AMP-TRAP®–FORM 101

A15QS

SEMICONDUCTOR PROTECTION FUSES

A15QS Amp-trap® Form 101 Semiconductor Protection fuses were designed for the specific protection of diodes and other semiconductor devices rated 150VAC/DC.

The A15QS product line's compact design is perfect for those applications that have limitations on available space.

Features/Benefits

- **Low I^2t** minimizes damage to protected components on short circuit
- **Controlled arc voltage** reduces stress to circuit components during fuse clearing
- **Choice of mounting types** provides options for unique termination requirements

Ratings

- **AC:** 1-6000A 150VAC, 100kA I.R.
- **DC:** 1-6000A 150VDC, 100kA I.R.

Approvals

- UL Recognized Component UL File E60314
- AC: UL Guide No. JFHR2 (1-4000A)
- DC Tested to UL Standard 198L parameters (1-4000A)

HIGHLIGHTS:

- Fast Acting
- Current Limiting
- Low I^2t
- Indicator Options Available

APPLICATIONS:

- Protection of heavy duty devices such as electrochemical rectifiers

Catalog Numbering System

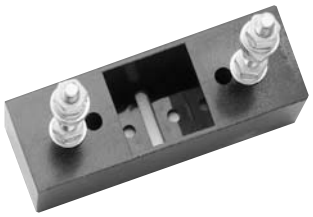
A	15	QS	400 - 4	TI

Amp-trap® Fuse	**A**
Rated Volts - 250	**15**
Style	**QS**
Amperes*	**400**
Mounting Types*	
Ferrule	**1**
Ferrule, midget dims. (1-1/2" x 13/32")	**2**
Blades, bolt-in	**4**
Hockey puck, bolt-in	**128**
Integral Blown-Fuse Indicator	
Trigger Indicator	**TI**
Trigger Actuator	**IL**

* For ampere ratings and types not listed, consult the factory.
** For harsh duty appllications, refer to the A13X product family. Consult the factory or OEM Central web site for A13X application information. Http://www.ferrazshawmut.com/oem

Single Pole Fuse Blocks for A15QS Fuses

FUSE AMPERE RATING	FUSE BLOCK CATALOG NUMBER
1-30	30311
31-60	U71006
61-100	P243D
101-200	P243D
201-450	P243D
500-600	P243G



A15QS

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Standard Fuse Ampere Ratings, Catalog Numbers

AMPERE	CATALOG	OUTLINE	AMPERE	CATALOG	OUTLINE	AMPERE	CATALOG	OUTLINE	AMPERE	CATALOG	OUTLINE
1	A15QS1-2	1	70	A15QS70-4	2	350	A15QS350-4TI	2	2000	A15QS2000128IL	5
2	A15QS2-2	1	70	A15QS70-4TI	2	400	A15QS400-4	2	2500	A15QS2500-128	4
3	A15QS3-2	1	80	A15QS80-4	2	400	A15QS400-4IL	3	2500	A15QS2500-128IL	5
4	A15QS4-2	1	80	A15QS80-4TI	2	400	A15QS400-4TI	2	3000	A15QS3000-128	4
5	A15QS5-2	1	90	A15QS90-4	2	450	A15QS450-4	2	3000	A15QS3000-128IL	5
6	A15QS6-2	1	100	A15QS100-4	2	450	A15QS450-4IL	3	3500	A15QS3500-128	6
7	A15QS7-2	1	100	A15QS100-4TI	2	500	A15QS500-4	2	4000	A15QS4000-128	6
8	A15QS8-2	1	130	A15QS130-4	2	500	A15QS500-4IL	3	4000	A15QS4000-128IL	7
10	A15QS10-2	1	130	A15QS130-4TI	2	600	A15QS600-4	2	4500	A15QS4500-128	
12	A15QS12-2	1	150	A15QS150-4	2	800	A15QS600-4IL	3	4500	A15QS4500-128IR	
15	A15QS15-2	1	150	A15QS150-4IL	3	800	A15QS800-4	2	5000*	A15QS5000-128	8
20	A15QS20-2	1	150	A15QS150-4TI	2	1000	A15QS1000-4	2	6000*	A15QS6000-128	8
25	A15QS25-2	1	175	A15QS175-4TI	2	1000	A15QS1000-4IL	3			
30	A15QS30-2	1	200	A15QS200-4	2	1000	A15QS1000-4TI	2			
35	A15QS35-1	1	200	A15QS200-4IL	3	1000	A15QS1000-128	4			
40	A15QS40-1	1	250	A15QS250-4	2	1000	A15QS1000-128IL	5			
40	A15QS40-4TI	2	250	A15QS250-4TI	2	1200	A15QS1200-128	4			
45	A15QS45-1	1	300	A15QS300-4	2	1200	A15QS1200-128IL	5			
50	A15QS50-1	1	300	A15QS300-4IL	2	1200	A15QS1500-128	4			
50	A15QS50-4	2	300	A15QS300-4IL	3	1500	A15QS1500-128IL	5			
60	A15QS60-1	1	350	A15QS350-4	2	2000	A15QS2000-128	4			

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

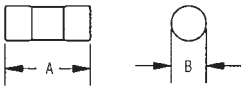


Figure 1

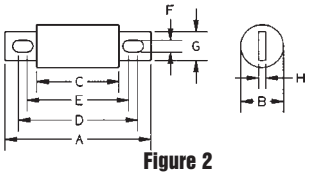


Figure 2

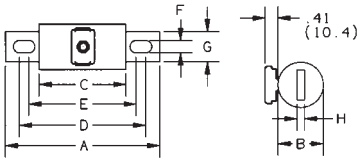


Figure 3

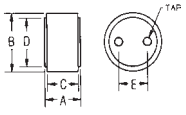


Figure 4

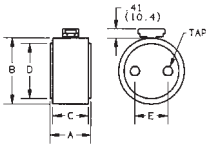


Figure 5

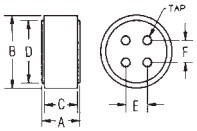


Figure 6

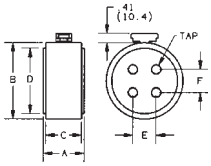


Figure 7

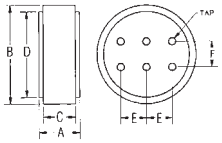


Figure 8

Dimensions

OUTLINE REF.	MOUNTING TYPE	FIG.	DIMENSIONS - INCHES (mm) A	B	C	D	E	F	G	H	TAP
A15QS1 to 30	2	1	1.50 (38.1)	.41 (10.4)	- -	- -	- -	- -	- -	- -	- -
A15QS35 to 60	1	1	2.00 (50.8)	.81 (20.6)	- -	- -	- -	- -	- -	- -	- -
A15QS20 to 450	4, 4TI*, 4IL*	2, 3*	2.66 (67.6)	1.13 (28.7)	1.16 (29.5)	2.19 (55.6)	1.91 (48.5)	.31 (7.9)	.74 (22.4)	.13 (4.8)	-
A15QS500 to 1000	4, 4TI*, 4IL*	2, 3*	3.50 (88.9)	1.50 (38.1)	1.25 (31.8)	2.56 (65.0)	1.94 (49.3)	.41 (10.4)	1.00 (25.4)	.25 (6.4)	-
A15QS750 to 2000	128, 128IL*	4, 5*	1.88 (47.8)	2.00 (50.8)	1.63 (41.4)	1.75 (44.5)	1.00 (25.4)	- -	- -	- -	3/8-24-1/2 Deep
A15QS2500 to 3000	128, 128IL*	4, 5*	1.88 (47.88)	3.00 (76.2)	1.63 (41.4)	2.50 (63.5)	1.50 (38.1)	- -	- -	- -	1/2-20-1/2 Deep
A15QS3500 to 4000	128, 128IL*	6, 7*	1.88 (47.88)	3.50 (88.9)	1.63 (41.4)	3.00 (76.2)	1.06 (27.0)	1.06 (27.0)	- -	- -	1/2-20-1/2 Deep
A15QS4500 to 6000	128	8	2.38 (60.5)	5.75 (146)	1.88 (47.7)	5.00 (127)	1.50 (38.1)	1.50 (38.1)	- -	- -	1/2-20-1/2 Deep

* Optional Trigger Actuator (IL)

A15QS

SEMICONDUCTOR PROTECTION FUSES

I²t Data-150VAC

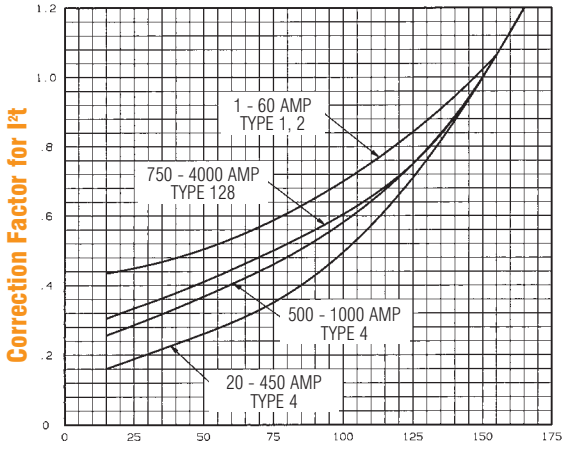
AMPERE RATING	Melting (A²s X 10³) Body Style Type 2	Type 1	Type 4	MAX CLEARING I²t @ 150VAC (A²s X 10³)
1	0.0001			0.0002
2	0.0007			0.001
3	0.002			0.003
4	0.005			0.007
5	0.008			0.012
6	0.015			0.022
7	0.001			0.011
8	0.001			0.015
10	0.002			0.019
12	0.003			0.030
15	0.005			0.042
20	0.009			0.072
25	0.017			0.14
30	0.032			0.25
35		0.045		0.21
40		0.060		0.28
45		0.074		0.34
50		0.10		0.47
60		0.18		0.80
20			0.01	0.10
25			0.02	0.16
30			0.03	0.21
35			0.04	0.29
40			0.05	0.39
45			0.06	0.47
50			0.08	0.64
60			0.12	0.94
70			0.16	2.0
80			0.21	2.5
90			0.27	3.1
100			0.33	3.6

AMPERE RATING	Melting (A²s X 10³) Body Style Type 4	Type 128	MAX CLEARING I²t @ 150VAC (A²s X 10³)
125	0.49		5.0
130	0.53		5.3
150	0.72		6.8
175	1.0		9.0
200	1.3		11
225	1.7		14
250	1.9		15
275	2.4		19
300	2.9		22
350	4.1		32
400	5.1		40
450	6.4		50
500	15		90
550	18		108
600	20		130
700	25		220
800	34		290
900	46		400
1000	58		520
750		40	300
800		46	340
1000		72	540
1200		90	680
1500		160	1200
1600		160	1200
1800		202	1500
2000		250	1900
2500		422	3200
3000		640	4800
3500		1200	6500
4000		1400	8500
5000		2800	12,000
6000		3900	17,000

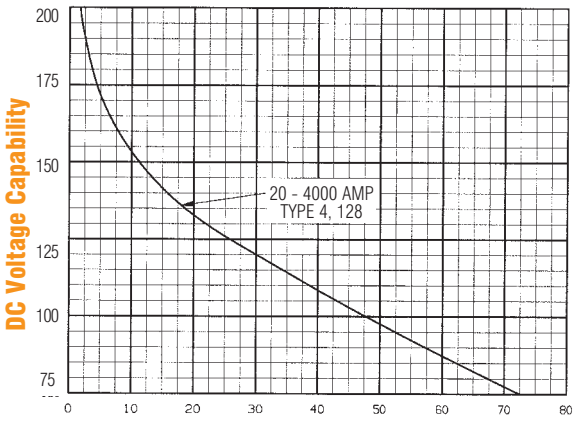
I²Data-150VDC ; L/R=10ms

AMPERE RATING	CLEARING I²t @ 150 VDC L/R =10ms (A²s X 10³) Type 4	Type 128
20	0.07	
25	0.11	
30	0.15	
35	0.20	
40	0.27	
45	0.33	
50	0.45	
60	0.66	
70	1.4	
80	1.8	
90	2.2	
100	2.5	
125	3.5	
130	3.7	
150	4.7	
175	6.3	
200	7.7	
225	9.8	
250	11	
275	13	
300	15	
350	22	
400	28	
450	35	
500	63	
550	76	
600	91	
700	150	
750		210
800	200	240
900	280	
1000	360	380
1200		470
1500		840
1600		840
1800		1000
2000		1300
2500		2200
3000		3400
3500		5200
4000		6800

Clearing I²t vs Working Voltage



DC Voltage vs Time Constant (L/R)



A15QS

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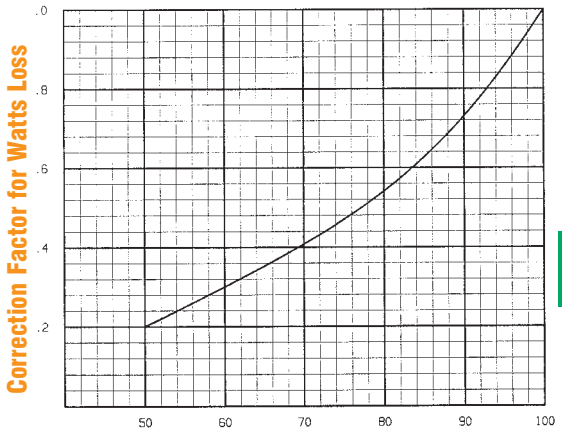
Watts Loss @ Rated Current

AMPERE RATING	WATTS LOSS @ RATED CURRENT (W)		
	Type 2	Type 1	Type 4
1	0.68		
2	1.3		
3	1.7		
4	2.1		
5	2.8		
6	3.1		
7	2.2		
8	2.5		
10	2.6		
12	3.0		
15	3.0		
20	4.0		
25	5.2		
30	5.6		
35		9	
40		10	
45		12	
50		13	
60		14	
20			1.5
25			2.0
30			2.2
35			2.6
40			3.1
45			3.4
50			4.0
60			4.7
70			5.6
80			8.0
90			9.0

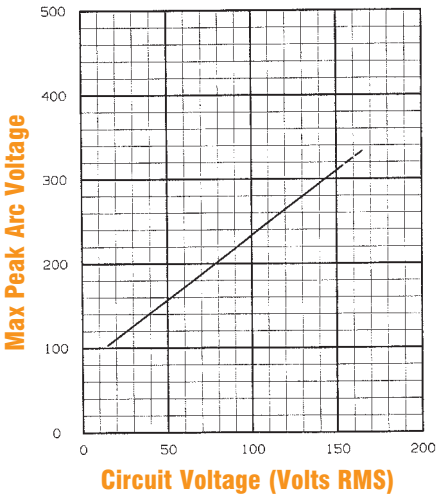
AMPERE RATING	WATTS LOSS @ RATED CURRENT (W)	
	Type 4	Type 128
100	10	
125	13	
130	14	
150	16	
175	20	
200	22	
225	25	
250	27	
275	30	
300	33	
350	40	
400	45	
450	50	
500	30	
550	33	
600	35	
700	50	
750		66
800	57	71
900	67	
1000	75	88
1200		100
1500		130
1600		132
1800		149
2000		165
2500		195
3000		240
3500		260
4000		270
5000		330
6000		400

Watts Loss vs % Rated Current

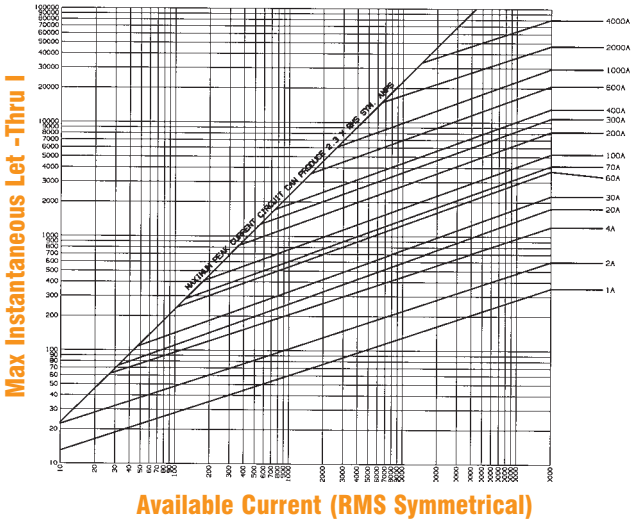


D

Max ARC Voltage vs System Voltage



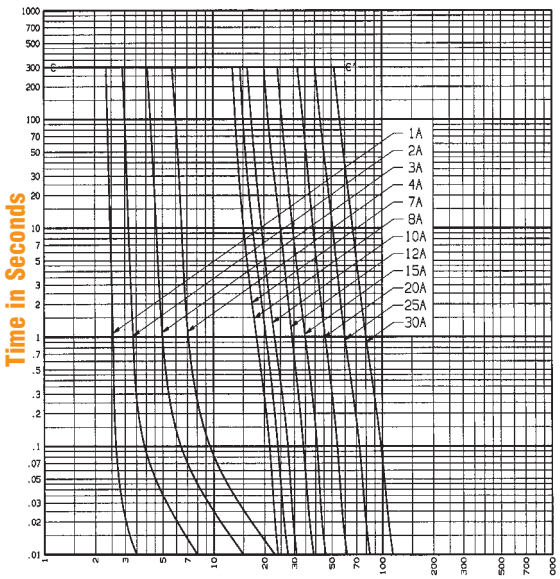
Peak Let Thru Data A15QS 1 to 4000



A15QS

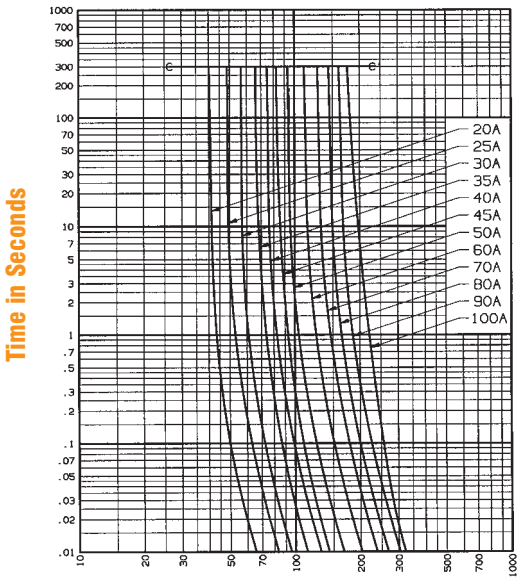
SEMICONDUCTOR PROTECTION FUSES

Melt Time - Current Data A15QS 1 to 30



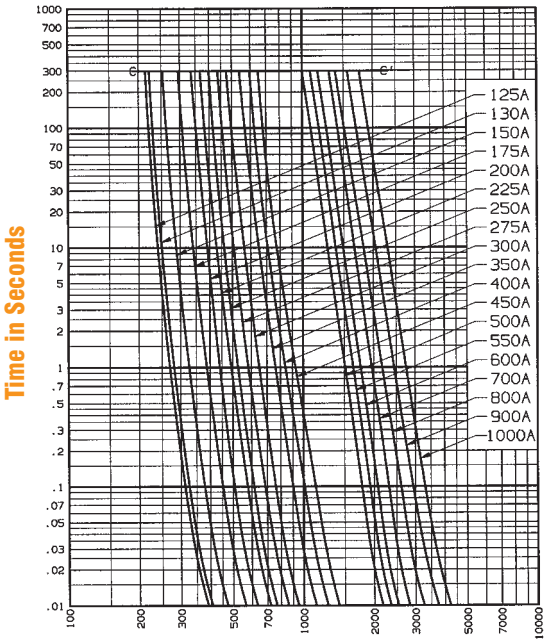
Current in Amperes

Melt Time - Current Data A15QS 20 to 100



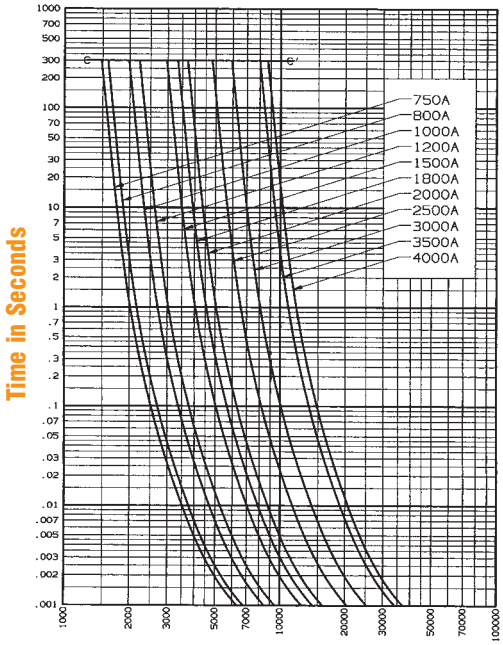
Current in Amperes

Melt Time - Current Data A15QS 125 to 1000



Current in Amperes

Melt Time - Current Data A15QS 750 to 4000



Current in Amperes