse blocks

Catalog Numbering System





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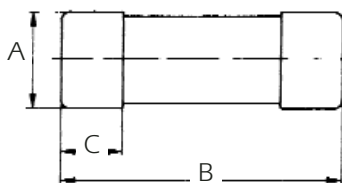
French Cylindrical Semiconductor Protection Fuses Ratings and Application Data

Body Size (mm)	Ampere Rating (A)	Melting I ² t (A ² s X 10 ³)	Max. Clearing I ² t @ 700VAC (A ² s X 10 ³)	Watts Loss @ Rated Current (W)	Catalog Number	
					No Striker	With Striker
14 x 51	6	0.0013	0.017	2.0	A70QS6-14F	A70QS6-14FI
	8	0.0024	0.027	2.8	A70QS8-14F	A70QS8-14FI
	10	0.0043	0.04	3.5	A70QS10-14F	A70QS10-14FI
	12	0.0054	0.06	4.4	A70QS12-14F	A70QS12-14FI
	16	0.0132	0.10	4.8	A70QS16-14F	A70QS16-14FI
	20	0.027	0.16	5.2	A70QS20-14F	A70QS20-14FI
	25	0.053	0.27	5.8	A70QS25-14F	A70QS25-14FI
	32	0.098	0.50	7.0	A70QS32-14F	A70QS32-14FI
	40	0.13	0.70	10.7	A70QS40-14F	A70QS40-14FI
	50	0.28	1.50	11.6	A70QS50-14F	A70QS50-14FI
22 x 58	10	0.0043	0.025	4.0	A70QS10-22F	A70QS10-22FI
	15	0.008	0.049	6.2	A70QS15-22F	A70QS15-22FI
	20	0.013	0.076	8.0	A70QS20-22F	A70QS20-22FI
	25	0.02	0.125	10.0	A70QS25-22F	A70QS25-22FI
	32	1.04	0.27	11.0	A70QS32-22F	A70QS32-22FI
	40	1.09	0.48	13.0	A70QS40-22F	A70QS40-22FI
	50	0.16	0.80	14.9	A70QS50-22F	A70QS50-22FI
	63	0.35	1.85	16.0	A70QS63-22F	A70QS63-22FI
	70	0.52	2.80	16.5	A70QS70-22F	A70QS70-22FI
	80	0.73	3.80	17.8	A70QS80-22F	A70QS80-22FI
90	1.10	5.64	17.0	A70QS90-22F	A70QS90-22FI	
100	1.56	8.00	19.0	A70QS100-22F	A70QS100-22FI	

*100kA, L/R = 11.6ms

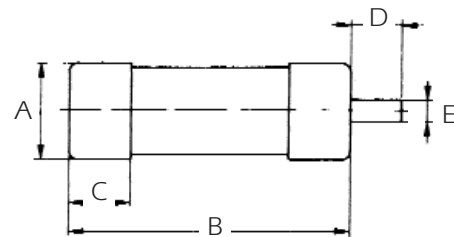
No Striker

Fuse Size	Dimensions-mm		
	A	B	C
14 X 51	14	51	14
22 X 58	22	58	16



With Striker

Fuse Size	Dimensions-mm				
	A	B	C	D	E
14 X 51	14	51	14	7.5	3.8
22 X 58	22	58	16	7.5	3.8



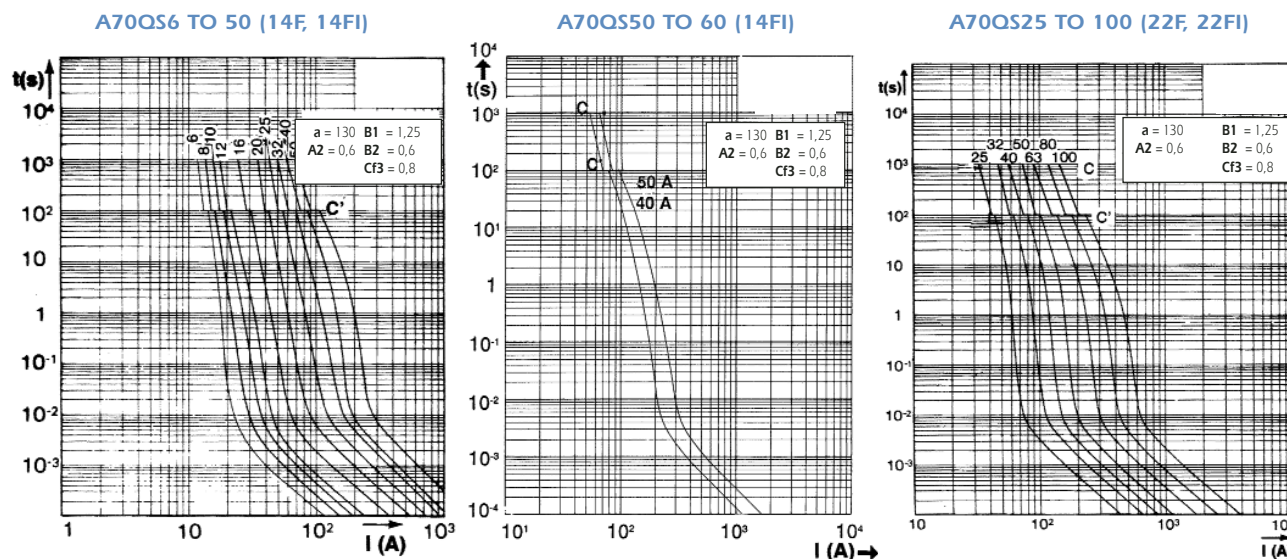


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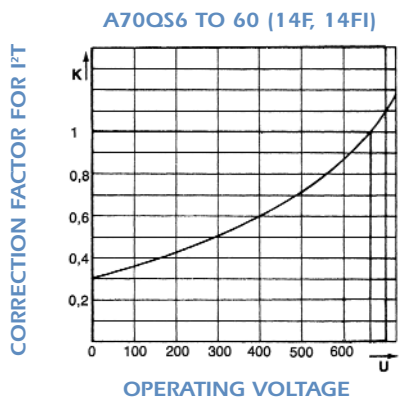
French Cylindrical Semiconductor Protection Fuses

Melting Time-Current Data

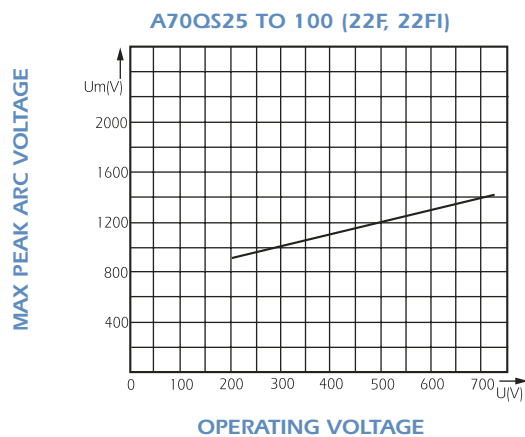
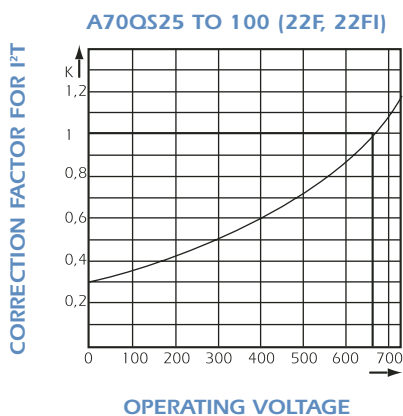
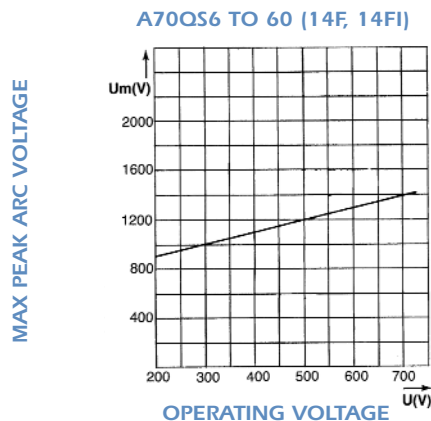


These curves indicate, for each rated current, the pre-arcing (melting) time vs. the R.M.S. current.

Clearing I^2t vs. Operating Voltage



Peak arc voltage vs. Operating Voltage

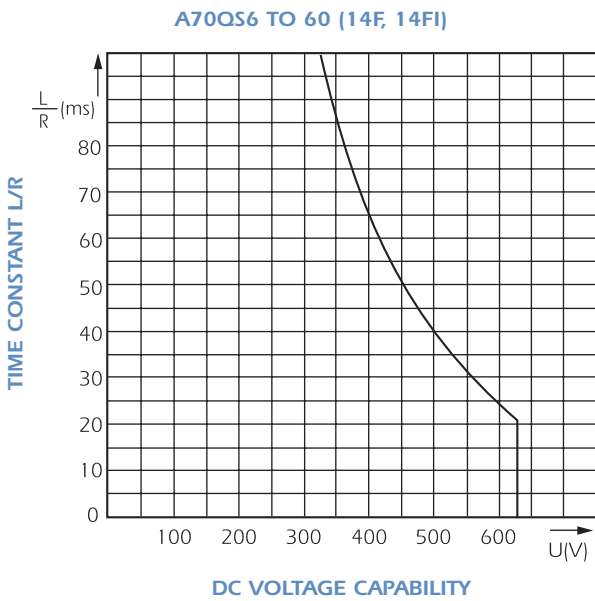




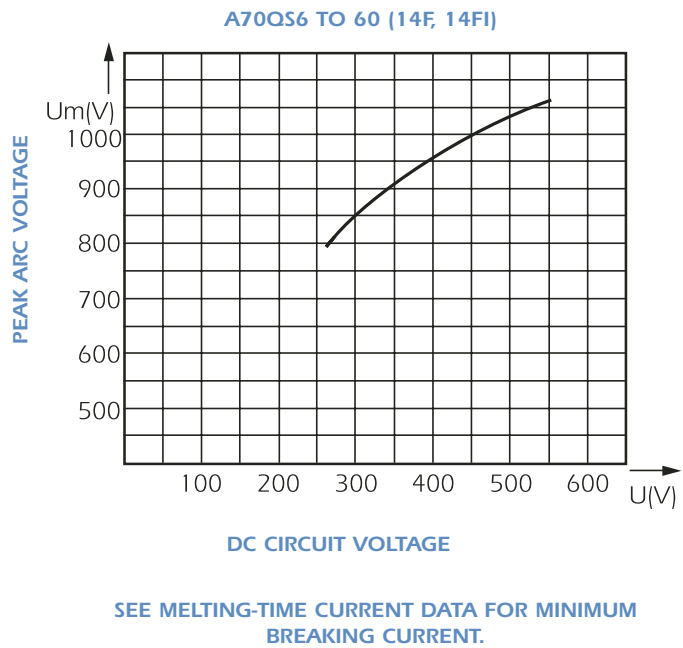
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French Cylindrical Semiconductor Protection Fuses

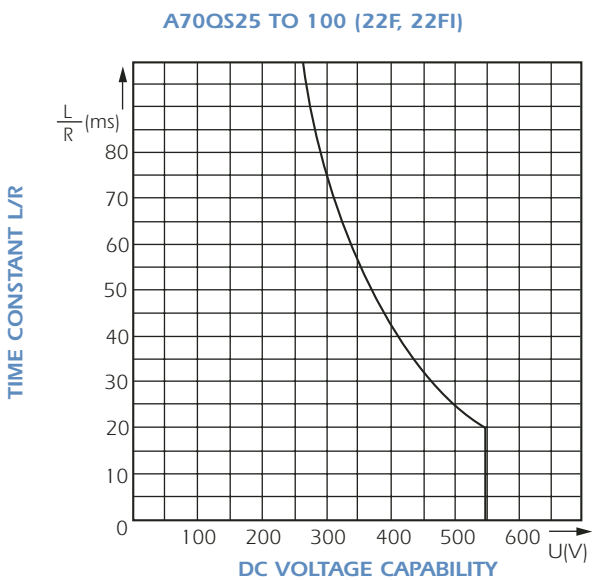
D.C. Applications Data DC Voltage Capabilities vs. Time Constant



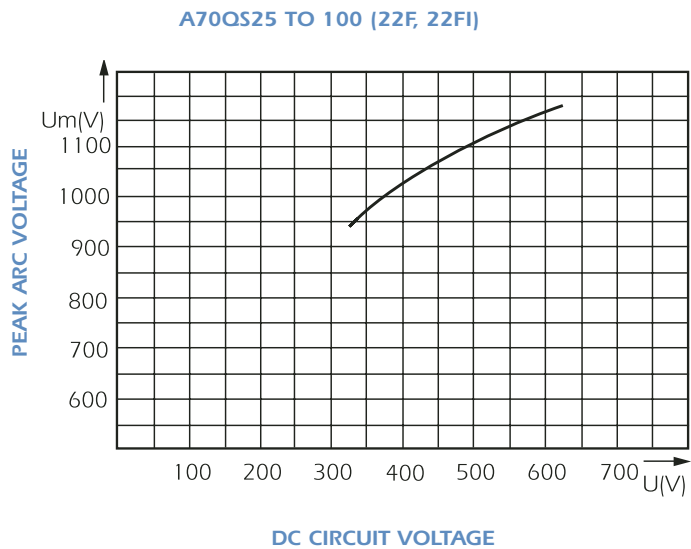
Peak Arc voltage vs. DC circuit voltage



DC Voltage Capabilities vs. Time Constant



Peak Arc voltage vs. DC circuit voltage



These curves provide the DC voltage capability of the fuse as a function of circuit time constant.

(L/R ratio)

These curves show 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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Semiconductor Protection Fuses

A70QS Amp-trap® Semiconductor Protection fuses were developed in response to the need for improved overall performance of 700 volt semiconductor fuses for new equipment requirements. A70QS fuses have lower I²t for better protection, longer life when subjected to cyclic loading, plus lower watts loss. A70QS is the best choice to protect dynamic solid state equipment such as motor drives, UPS, etc.

Features/Benefits

- Very Low I²t for improved protection of equipment
 - Superior cycling ability for long, reliable life on high cyclic loading
 - Low watts loss for cooler operation
- 700V AC/DC rating gives greater design versatility
 - Ultra compact sizes allow down-sizing of existing equipment

Ratings

- AC: 35-800A
700VAC, 200kA I.R.
- DC: 35-800A
700VDC, 100kA I.R.
L/R = 10ms

Approvals

- UL Recognized
Component AC/DC
- AC: GuideNo.JFHR2
- DC: Tested to UL
Standard 198L
Parameters (35-800A)
- CSA Certified
File LR 12636

Highlights

- 700V AC/DC Rated
- Very low I²t
- Low Watts Loss
- Superior Cycling Ability

Applications

- Protection of 700V
less motor drives,
UPS, inverters, etc.

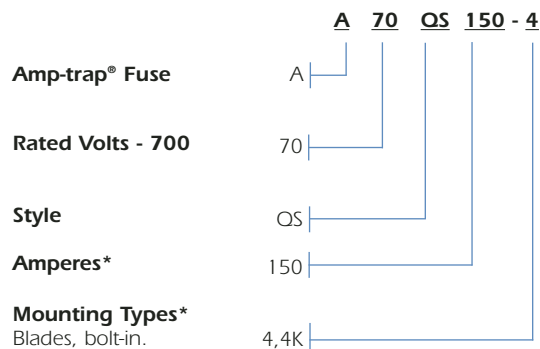


Single Pole Fuse Blocks for A70QS Fuses



Fuse Ampere Rating	Fuse block	
	Catalog Number	Reference Number
35-200	P243C	M219040
225-600	P266A	Y212380
700-800	15C 375	

Catalog Numbering System



* for ampere ratings and types not listed, consult the factory.

Semiconductor (AC) fuses



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Semiconductor Protection Fuses

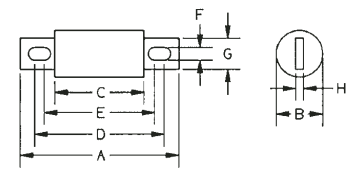
Standard Fuse Ampere Ratings, Catalog and Reference Numbers

Ampere Rating	Catalog Number	Ref. Number	Ampere Rating	Catalog Number	Ref. Number	Ampere Rating	Catalog Number	Ref. Number	Ampere Rating	Catalog Number	Ref. Number
35	A70QS35-4	D202748	100	A70QS100-4	G214343	200	A70QS200-4	V212814	450	A70QS450-4K	H215356
40	A70QS40-4	Y213829	125	A70QS125-4	L215865	200	A70QS200-4K	E213329	500	A70QS500-4	A218431
50	A70QS50-4	T217919	125	A70QS125-4K	Q216375	250	A70QS250-4	L217406	500	A70QS500-4K	R218952
60	A70QS60-4	H219473	150	A70QS150-4	P218950	300	A70QS300-4	Q218951	600	A70QS600-4	Y219993
70	A70QS70-4	B201527	150	A70QS150-4K	F219471	350	A70QS350-4	M211266	600	A70QS600-4K	P222676
80	A70QS80-4	X212816	175	A70QS175-4	A223192	400	A70QS400-4	J214345	700	A70QS700-4	E202772
90	A70QS90-4	K214346	175	A70QS175-4K	J200982	450	A70QS450-4	F214848	800	A70QS800-4	Z213830

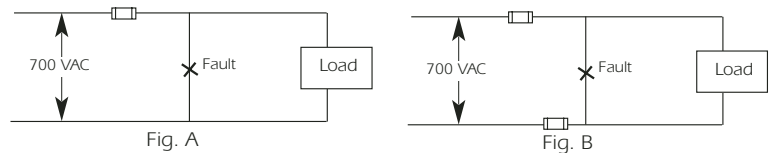
For ampere ratings and styles not listed, ask sales agent. Mounting Type 4; note exception 4k

Dimensions

Catalog Number	Mounting Type	Dimensions - Inches (mm)								
		A	B	C	D	E	F	G	H	
A70QS35 to 100	4	4.38 (111)	1.00 (25.4)	2.88 (73.0)	3.69 (93.6)	3.50 (88.9)	0.31 (7.9)	0.75 (19.0)	0.13 (3.2)	
A70QS125 to 200	4	4.38 (111)	1.22 (31.0)	2.88 (73.0)	3.69 (93.6)	3.56 (90.5)	0.31 (7.9)	1.00 (25.4)	0.19 (4.8)	
A70QS125 to 200	4K	5.09 (129)	1.22 (31.0)	2.88 (73.0)	4.19 (106)	3.50 (88.0)	0.41 (10.3)	1.00 (25.4)	0.19 (4.8)	
A70QS225 to 400	4	5.09 (129)	1.50 (38.1)	2.84 (72.2)	4.16 (106)	3.53 (89.7)	0.40 (10.3)	1.50 (38.1)	0.25 (6.4)	
A70QS450 to 600	4	5.09 (129)	2.00 (50.8)	2.84 (72.2)	4.16 (106)	3.53 (89.7)	0.41 (10.3)	1.50 (38.1)	0.25 (6.4)	
A70QS450 to 600	4K	7.09 (180)	2.00 (50.8)	2.84 (72.2)	6.16 (156)	3.53 (89.7)	0.53 (13.5)	1.50 (38.1)	0.25 (6.4)	
A70QS700 to 800	4	7.09 (180)	2.50 (63.5)	2.84 (72.2)	5.28 (134)	4.91 (125)	0.53 (13.5)	2.00 (50.8)	0.38 (9.5)	

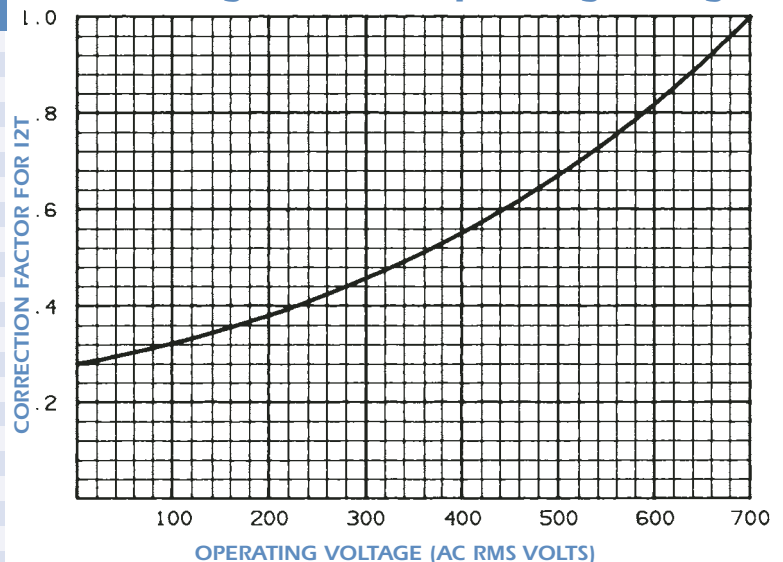


I²t Data – 700 Volts AC, 100kA



Fuse Ampere Rating	Melting $\times 10^3 A^2s$	I ² t data clearing at 700V AC	
		1 Fuse (Fig. A) $\times 10^3 A^2s$	2 Fuses in series (Fig. B) $\times 10^3 A^2s$
35	0.13	0.47	0.27
40	0.16	0.58	0.33
50	0.24	0.86	0.49
60	0.32	1.2	0.69
70	0.50	1.8	1.0
80	0.65	2.3	1.3
90	0.83	3.0	1.7
100	1.0	3.6	2.1
125	2.1	6.9	4.0
150	3.3	11	6.3
175	4.2	14	8.0
200	5.9	19	11
225	9.0	30	17
250	12.6	42	24
300	16.7	55	32
350	21.5	72	41
400	29.7	99	57
450	36.7	125	72
500	47.1	160	92
600	65.2	222	127
700	103.6	332	190
800	135.3	433	248

Clearing I²t vs. AC Operating Voltage





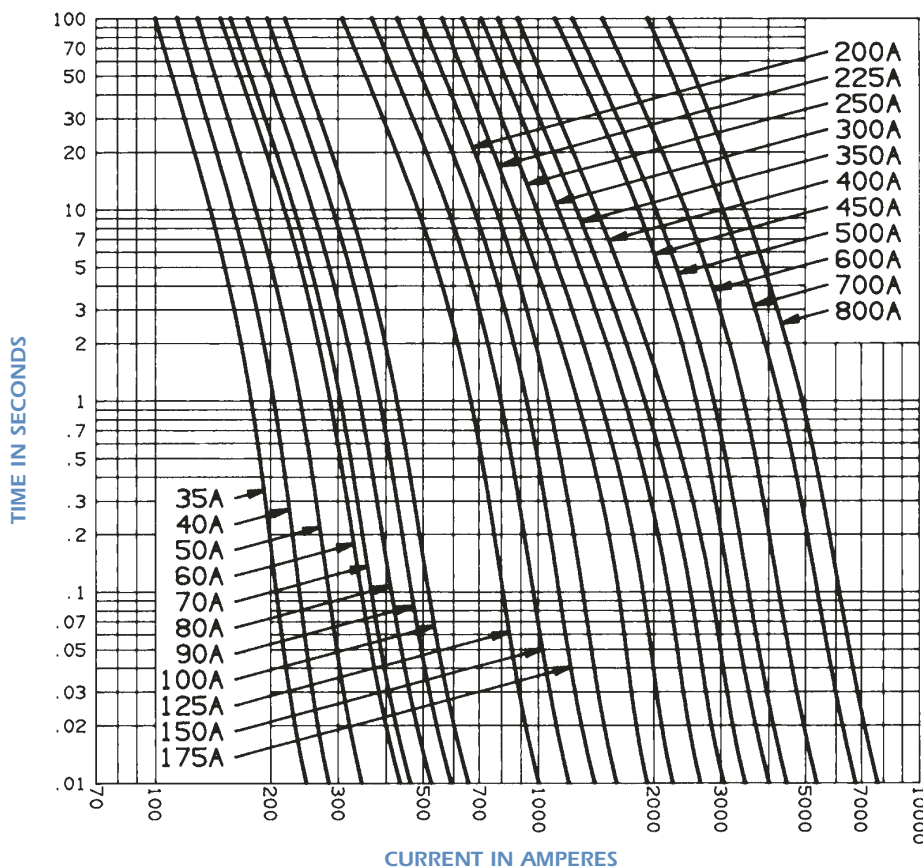
Semiconductor (AC) fuses

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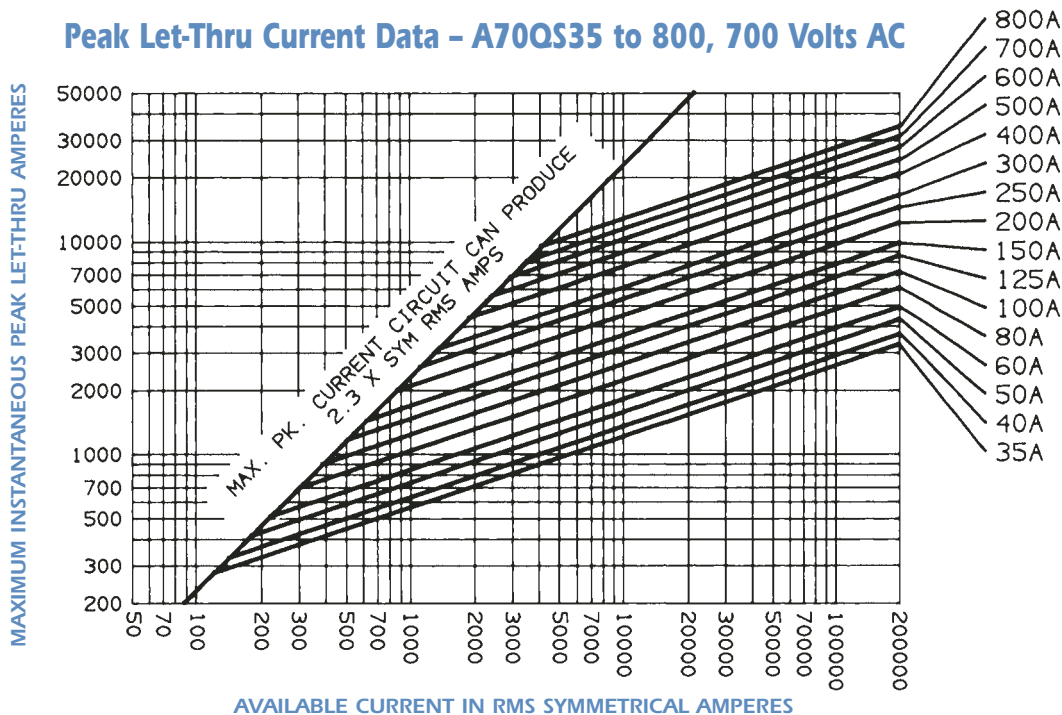
Semiconductor Protection Fuses

A70QS35 to 800

Melting Time - Current Data, 700V Fuses



Peak Let-Thru Current Data - A70QS35 to 800, 700 Volts AC



Semiconductor (AC) fuses



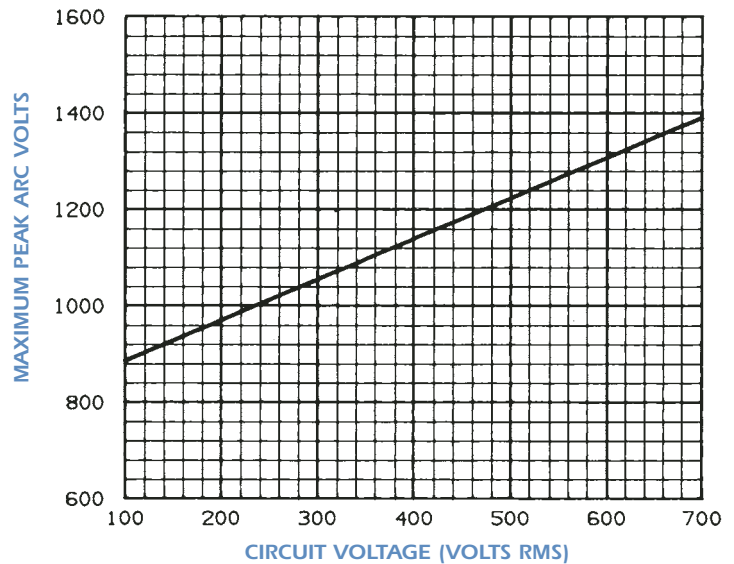
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Semiconductor Protection Fuses

Clearing I^2t at 700V DC,
100kA, L/R = 10 ms

Ampere Rating	Clearing I^2t (A ² s x 10 ³)
35	0.25
40	0.35
50	0.60
70	1.3
80	1.8
90	2.4
100	3.1
125	5.3
150	8.1
175	12
200	16
225	21.5
250	27.5
300	42
350	63
400	85
450	115
500	150
600	201
700	325
800	450

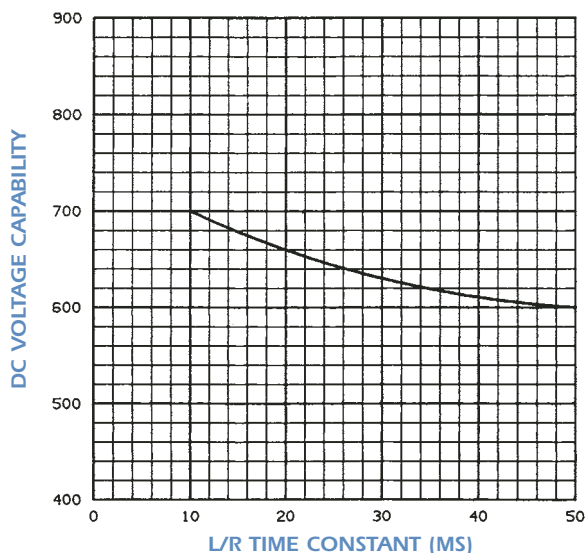
Maximum Arc Volts vs. System Voltage



Watts Loss at Rated Current

Ampere Rating	Watts Loss (W)	Ampere Rating	Watts Loss (W)
35	6.2	200	41
40	7.5	225	37
50	9.8	250	42
60	12	300	53
70	15	350	64
80	18	400	75
90	20	450	78
100	24	500	92
125	22	600	116
150	29	700	125
175	35	800	143

DC Voltage Capability vs. Time Constant



Watts Loss vs. % Rated Current

