A50QS

SEMICONDUCTOR PROTECTION FUSES



A50QS Amp-trap® Form 101 fuses grew out of the need to improve the overall performance of semiconductor fuses in response to new equipment requirements. The A50QS encompasses the best protection features – lower I^2t to provide better protection for equipment, longer life when subjected to cyclic loading and lower watts loss. A50QS is today's best choice for the protection of dynamic solid state equipment such as motor drives, inverters, UPS, etc.

Ratings

- **AC:** 35-60A
  500VAC, 200kA I.R.
  70-1200A
  500VAC, 200kA I.R.
- **DC:** 35-1200A
  500VDC, 100kA I.R.

Approvals

- UL Recognized Component
- AC: UL Guide No. JFHR2
- DC Tested to UL Standard 198L parameters (70-1200A)
- CSA Certified LR12636

Features/Benefits

- **Lowest I^2t** for greatest protection of semiconductor circuits
- **Low watts loss** for cooler operation
- **Superior cycling ability** gives an equipment design advantage
- **State-of-the-art protection** for 500 volt equipment
- **Ultra compact sizes** allow down-sizing of existing equipment

HIGHLIGHTS:

- 500V AC/DC Rated
- Lowest I^2t
- Low Watts Loss
- Superior Cycling Ability

APPLICATIONS:

- Protection of 500V or less motor drives, UPS, inverters, etc.

Catalog Numbering System

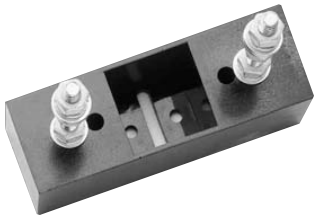
A	50	QS	250	- 4

- **Amp-trap® Fuse** — A
- **Rated Volts - 500** — 50
- **Style** — QS
- **Amperes*** — 250
- **Mounting Type***
  Blades, bolt-in — 4

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

Single Pole Fuse Blocks for A50QS Fuses

FUSE AMPERE RATING	MOUNTING TYPE	FUSE BLOCK CATALOG NUMBER
1 - 30		
35-200	4	P243E
225-600	4	P266C



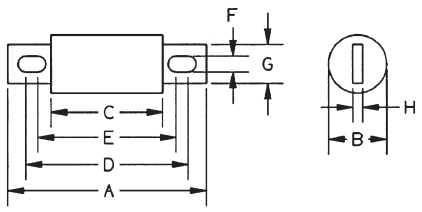
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Standard Fuse Ampere Ratings, Catalog Numbers

AMPERE RATING	CATALOG NUMBER	AMPERE RATING	CATALOG NUMBER
35	A50QS35-4	250	A50QS250-4
40	A50QS40-4	300	A50QS300-4
50	A50QS50-4	350	A50QS350-4
60	A50QS60-4	400	A50QS400-4
70	A50QS70-4	450	A50QS450-4
80	A50QS80-4	500	A50QS500-4
90	A50QS90-4	600	A50QS600-4
100	A50QS100-4	700	A50QS700-4
125	A50QS125-4	800	A50QS800-4
150	A50QS150-4	900	A50QS900-4
175	A50QS175-4	1000	A50QS1000-4
200	A50QS200-4	1200	A50QS1200-4
225	A50QS225-4		

For ampere ratings and styles not listed, call Technical Services.

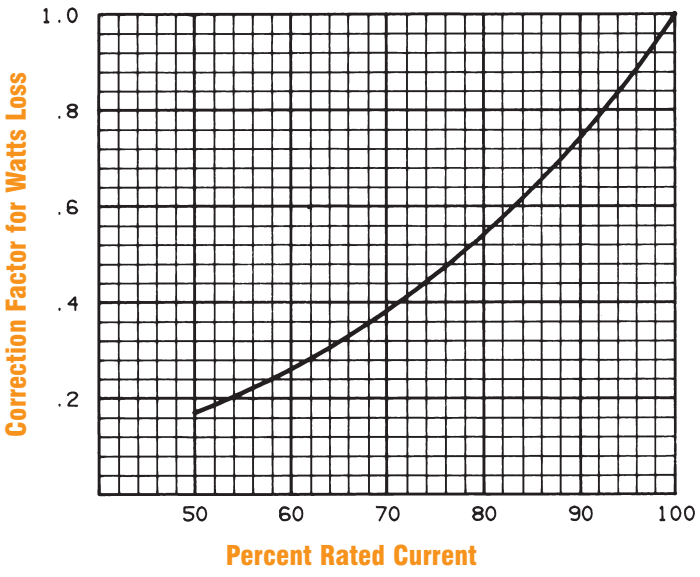


D

Dimensions

CATALOG NUMBER	MOUNTING TYPE	DIMENSIONS - INCHES (mm)							
		A	B	C	D	E	F	G	H
A50QS35 to 100	4	3.63 (92.2)	1.00 (25.4)	2.13 (54.1)	2.94 (74.7)	2.75 (69.9)	0.31 (7.9)	0.75 (19.1)	0.13 (3.3)
A50QS125 to 200	4	3.63 (92.2)	1.22 (31.0)	2.13 (54.1)	2.94 (74.7)	2.81 (71.4)	0.31 (7.9)	1.00 (25.4)	0.19 (4.8)
A50QS225 to 400	4	4.34 (110)	1.50 (38.1)	2.09 (53.1)	3.41 (86.6)	2.78 (70.6)	0.41 (10.4)	1.00 (25.4)	0.25 (6.4)
A50QS450 to 600	4	4.47 (114)	2.00 (50.8)	2.22 (56.4)	3.53 (89.7)	2.91 (73.9)	0.41 (10.4)	1.50 (38.1)	0.25 (6.4)
A50QS700 to 800	4	6.47 (164.3)	2.50 (63.5)	2.22 (56.4)	5.00 (127.0)	3.44 (87.3)	.53 (13.5)	1.50 (38.1)	.25 (6.4)
A50QS900 to 1200	4	6.97 (177.0)	3.00 (76.2)	3.22 (81.8)	5.47 (138.9)	4.47 (113.5)	.63 (15.9)	2.38 (60.3)	.44 (11.1)

Watts Loss vs. Percent Rated Current



Watts Loss at Rated Current

AMPERE RATING	WATTS LOSS(w)	AMPERE RATING	WATTS LOSS(w)
35	6	250	41
40	7	300	49
50	8	350	57
60	10	400	65
70	12	450	69
80	14	500	77
90	15	600	92
100	17	700	110
125	21	800	130
150	25	900	140
175	29	1000	160
200	33	1200	175
225	37		

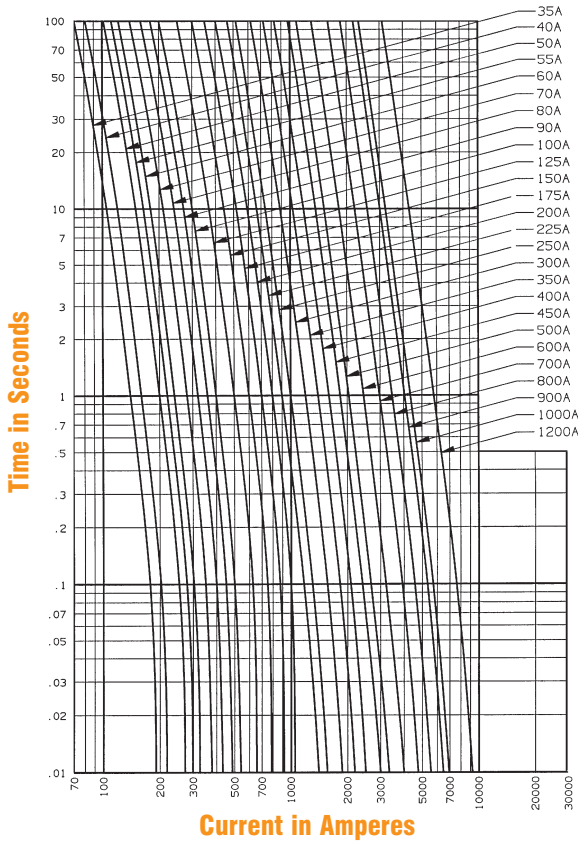
Correction factor example: At 80% rated current, watts loss equals .54 times watts loss at rated current.

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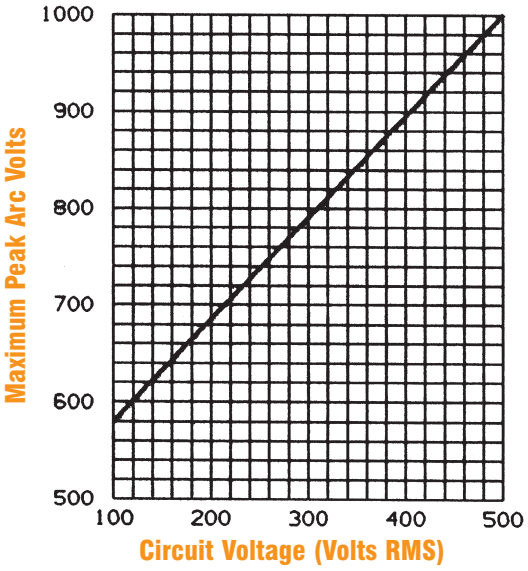
A50QS35 to 1200

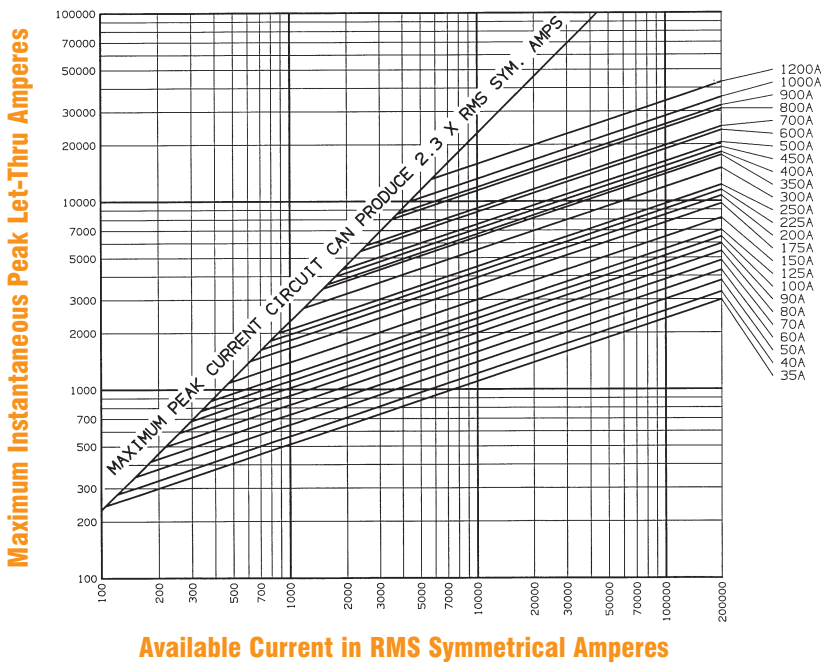
Melting Time – Current Data, 500V Fuses



Peak Let-Thru Current Data – A50QS35 to 1200, 500 Volts AC

Maximum Arc Volts vs. System Voltage





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I^2t Data – 500 Volts AC

FUSE AMPERE RATING	MELTING I^2t ($A^2s \times 10^3$)	I^2t DATA MAX. CLEARING I^2t @ 500VAC 1 FUSE (Fig A) ($A^2s \times 10^3$)	2 FUSES IN SERIES ($A^2s \times 10^3$)(Fig B)
35	.09	.56	.34
40	.11	.69	.4
50	.18	1.1	.68
60	.25	1.6	.94
70	.31	1.9	1.1
80	.43	2.6	1.5
90	.57	3.6	2.1
100	.74	4.4	2.7
125	.94	5.6	3.4
150	1.5	9	5.4
175	2.5	15	9
200	3.3	20	12
225	4.1	25	15
250	4.9	29	18
300	9.2	55	33
350	15	88	53
400	16	98	59
450	21	130	76
500	26	160	94
600	37	220	130
700	53	270	160
800	72	360	220
900	98	500	300
1000	112	560	330
1200	200	930	550

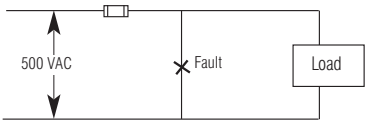


Fig. A

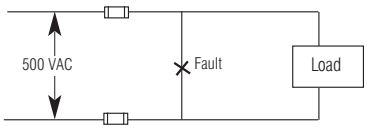
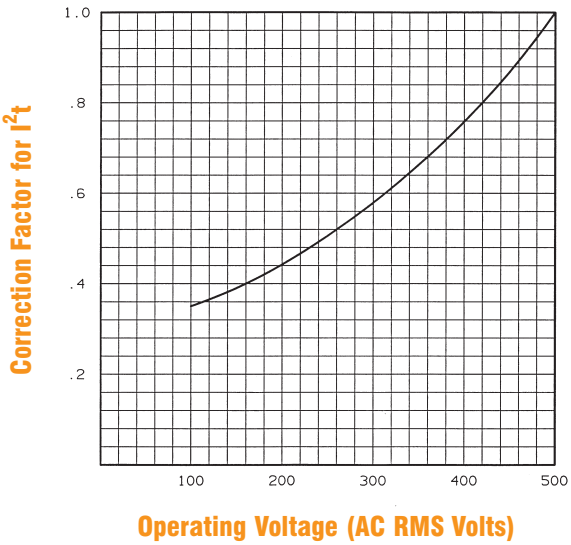


Fig. B

Clearing I^2t vs. AC Operating Voltage



Clearing I^2t at 500V DC, 100kA, L/R = 10 ms

AMPERE RATING	CLEARING I^2t ($A^2s \times 10^3$)	AMPERE RATING	CLEARING I^2t ($A^2s \times 10^3$)
35	.48	250	25
40	.58	300	47
50	1.0	350	75
60	1.3	400	83
70	1.6	450	110
80	2.2	500	130
90	3.0	600	190
100	3.8	700	220
125	4.8	800	260
150	7.7	900	350
175	13	1000	430
200	17	1200	660
225	21		

DC Application: A50QS Fuses have been designed for both AC and DC operation. A50QS fuses (70-600) have UL Component Recognition at 500V DC and have been tested to circuit parameters as defined in Standard 198L.

DC Voltage Capability vs. Time Constant

