

Semiconductor Fuses

150 – 1300 VAC • Very Fast Acting • 1 – 6000 Amperes



Semiconductor Fuses

Littelfuse Semiconductor fuses are very fast acting fuses designed specifically for the protection of diodes, thyristors, triacs, and other solid-state power semiconductor devices. These fuses are used in power electronic applications including variable speed drives, power rectifiers, UPS systems, and DC power supplies. They can be used wherever extremely fast acting, current-limiting fuses are needed to provide superior protection against the potentially damaging effects of short-circuit currents.

The extensive line of Littelfuse Semiconductor fuses includes the traditional round body fuses, enhanced state-of-the-art round body fuses, and North American style square body fuses. Available ratings range from 150 to 1300 volts and up to 6000 amps.

Applications

Semiconductor fuses are designed specifically for supplementary protection of semiconducting devices such as silicon controlled rectifiers (SCR's), diodes, thyristors, triacs, transistors, and similar solid-state devices. These devices are used in power equipment including variable speed drives, power rectifiers, UPS systems, DC power supplies, and in a wide range of electronic equipment.

May be used wherever extremely fast acting, current-limiting fuses with no time-delay are required.

Features & Benefits

- Extremely current-limiting
- Low I^2t and peak let-through currents
- Low watts loss
- High Interrupting ratings
- UL Recognized
- Wide range of ampere ratings
- Optional mounting types
- DC ratings
- Superior cycling abilities
- Compact sizes
- Optional blown fuse indicators

Ratings

150V:	1 – 6000A
250V:	1 – 4500A
300V:	35 – 4500A
500V:	10 – 1200A
600V:	1 – 2000A
700V:	6 – 2500A
1000V:	15 – 1000A
1200V:	1 – 30A
1300V:	50 – 1800A

Recommended Fuse Blocks:

LSCR and 1LS series: Refer to the Blocks & Holders section of this catalog for additional information.



Traditional Semiconductor Fuses

150/250/500/600/700 VAC • Very Fast Acting • 1 – 1200 Amperes

Ampere Ratings	Series & Voltage					
	L15S 150V AC 150V DC (1 – 60A) 100V DC (70 – 1000A)	L25S* 250V AC 250V DC (1 – 200A) 200V DC (225 – 800A)	L50S 500V AC 450V DC	L60S 600V AC	KLC‡ 600V AC	L70S* 700V AC 650V DC
1	L15S 1	L25S 1	–	L60S 1	KLC 1	–
2	L15S 2	L25S 2	–	L60S 2	KLC 2	–
3	L15S 3	L25S 3	–	L60S 3	KLC 3	–
4	L15S 4	L25S 4	–	L60S 4	KLC 4	–
5	L15S 5	L25S 5	–	L60S 5	KLC 5	–
6	L15S 6	L25S 6	–	L60S 6	KLC 6	–
7	L15S 7	–	–	–	KLC 7	–
8	L15S 8	L25S 8	–	L60S 8	KLC 8	–
9	L15S 9	–	–	–	–	–
10	L15S 10	L25S 10	L50S 10	L60S 10	KLC 10	L70S 10
12	L15S 12	L25S 12	L50S 12	L60S 12	KLC 12	–
15	L15S 15	L25S 15	L50S 15	L60S 15	KLC 15	L70S 15
17½	–	–	–	L60S 17½	KLC 17½	–
20	L15S 20	L25S 20	L50S 20	L60S 20	KLC 20	L70S 20
25	L15S 25	L25S 25	L50S 25	L60S 25	KLC 25	L70S 25
30	L15S 30	L25S 30	L50S 30	L60S 30	KLC 30	L70S 30
35	L15S 35	L25S 35	L50S 35	L60S 35	KLC 35	L70S 35
40	L15S 40	L25S 40	L50S 40	L60S 40	KLC 40	L70S 40
45	L15S 45	L25S 45	–	L60S 45	KLC 45	–
50	L15S 50	L25S 50	L50S 50	L60S 50	KLC 50	L70S 50
60	L15S 60	L25S 60	L50S 60	L60S 60	KLC 60	L70S 60
70	L15S 70	L25S 70	L50S 70	L60S 70	KLC 70	L70S 70
80	L15S 80	L25S 80	L50S 80	L60S 80	KLC 80	L70S 80
90	L15S 90	L25S 90	L50S 90	L60S 90	KLC 90	L70S 90
100	L15S 100	L25S 100	L50S 100	L60S 100	KLC 100	L70S 100
110	–	–	–	–	KLC 110	–
125	L15S 125	L25S 125	L50S 125	L60S 125	KLC 125	L70S 125
150	L15S 150	L25S 150	L50S 150	L60S 150	KLC 150	L70S 150
175	–	L25S 175	L50S 175	L60S 175	KLC 175	L70S 175
200	L15S 200	L25S 200	L50S 200	L60S 200	KLC 200	L70S 200
225	–	L25S 225	L50S 225	L60S 225	KLC 225	L70S 225
250	L15S 250	L25S 250	L50S 250	L60S 250	KLC 250	L70S 250
275	–	L25S 275	L50S 275	–	–	–
300	L15S 300	L25S 300	L50S 300	L60S 300	KLC 300	L70S 300
350	L15S 350	L25S 350	L50S 350	L60S 350	KLC 350	L70S 350
400	L15S 400	L25S 400	L50S 400	L60S 400	KLC 400	L70S 400
450	L15S 450	L25S 450	L50S 450	L60S 450	KLC 450	L70S 450
500	L15S 500	L25S 500	L50S 500	L60S 500	KLC 500	L70S 500
550	–	–	L50S 550	–	–	–
600	L15S 600	L25S 600	L50S 600	L60S 600	KLC 600	L70S 600
700	–	L25S 700	L50S 700	L60S 700	KLC 700	L70S 700
800	L15S 800	L25S 800	L50S 800	L60S 800	KLC 800	L70S 800
900	–	–	LA50P9004	–	–	LA70P9004
1000	L15S 1000	–	LA50P10004	–	–	LA70P10004
1200	–	–	LA50P12004	–	–	LA70P12004

‡ KLC series fuses are recommended for replacement use only.

Specifications

Voltage Ratings:

L15S:	150 V AC/DC (1 – 60A) 150 VAC (70 – 1000A) 100 VDC (70 – 1000A)
L25S:	250 V AC/DC (1 – 200A) 250 VAC (225 – 800A) 200 VDC (225 – 800A)
L50S:	500 VAC/450 VDC
L60S:	600 VAC
KLC:	600 VAC
L70S:	700VAC/650VDC

Interrupting Rating:

AC:	200,000 rms amperes (L15S series 100,000A)
DC:	20,000 amperes

Ampere Range:

1 – 1200 amperes
See Rating Table for ratings available in each series.

Approvals:

UL Recognized under the Components Program and CSA Recognized under the Component Acceptance Program.
UL File No: E71611
CSA File No: LR29862
L25S series fuses are Littelfuse Certified for DC ratings shown in Rating Table.

**For availability of RoHS compliant product, call 1-800-TEC-FUSE.*

Traditional Semiconductor Fuses

150/250/500/600/700 VAC • Very Fast Acting • 1 – 1000 Amperes



L15S SERIES, 150 VOLTS AC
(Replaces KLA, K LW, L13S)

Ampere Rating	Fig. No.	Dimensions in Inches (mm in parentheses)							
		A	B	C	D	E	F	G	H
1 – 30	1	1½ (38.1)	—	¾ (9.5)	1⅜ (10.3)	—	—	—	—
31 – 60	1	2 (50.8)	—	⅝ (15.9)	1⅜ (20.6)	—	—	—	—
61 – 450	3	1⅝ (29.4)	1⅞ (47.6)	2⅜ (55.6)	2⅜ (67.5)	1 (25.4)	4⅜ (17.1)	⅝ (7.9)	¾ (4.8)
451 – 1000	3	1¼ (31.8)	1⅝ (49.2)	2⅞ (65.1)	3½ (88.9)	1½ (38.1)	1 (25.4)	1⅜ (10.3)	¼ (6.4)



L25S SERIES, 250 VOLTS AC
(Replaces KLB)

Ampere Rating	Fig. No.	Dimensions in Inches (mm in parentheses)							
		A	B	C	D	E	F	G	H
1 – 30	1	2 (50.8)	—	½ (12.7)	⅞ (14.3)	—	—	—	—
31 – 60	2	1⅝ (41.3)	2¼ (57.2)	2½ (63.5)	3⅜ (81.0)	1⅜ (20.6)	2⅜ (18.3)	1⅜ (8.7)	⅞ (3.2)
61 – 200	3	1⅝ (41.3)	2⅝ (58.7)	2⅞ (61.9)	3⅞ (79.4)	1⅜ (31.0)	1 (25.4)	⅝ (7.9)	¾ (4.8)
201 – 700	3	1⅞ (40.5)	2⅞ (57.9)	2⅞ (73.8)	3⅞ (97.6)	1½ (38.1)	1 (25.4)	1⅜ (10.3)	¼ (6.4)
701 – 800	3	1⅞ (40.5)	2⅞ (57.9)	2⅞ (73.8)	3⅞ (97.6)	2 (50.8)	1½ (38.1)	1⅜ (10.3)	¼ (6.4)



L50S SERIES, 500 VOLTS AC / 450 VOLTS DC
(Replaces KLH)

Ampere Rating	Fig. No.	Dimensions in Inches (mm in parentheses)							
		A	B	C	D	E	F	G	H
10 – 30	1	2 (50.8)	—	½ (12.7)	⅞ (14.3)	—	—	—	—
31 – 60	2	1⅝ (41.3)	2¼ (57.2)	2½ (63.5)	3⅜ (81.0)	1⅜ (20.6)	2⅜ (18.3)	1⅜ (8.7)	⅞ (3.2)
61 – 100	3	2⅞ (54.0)	2⅞ (68.3)	3 (76.2)	3⅝ (92.1)	1 (25.4)	¾ (19.1)	1⅜ (8.7)	¾ (3.2)
101 – 200	3	2⅞ (54.0)	2⅞ (71.4)	2⅞ (74.6)	3⅝ (92.1)	1⅜ (31.0)	1 (25.4)	⅝ (7.9)	¾ (4.8)
201 – 400	3	2⅞ (53.2)	2⅞ (70.6)	3⅞ (86.5)	4⅞ (110.3)	1½ (38.1)	1 (25.4)	1⅜ (10.3)	¼ (6.4)
401 – 600	3	2⅞ (56.4)	2⅞ (73.8)	3⅞ (89.7)	4⅞ (113.5)	2 (50.8)	1½ (38.1)	1⅜ (10.3)	¼ (6.4)
601 – 800	3	2⅞ (56.4)	4⅞ (108.7)	4⅞ (117.5)	6⅞ (164.3)	2½ (63.5)	2 (50.8)	1⅜ (13.5)	¾ (9.5)

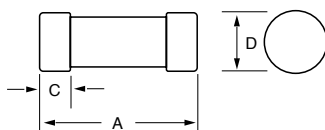


Fig. 1

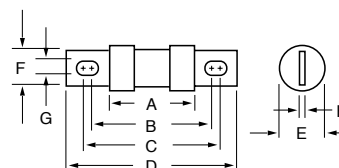


Fig. 2

Contact Littelfuse for characteristic curves.

Traditional Semiconductor Fuses

150/250/500/600/700 VAC • Very Fast Acting • 1 – 1000 Amperes



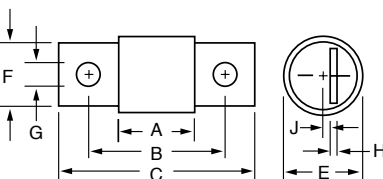
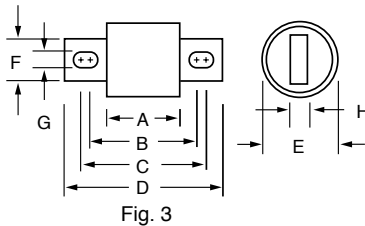
L60S SERIES, 600 VOLTS AC

Ampere Rating	Fig. No.	Dimensions in Inches (mm in parentheses)							
		A	B	C	D	E	F	G	H
1 – 30	1	5 (127.0)	—	$\frac{5}{8}$ (15.9)	$\frac{13}{16}$ (20.6)	—	—	—	—
31 – 60	2	$2\frac{25}{32}$ (70.6)	$3\frac{1}{16}$ (87.3)	$3\frac{11}{16}$ (93.7)	$4\frac{3}{8}$ (111.1)	$\frac{13}{16}$ (20.6)	$\frac{23}{32}$ (18.3)	$\frac{11}{32}$ (8.7)	$\frac{1}{8}$ (3.2)
61 – 100	2	$2\frac{29}{32}$ (73.8)	$3\frac{17}{32}$ (89.7)	$3\frac{25}{32}$ (96.0)	$4\frac{15}{32}$ (113.5)	$1\frac{1}{16}$ (27.0)	$\frac{23}{32}$ (18.3)	$\frac{11}{32}$ (8.7)	$\frac{1}{8}$ (3.2)
101 – 200	2	$2\frac{29}{32}$ (73.8)	$3\frac{9}{16}$ (90.5)	$3\frac{3}{4}$ (95.3)	$4\frac{13}{32}$ (111.9)	$1\frac{5}{16}$ (33.3)	1 (25.4)	$\frac{5}{16}$ (7.9)	$\frac{3}{16}$ (4.8)
201 – 400	2	$2\frac{29}{32}$ (73.8)	$3\frac{31}{32}$ (100.8)	$4\frac{5}{32}$ (105.6)	$5\frac{1}{8}$ (130.2)	$1\frac{37}{64}$ (40.1)	1 (25.4)	$\frac{13}{32}$ (10.3)	$\frac{1}{4}$ (6.4)
401 – 600	2	$2\frac{7}{8}$ (73.0)	$3\frac{31}{32}$ (100.8)	$4\frac{9}{64}$ (105.2)	$5\frac{1}{8}$ (130.2)	$2\frac{1}{16}$ (52.8)	$1\frac{1}{2}$ (38.1)	$\frac{13}{32}$ (10.3)	$\frac{1}{4}$ (6.4)
601 – 800	2	$3\frac{1}{32}$ (77.0)	$5\frac{5}{32}$ (133.4)	$5\frac{11}{32}$ (135.7)	$7\frac{1}{4}$ (184.2)	$2\frac{1}{2}$ (63.5)	2 (50.8)	$\frac{17}{32}$ (13.5)	$\frac{3}{8}$ (9.5)



L70S SERIES, 700 VOLTS AC / 650 VOLTS DC

Ampere Rating	Fig. No.	Dimensions in Inches (mm in parentheses)								
		A	B	C	D	E	F	G	H	J
10 – 30	1	2 (50.8)	—	$\frac{1}{2}$ (12.7)	$\frac{9}{16}$ (14.3)	—	—	—	—	—
31 – 60	3	$2\frac{7}{8}$ (73.0)	$3\frac{7}{16}$ (87.3)	$3\frac{25}{32}$ (96.0)	$4\frac{3}{8}$ (111.1)	1 (25.4)	$\frac{43}{64}$ (17.1)	$\frac{11}{32}$ (8.7)	$\frac{1}{8}$ (3.2)	—
61 – 100	3	$2\frac{7}{8}$ (73.0)	$3\frac{9}{16}$ (90.5)	$3\frac{11}{16}$ (93.7)	$4\frac{3}{8}$ (111.1)	$1\frac{7}{32}$ (31.0)	$\frac{29}{32}$ (22.9)	$\frac{5}{16}$ (7.9)	$\frac{3}{16}$ (4.8)	—
101 – 200	3	$2\frac{27}{32}$ (72.2)	$3\frac{17}{32}$ (89.7)	$4\frac{5}{32}$ (105.6)	$5\frac{3}{32}$ (129.4)	$1\frac{1}{2}$ (38.1)	1 (25.4)	$\frac{13}{32}$ (10.3)	$\frac{1}{4}$ (6.4)	—
201 – 400	3	$2\frac{27}{32}$ (72.2)	$3\frac{17}{32}$ (89.7)	$4\frac{5}{32}$ (105.6)	$5\frac{3}{32}$ (129.4)	2 (50.8)	$1\frac{1}{2}$ (38.1)	$\frac{13}{32}$ (10.3)	$\frac{1}{4}$ (6.4)	—
401 – 600	3	$2\frac{27}{32}$ (72.2)	$4\frac{29}{32}$ (124.6)	$5\frac{1}{4}$ (133.4)	$7\frac{3}{32}$ (180.2)	$2\frac{1}{2}$ (63.5)	2 (50.8)	$\frac{17}{32}$ (13.5)	$\frac{3}{8}$ (9.5)	—
601 – 800	4	$3\frac{5}{16}$ (84.1)	$5\frac{5}{16}$ (134.9)	$6\frac{13}{16}$ (173.0)	—	$2\frac{7}{8}$ (73.0)	2 (50.8)	$\frac{5}{8}$ (15.9)	$\frac{3}{8}$ (9.5)	$\frac{5}{16}$ (7.9)



KLC SERIES, 600 VOLTS AC

Ampere Rating	Fig. No.	Dimensions in Inches (mm in parentheses)							
		A	B	C	D	E	F	G	H
1 – 30	2	$1\frac{1}{8}$ (47.6)	$2\frac{1}{2}$ (63.5)	—	$2\frac{7}{8}$ (73.0)	$\frac{9}{16}$ (14.3)	$\frac{13}{32}$ (10.3)	$\frac{1}{4}$ (6.4)	$\frac{3}{64}$ (1.2)
31 – 60	2	$2\frac{3}{4}$ (69.9)	$3\frac{3}{8}$ (85.7)	$3\frac{5}{8}$ (92.1)	$4\frac{5}{16}$ (109.5)	$\frac{13}{16}$ (20.6)	$\frac{23}{32}$ (18.3)	$\frac{11}{32}$ (8.7)	$\frac{1}{8}$ (3.2)
61 – 100	3	$2\frac{7}{8}$ (73.0)	$3\frac{21}{32}$ (92.9)	$4\frac{1}{16}$ (103.2)	5 (127.0)	1 (25.4)	$\frac{3}{4}$ (19.1)	$\frac{13}{32}$ (10.3)	$\frac{1}{8}$ (3.2)
101 – 200	3	$2\frac{27}{32}$ (72.2)	$3\frac{17}{32}$ (89.7)	$4\frac{3}{8}$ (111.1)	$5\frac{3}{32}$ (129.4)	$1\frac{1}{2}$ (38.1)	1 (25.4)	$\frac{13}{32}$ (10.3)	$\frac{1}{4}$ (6.4)
201 – 400	3	$2\frac{27}{32}$ (72.2)	$4\frac{21}{32}$ (118.3)	$4\frac{27}{32}$ (123.0)	$6\frac{1}{4}$ (158.8)	2 (50.8)	$1\frac{5}{8}$ (41.3)	$\frac{9}{16}$ (14.3)	$\frac{1}{4}$ (6.4)
401 – 800	3	$2\frac{27}{32}$ (72.2)	$4\frac{21}{32}$ (118.3)	$5\frac{11}{32}$ (135.7)	$6\frac{1}{4}$ (158.8)	$2\frac{1}{2}$ (63.5)	2 (50.8)	$\frac{9}{16}$ (14.3)	$\frac{3}{8}$ (9.5)

Contact Littelfuse for characteristic curves.

LA15QS Semiconductor Fuses

150 VAC • Very Fast Acting • 1 – 6000 Amperes



Littelfuse LA15QS series Semiconductor fuses were designed for the specific protection of diodes and other semiconductor devices rated 150VAC/DC. The LA15QS product line compact design is perfect for those applications that have limitations on available space.

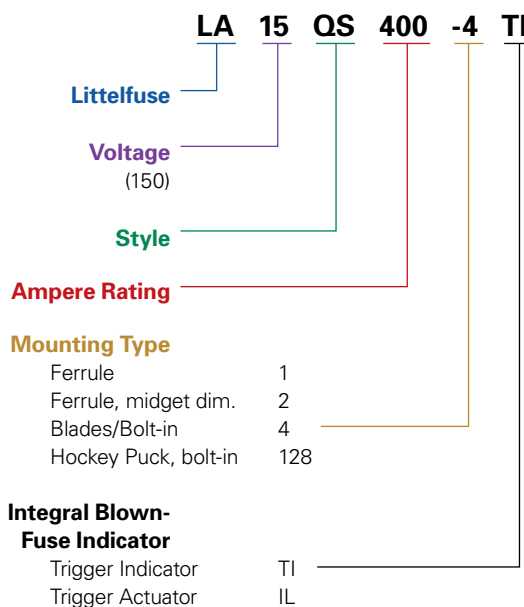
Features

- 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.
- Indicator options allow identification of blown fuses.

Applications

Protection of heavy duty devices such as electromechanical rectifiers.

Ordering Information



Note: Mounting types and integral blown fuse indicators are optional for specified ratings.

Specifications

Voltage Rating:	AC: 150 volts DC: 150 volts
Interrupting Rating:	100,000 Amperes
Ampere Range:	1 – 6000 Amperes
Approvals:	UL Recognized under the components program.

Contact Littelfuse for characteristic curves.

LA15QS Semiconductor Fuses

150 VAC • Very Fast Acting • 1 – 6000 Amperes

Catalog Numbers & Technical Data

Ampere Rating	Littelfuse Catalog Number	Mounting Type	Maximum Clearing I ² t @150 VAC (A ² S x 10 ³)	Watts Loss @ Rated Current (W)
1	LA15QS1-2	2	0.0002	0.68
2	LA15QS2-2	2	0.001	1.3
3	LA15QS3-2	2	0.003	1.7
4	LA15QS4-2	2	0.007	2.1
5	LA15QS5-2	2	0.012	2.8
6	LA15QS6-2	2	0.022	3.1
7	LA15QS7-2	2	0.011	2.2
8	LA15QS8-2	2	0.015	2.5
10	LA15QS10-2	2	0.019	2.6
12	LA15QS12-2	2	0.030	3
15	LA15QS15-2	2	0.042	3
20	LA15QS20-2	2	0.072	4
25	LA15QS25-2	2	0.14	5.2
30	LA15QS30-2	2	0.25	5.6
35	LA15QS35-1	1	0.21	9
40	LA15QS40-1	1	0.28	10
40	LA15QS40-4TI	4TI	0.39	3.1
45	LA15QS45-1	1	0.34	12
50	LA15QS50-1	1	0.47	13
50	LA15QS50-4	4	0.64	4
55	LA15QS55-1	1	Contact Factory	Contact Factory
60	LA15QS60-1	1	0.94	14
70	LA15QS70-4	4	2	5.6
70	LA15QS70-4TI	4TI	2	5.6
80	LA15QS80-4	4	2.5	8
80	LA15QS80-4TI	4TI	2.5	8
90	LA15QS90-4	4	3.1	9
100	LA15QS100-4	4	3.6	10
100	LA15QS100-4TI	4TI	3.6	10
130	LA15QS130-4	4	5.3	14
130	LA15QS130-4TI	4TI	5.3	14
150	LA15QS150-4	4	6.8	16
150	LA15QS150-4IL	4IL	6.8	16
150	LA15QS150-4TI	4TI	6.8	16
200	LA15QS200-4	4	9	22
200	LA15QS200-4IL	4IL	9	22
250	LA15QS250-4	4	15	22

Ampere Rating	Littelfuse Catalog Number	Mounting Type	Maximum Clearing I ² t @150 VAC (A ² S x 10 ³)	Watts Loss @ Rated Current (W)
250	LA15QS250-4TI	4TI	15	27
300	LA15QS300-4	4	22	33
300	LA15QS300-4IL	4IL	22	33
300	LA15QS300-4TL	4TI	22	33
350	LA15QS350-4	4	32	40
350	LA15QS350-4TI	4TI	32	40
400	LA15QS400-4	4	40	45
400	LA15QS400-4IL	4IL	40	45
400	LA15QS400-4TI	4TI	40	45
450	LA15QS450-4	4	50	50
450	LA15QS450-4IL	4IL	50	50
500	LA15QS500-4	4	90	30
500	LA15QS500-4IL	4IL	90	30
600	LA15QS600-4	4	130	35
600	LA15QS600-4IL	4IL	130	35
800	LA15QS800-4	4	290	57
1000	LA15QS1000-4	4	520	75
1000	LA15QS1000-4IL	4IL	520	75
1000	LA15QS1000-4TI	4TI	520	75
1000	LA15QS1000-128	128	540	88
1000	LA15QS1000-128IL	128IL	540	88
1200	LA15QS1200-128	128	680	100
1200	LA15QS1200-128IL	128IL	680	100
1500	LA15QS1500-128	128	1200	130
1500	LA15QS1500-128IL	128IL	1200	130
2000	LA15QS2000-128	128	1900	165
2000	LA15QS2000-128IL	128IL	1900	165
2500	LA15QS2500-128	128	3200	195
2500	LA15QS2500-128IL	128IL	3200	195
3000	LA15QS3000-128	128	4800	240
3000	LA15QS3000-128IL	128IL	4800	240
3500	LA15QS3500-128	128	6500	260
4000	LA15QS4000-128	128	8500	270
4000	LA15QS4000-128IL	128IL	8500	270
5000	LA15QS5000-128	128	Contact Factory	Contact Factory
6000	LA15QS6000-128	128	Contact Factory	Contact Factory

Figure 1

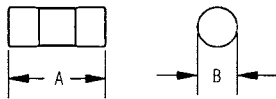


Figure 2

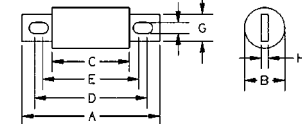


Figure 3

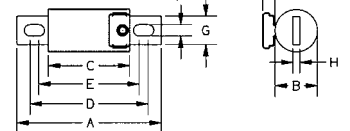


Figure 4

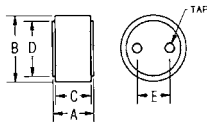


Figure 5

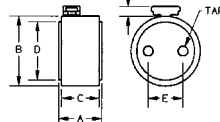


Figure 6

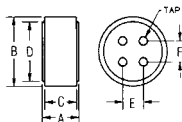


Figure 7

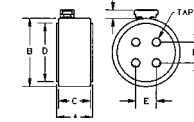
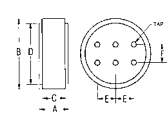


Figure 8



Dimensions

Dimensions for reference only.

Amperes	Mount. Type	Fig. No.	Dimensions in Inches (mm in parentheses)								Tap
			A	B	C	D	E	F	G	H	
1 – 30	2	1	1.50 (38.1)	0.41 (10.4)	–	–	–	–	–	–	–
35 – 60	1	1	2.00 (50.8)	0.81 (20.6)	–	–	–	–	–	–	–
70 – 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)	0.31 (7.9)	0.88 (22.4)	0.19 (4.8)	–
500 – 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)	0.41 (10.4)	1.00 (25.4)	0.25 (6.4)	–
750 – 2000	128, 128IL*	4, 5*	1.88 (47.9)	2.00 (50.8)	1.63 (41.4)	1.75 (44.5)	1.00 (25.4)	–	–	–	3/8-24-1/2 deep
2500 – 3000	128, 128IL*	4, 5*	1.88 (47.9)	3.00 (76.2)	1.63 (41.4)	2.50 (63.5)	1.50 (38.1)	–	–	–	1/2-20-1/2 deep
3500 – 4000	128, 128IL*	6, 7*	1.88 (47.9)	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
5000 – 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)

LA30QS Semiconductor Fuses

300 VAC • Very Fast Acting • 35 – 4500 Amperes



Littelfuse LA30QS series Semiconductor protection fuses are intended for the protection of Power Semiconductors such as diodes, phase control SCR's and other power semiconductor devices. The LA30QS is recommended for new applications providing solutions for your critical protection needs for 300V and less semiconductors.

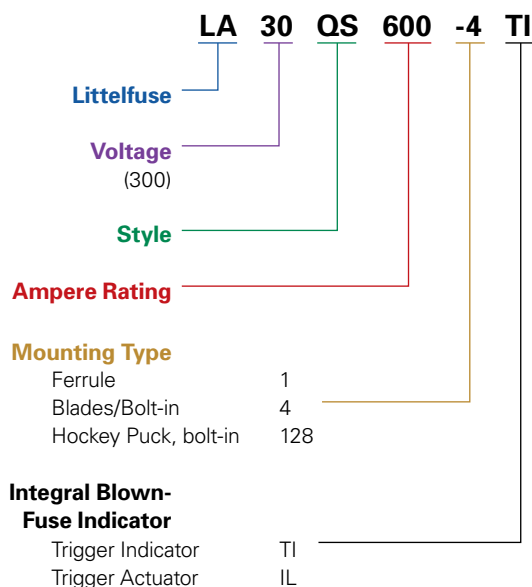
Features

- 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.
- Indicator options allow identification of blown fuses.
- Superior DC capabilities.

Applications

Protection of 300 volt heavy duty rectifiers and similar heavy duty power supplies.

Ordering Information



Note: Mounting types and integral blown fuse indicators are optional for specified ratings.

Specifications

Voltage Rating:	AC: 300 volts DC: 300 volts
Interrupting Rating:	200,000 Amperes
Ampere Range:	35 – 4500 Amperes
Approvals:	UL Recognized under the components program.

Contact Littelfuse for characteristic curves.

LA30QS Semiconductor Fuses

300 VAC • Very Fast Acting • 35 – 4500 Amperes

Catalog Numbers & Technical Data

Ampere Rating	Littelfuse Catalog Number	Mounting Type	Maximum Clearing I ² t @300 VAC (A ² S x 10 ³)	Watts Loss @ Rated Current (W)
35	LA30QS35-4	4	0.9	6.4
40	LA30QS40-4	4	1.2	7
50	LA30QS50-4	4	2	9.9
60	LA30QS60-4	4	2.7	11.6
70	LA30QS70-4	4	1.6	11
80	LA30QS80-4	4	2.6	11
90	LA30QS90-4	4	3.2	13
100	LA30QS100-4	4	4.1	13
100	LA30QS100-4TI	4TI	4.1	13
125	LA30QS125-4	4	6.3	16
130	LA30QS130-4	4	6.3	16
150	LA30QS150-4	4	9.3	19
150	LA30QS150-4TI	4TI	9.3	19
175	LA30QS175-4	4	10	27
200	LA30QS200-4	4	15	30
200	LA30QS200-4TI	4TI	15	30
225	LA30QS225-4	4	22	33
250	LA30QS250-4	4	25	41
250	LA30QS250-4TI	4TI	25	41
300	LA30QS300-4	4	37	47
300	LA30QS300-4TI	4TI	37	47
350	LA30QS350-4	4	62	49
400	LA30QS400-4	4	83	56
400	LA30QS400-4IL	4IL	83	56
400	LA30QS400-4TI	4TI	83	56
450	LA30QS450-4	4	130	53

Ampere Rating	Littelfuse Catalog Number	Mounting Type	Maximum Clearing I ² t @300 VAC (A ² S x 10 ³)	Watts Loss @ Rated Current (W)
500	LA30QS500-4	4	160	59
550	LA30QS550-4	4	190	65
600	LA30QS600-4	4	230	69
600	LA30QS600-4TI	4TI	230	69
600	LA30QS600-4IL	4IL	230	69
700	LA30QS700-4	4	260	90
700	LA30QS700-128	128	260	73
800	LA30QS800-4	4	330	108
800	LA30QS800-4IL	4IL	330	108
800	LA30QS800-128	128	330	84
1000	LA30QS1000-128	128	460	105
1000	LA30QS1000-128IL	128IL	460	105
1200	LA30QS1200-128	128	880	110
1500	LA30QS1500-128	128	1400	140
1500	LA30QS1500-128IL	128IL	1400	140
1600	LA30QS1600-128	128	1690	150
2000	LA30QS2000-128	128	2600	190
2000	LA30QS2000-128IL	128IL	2600	190
2500	LA30QS2500-128	128	4000	230
2500	LA30QS2500-128IL	128IL	4000	230
3000	LA30QS3000-128	128	4700	340
3500	LA30QS3500-128	128	6500	380
3500	LA30QS3500-128IL	128IL	6500	380
4000	LA30QS4000-128	128	8600	450
4500	LA30QS4500-128	128	11000	500

Figure 1

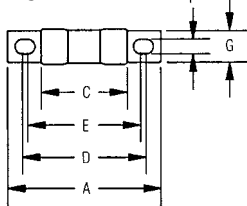


Figure 2

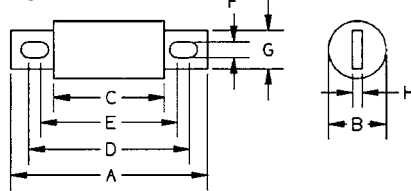


Figure 3

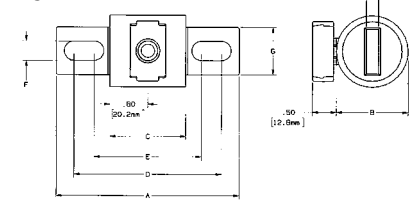


Figure 4

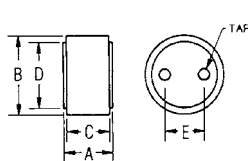


Figure 5

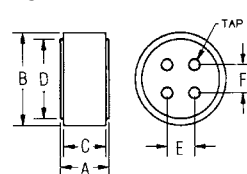
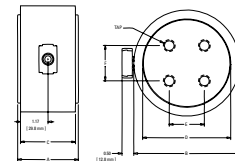


Figure 6



Dimensions

Dimensions for reference only.

Amperes	Mount. Type	Fig. No.	Dimensions in Inches (mm in parentheses)								Tap
			A	B	C	D	E	F	G	H	
35 – 60	4	1	3.19 (81.0)	0.81 (20.6)	1.63 (41.4)	2.50 (63.5)	2.25 (57.5)	0.34 (8.6)	0.72 (18.3)	0.13 (3.3)	—
70 – 200	4	2	3.13 (79.5)	1.22 (31.0)	1.63 (41.4)	2.44 (62.0)	2.31 (58.7)	0.31 (7.9)	1.00 (25.4)	0.19 (4.8)	—
225 – 700	4, 4IL*	2, 3*	3.84 (97.5)	1.50 (38.1)	1.59 (40.1)	2.91 (73.9)	2.28 (57.9)	0.41 (10.4)	1.00 (25.4)	0.25 (6.4)	—
700 – 1200	128	4	2.59 (65.8)	3.00 (76.2)	2.34 (59.4)	2.50 (63.5)	1.50 (38.1)	—	—	—	3/8-24-1/2 deep
1500 – 2500	128, 128IL*	5, 6*	2.59 (65.8)	3.50 (88.9)	2.34 (59.4)	3.00 (76.2)	1.50 (38.1)	1.50 (38.1)	—	—	3/8-24-1/2 deep
3000 – 4500	128, 128IL*	5, 6*	2.59 (65.8)	4.50 (114)	2.34 (59.4)	3.75 (95.3)	1.50 (38.1)	1.50 (38.1)	—	—	1/2-20-1/2 deep

* Optional Actuator (IL)

LA50QS Semiconductor Fuses

500 VAC • Very Fast Acting • 35 – 1200 Amperes



In response to new equipment requirements, Littelfuse LA50QS series fuses were developed to improve the overall performance of semiconductor fuses. The LA50QS provides the best protection features including lower I^2t , longer life when subjected to cyclic loading and lower watts loss. LA50QS is today's choice for the protection of dynamic solid state equipment.

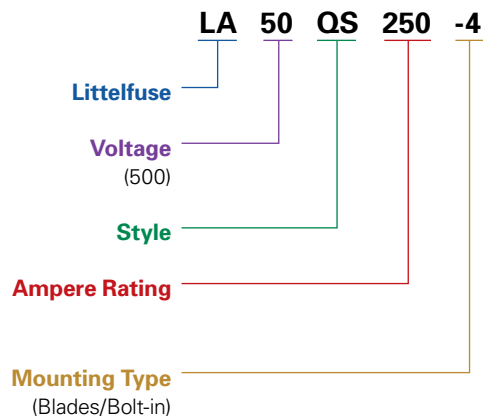
Features

- 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.

Applications

Protection of 500 volts or less solid state equipment such as motor drives, UPS, inverters, etc.

Ordering Information



Specifications

Voltage Rating:	AC: 500 volts
	DC: 500 volts
Interrupting Rating:	AC: 200,000 Amperes
	DC: 100,000 Amperes
Ampere Range:	35 – 1200 Amperes
Approvals:	UL Recognized under the components program
	CSA Certified.

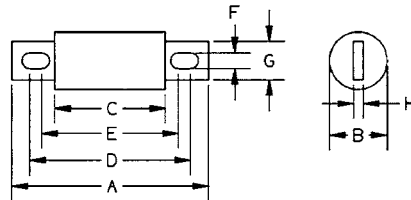
LA50QS Semiconductor Fuses

500 VAC • Very Fast Acting • 35 – 1200 Amperes

Catalog Numbers & Technical Data

Ampere Rating	Littelfuse Catalog Number	Mounting Type	Maximum Clearing I ² t @500 VAC (A ² S x 10 ³)	Watts Loss @ Rated Current (W)
35	LA50QS35-4	4	0.56	6
40	LA50QS40-4	4	0.69	7
50	LA50QS50-4	4	1.1	8
60	LA50QS60-4	4	1.8	10
70	LA50QS70-4	4	1.9	12
80	LA50QS80-4	4	2.6	14
90	LA50QS90-4	4	3.6	15
100	LA50QS100-4	4	4.4	17
125	LA50QS125-4	4	5.6	21
150	LA50QS150-4	4	9	25
175	LA50QS175-4	4	15	29
200	LA50QS200-4	4	20	33
225	LA50QS225-4	4	25	37

Ampere Rating	Littelfuse Catalog Number	Mounting Type	Maximum Clearing I ² t @500 VAC (A ² S x 10 ³)	Watts Loss @ Rated Current (W)
250	LA50QS250-4	4	29	41
300	LA50QS300-4	4	55	49
350	LA50QS350-4	4	88	57
400	LA50QS400-4	4	98	65
450	LA50QS450-4	4	130	69
500	LA50QS500-4	4	160	77
600	LA50QS600-4	4	220	92
700	LA50QS700-4	4	270	110
800	LA50QS800-4	4	360	130
900	LA50QS900-4	4	500	140
1000	LA50QS1000-4	4	560	160
1200	LA50QS1200-4	4	930	175



Dimensions

Dimensions for reference only.

Amperes	Mount. Type	Dimensions in Inches (mm in parentheses)							
		A	B	C	D	E	F	G	H
35 – 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)
125 – 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)
225 – 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)
450 – 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)
700 – 800	4	6.47 (164.3)	2.50 (63.5)	2.22 (56.4)	5.00 (127.0)	3.44 (87.3)	0.53 (13.5)	1.50 (38.1)	0.25 (6.4)
900 – 1200	4	6.97 (177.0)	3.00 (76.2)	3.22 (81.8)	5.47 (138.9)	4.47 (113.5)	0.63 (15.9)	2.38 (60.3)	0.44 (11.1)

Contact Littelfuse for characteristic curves.

LA60Q Semiconductor Fuses

600 VAC • Very Fast Acting • 5 – 40 Amperes

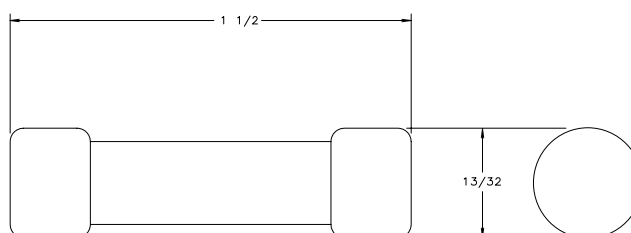


Littelfuse LA60Q semiconductor protection fuses feature a 600 volt AC/DC rating in a compact size (1½" x 13/32"). LA60Q also has the lowest I²t of all similar fuses and excellent cycling ability. Applications include inverters and small equipment requiring extremely fast response to faults, without the need to carry sustained heavy overloads.

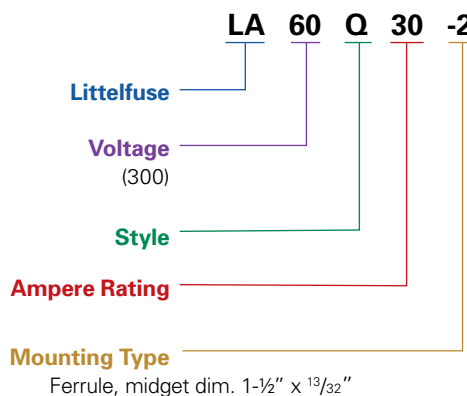
Features

- Lowest I²t of any fuse this size for greater protection.
- Excellent cycling ability gives advantage in equipment design.

Dimensions (in inches)



Ordering Information



Catalog Numbers & Technical Data

Ampere Rating	Littelfuse Catalog Number	Mounting Type	Maximum Clearing I ² t @600 VAC (A ² S)	Watts Loss @ Rated Current (W)
5	LA60Q5-2	2	60	0.7
8	LA60Q8-2	2	70	1.1
10	LA60Q10-2	2	110	1.6
12	LA60Q12-2	2	150	2
15	LA60Q15-2	2	180	3
20	LA60Q20-2	2	330	4.4
25	LA60Q25-2	2	440	5.5
30	LA60Q30-2	2	860	5.6
35	LA60Q35-2	2	1300	6.4
40	LA60Q40-2	2	1800	7

Specifications

Voltage Rating:	AC: 600 volts DC: 600 volts
Interrupting Rating:	AC: 200,000 Amperes DC: 100,000 Amperes
Ampere Range:	5 – 40 Amperes
Approvals:	UL Recognized under the components program.

Recommended Fuse Blocks

LPSM or L60030M

Contact Littelfuse for characteristic curves.

LA60X Semiconductor Fuses

600 VAC • Very Fast Acting • 700 – 2000 Amperes



Littelfuse LA60X semiconductor protection fuses are popular for the protection of higher voltage heavy rectifiers such as traction rectifiers. They can carry long sustained overloads common with heavy-duty apparatus. The compact “hockey puck” design provides high power protection in a small space.

Features

- Lowest I^2t minimizes damage to protected components on short-circuit.
- Controlled arc voltage reduces stress to circuit components during fuse clearing.

Applications

Protection of heavy traction and electrochemical as well as rectifiers and other heavy-duty equipment.

Ordering Information

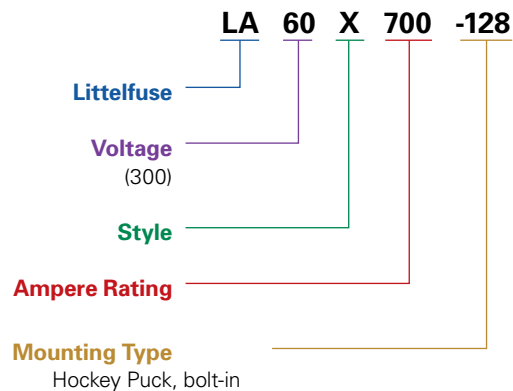


Figure 1

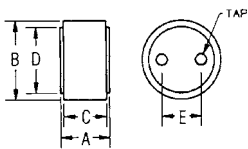
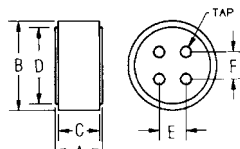


Figure 2



Dimensions

Dimensions for reference only.

Amperes	Mount. Type	Fig. No.	Dimensions in Inches (mm in parentheses)						Tap
			A	B	C	D	E	F	
700 – 800	128	1	4.00 (102)	3.00 (76.2)	3.75 (95.3)	2.50 (63.5)	1.50 (38.1)	-	3/8-24-1/2 deep
1000 – 1200	128	2	4.00 (102)	3.50 (88.9)	3.75 (95.3)	3.00 (76.2)	1.50 (38.1)	1.50 (38.1)	3/8-24-1/2 deep
1500 – 2000	128	2	4.00 (102)	4.50 (114)	3.75 (95.3)	3.75 (95.3)	1.50 (38.1)	1.50 (38.1)	1/2-20-1/2 deep

Specifications

Voltage Rating:	AC: 600 volts
Interrupting Rating:	AC: 100,000 Amperes
Ampere Range:	700 – 2000 Amperes
Approvals:	UL Recognized under the components program.

Ampere Ratings

700	1200	1800
800	1500	2000
1000	1600	

Contact Littelfuse for technical information.

LA70QS Semiconductor Fuses

700 VAC • Very Fast Acting • 35 – 800 Amperes



Littelfuse LA70QS semiconductor fuses were developed to provide improved performance required by today's new equipment. The LA70QS features lower I^2t , improved cycling, and lower watts loss. It is the best choice for the protection of dynamic solid-state equipment.

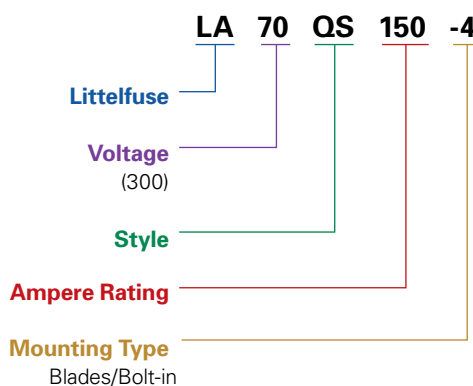
Features

- Very low I^2t improved protection of equipment.
- Superior cycling ability for long, reliable life on high cycling loading.
- Lower watts loss for cooler operation.
- 700 Volt AC/DC rating provides greater design versatility.
- Compact sizes allow downsizing of equipment.

Applications

Protection of 700 volt or less solid state equipment such as motor drives, UPS, inverters, etc.

Ordering Information



Specifications

Voltage Rating:	AC: 700 Volts DC: 700 Volts
Interrupting Rating:	AC: 200,000 Amperes DC: 100,000 Amperes
Ampere Range:	35 – 800 Amperes
Approvals:	UL Recognized under the components program. CSA Certified.

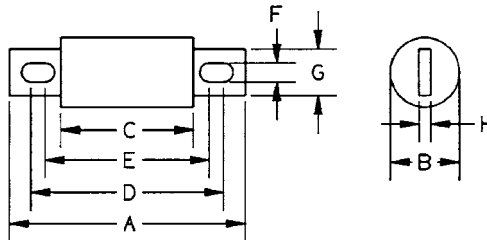
LA70QS Semiconductor Fuses

700 VAC • Very Fast Acting • 35 – 800 Amperes

Catalog Numbers & Technical Data

Ampere Rating	Littelfuse Catalog Number	Mounting Type	Maximum Clearing I ² t @700 VAC (A ² S x 10 ³)	Watts Loss @ Rated Current (W)
35	LA70QS35-4	4	0.47	6.2
40	LA70QS40-4	4	0.58	7.5
50	LA70QS50-4	4	0.88	9.8
60	LA70QS60-4	4	1.2	12
70	LA70QS70-4	4	1.8	15
80	LA70QS80-4	4	2.3	16
90	LA70QS90-4	4	3	20
100	LA70QS100-4	4	3.6	24
125	LA70QS125-4	4	6.9	22
125	LA70QS125-4K	4K	6.9	22
150	LA70QS150-4	4	11	28
150	LA70QS150-4K	4K	11	29
175	LA70QS175-4	4	14	35
175	LA70QS175-4K	4K	14	35

Ampere Rating	Littelfuse Catalog Number	Mounting Type	Maximum Clearing I ² t @700 VAC (A ² S x 10 ³)	Watts Loss @ Rated Current (W)
200	LA70QS200-4	4	19	41
200	LA70QS200-4K	4	19	41
250	LA70QS250-4	4	42	42
300	LA70QS300-4	4	55	53
350	LA70QS350-4	4	72	64
400	LA70QS400-4	4	99	75
450	LA70QS450-4	4	125	75
450	LA70QS450-4K	4K	125	75
500	LA70QS500-4	4	150	92
500	LA70QS500-4K	4K	160	92
600	LA70QS600-4	4	222	116
600	LA70QS600-4K	4K	222	116
700	LA70QS700-4	4	332	125
800	LA70QS800-4	4	433	143



Dimensions

Dimensions for reference only.

Amperes	Mount. Type	Dimensions in Inches (mm in parentheses)							
		A	B	C	D	E	F	G	H
35 – 100	4	4.38 (111)	1.00 (25.4)	2.88 (73)	3.69 (93.6)	3.50 (88.9)	0.31 (7.9)	0.75 (19.0)	0.13 (3.2)
125 – 200	4	4.38 (111)	1.22 (31.0)	2.88 (73)	3.69 (93.6)	3.56 (90.5)	0.31 (7.9)	1.00 (25.4)	0.19 (4.8)
125 – 200	4K	5.09 (129)	1.22 (31.0)	2.88 (73)	4.19 (106)	3.50 (88)	0.41 (10.3)	1.00 (25.4)	0.19 (4.8)
225 – 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)
450 – 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)
450 – 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)
700 – 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)

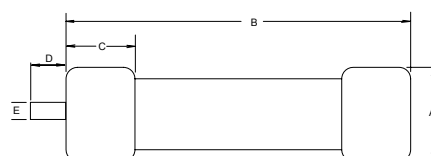
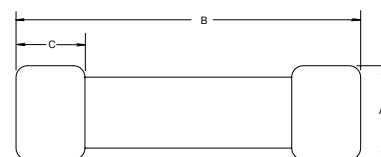
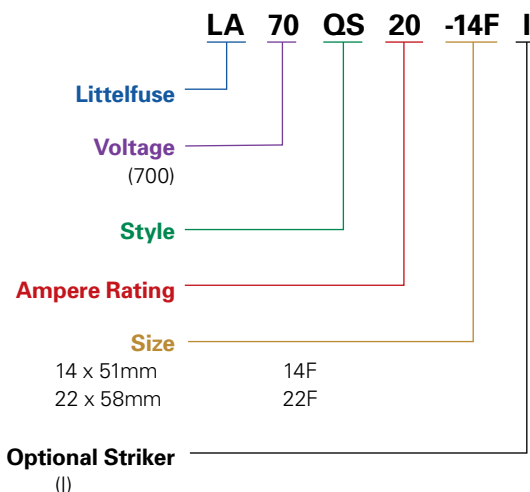
Contact Littelfuse for characteristic curves.

LA70QS French Cylindrical Fuses

690 Volts • Very Fast Acting • 10 – 100 Amperes



Ordering Information



Littelfuse French Cylindrical style semiconductor fuses are an extension to the LA70QS series. They offer a solid-fill design with high interrupting ratings and an optional striker for visual or remote blown fuse indication. The international 14x51mm and 22x58mm sizes are accepted worldwide.

Catalog Numbers & Technical Data

Ampere Rating	Littelfuse Catalog Number (No Striker)	Littelfuse Catalog Number (With Striker)	Body Size	Maximum Clearing I ² t @700 VAC (A ² S x 10 ³)	Watts Loss @ Rated Current (W)
10	LA70QS10-14F	LA70QS10-14FI	14x51	0.04	3.5
12	LA70QS12-14F	LA70QS12-14FI	14x51	0.06	4.4
16	LA70QS16-14F	LA70QS16-14FI	14x51	0.10	4.8
20	LA70QS20-14F	LA70QS20-14FI	14x51	0.16	5.2
25	LA70QS25-14F	LA70QS25-14FI	14x51	0.27	5.8
32	LA70QS32-14F	LA70QS32-14FI	14x51	1.50	7.0
40	LA70QS40-14F	LA70QS40-14FI	14x51	0.70	10.7
50	LA70QS50-14F	LA70QS50-14FI	14x51	1.50	11.6
20	LA70QS20-22F	LA70QS20-22FI	22x58	0.076	8.0
25	LA70QS25-22F	LA70QS25-22FI	22x58	0.125	10.0
32	LA70QS32-22F	LA70QS32-22FI	22x58	0.27	11.0
40	LA70QS40-22F	LA70QS40-22FI	22x58	0.48	13.0
50	LA70QS50-22F	LA70QS50-22FI	22x58	0.80	14.9
63	LA70QS63-22F	LA70QS63-22FI	22x58	1.85	16.0
80	LA70QS80-22F	LA70QS80-22FI	22x58	3.80	17.8
100	LA70QS100-22F	LA70QS100-22FI	22x58	8.00	19.0

Fuse Size	Dimensions in mm				
	A	B	C	D	E
14x51 (no striker)	14	51	14	—	—
22x58 (no striker)	22	58	16	—	—
14x51 (with striker)	14	51	14	7.5	3.8
22x58 (with striker)	22	58	16	7.5	3.8

Dimensions for reference only.

Specifications

Voltage Rating:	AC: 690 Volts DC: 700 Volts
Interrupting Rating:	AC: 200,000 Amperes DC: 100,000 Amperes
Ampere Range:	10 – 100 Amperes
Approvals:	UL Recognized under the components program. CSA Certified.

Recommended Fuse Blocks

CYH series for non-striker fuses LA70QS(amp)22F
LPSG series for the striker style LA70QS(amp)22FI

LA100P Semiconductor Fuses

1000 VAC • Very Fast Acting • 15 – 1000 Amperes



Littelfuse LA100P semiconductor protection fuses are rated 1000V, extending the range of protection for UPS systems, AC and DC drives, reduced voltage motor starters and similar applications where lower I^2t and superior reliability are needed. With ratings from 15-1000 amperes, a wide range of high voltage applications can be served.

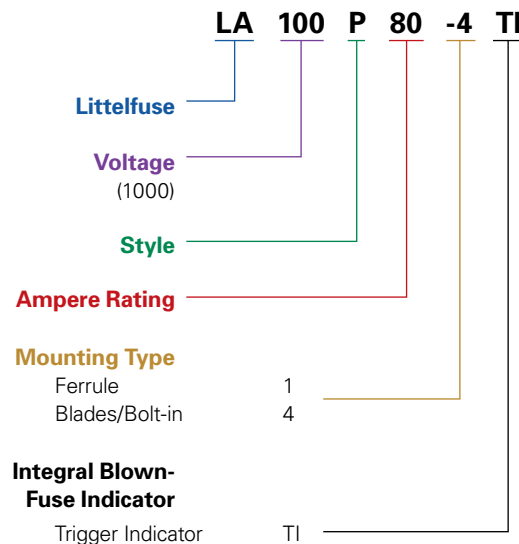
Features

- Low I^2t minimizes damage to protected components on short-circuit.
- Controlled arc voltage reduces stress to circuit components during fuse clearing.

Applications

Protection of UPS systems, AC/DC drives, reduced voltage motor starters and other 1000V or less semiconductor devices.

Ordering Information



Note: Mounting types and integral blown fuse indicators are optional for specified ratings.

Specifications

Voltage Rating:	AC: 1000 Volts DC: 750 Volts
Interrupting Rating:	100,000 Amperes
Ampere Range:	15 – 1000 Amperes
Approvals:	UL Recognized under the components program.

LA100P Semiconductor Fuses

1000 VAC • Very Fast Acting • 15 – 1000 Amperes

Catalog Numbers & Technical Data

Ampere Rating	Littelfuse Catalog Number	Mounting Type	Maximum Clearing I ² t @1000 VAC (A ² S x 10 ³)	Watts Loss @ Rated Current (W)
15	LA100P15-1	1	0.6	3.4
20	LA100P20-1	1	0.8	5.9
25	LA100P25-1	1	1.3	9
30	LA100P30-1	1	1.5	12.8
35	LA100P35-4	4	2.2	7.3
40	LA100P40-4	4	2.9	8.3
50	LA100P50-4	4	4.5	11
50	LA100P50-4TI	4TI	4.5	11
60	LA100P60-4	4	6.5	13
60	LA100P60-4TI	4TI	6.5	13
70	LA100P70-4TI	4TI	8.8	13
80	LA100P80-4	4	12	14
80	LA100P80-4TI	4TI	12	14
100	LA100P100-4	4	18	18
100	LA100P100-4TI	4TI	18	18
125	LA100P125-4	4	28	23
125	LA100P125-4TI	4TI	28	23
150	LA100P150-4	4	41	28
150	LA100P150-4TI	4TI	41	28

Ampere Rating	Littelfuse Catalog Number	Mounting Type	Maximum Clearing I ² t @1000 VAC (A ² S x 10 ³)	Watts Loss @ Rated Current (W)
200	LA100P200-4	4	72	36
200	LA100P200-4TI	4TI	72	36
225	LA100P225-4	4	91	40
250	LA100P250-4	4	110	46
300	LA100P300-4	4	160	55
300	LA100P300-4TI	4TI	160	55
350	LA100P350-4	4	220	65
350	LA100P350-4TI	4TI	220	65
400	LA100P400-4	4	290	70
400	LA100P400-4TI	4TI	290	70
500	LA100P500-4	4	450	90
500	LA100P500-4TI	4TI	450	90
600	LA100P600-4	4	650	110
600	LA100P600-4TI	4TI	650	110
650	LA100P650-4	4	780	120
700	LA100P700-4	4	880	125
800	LA100P800-4	4	1200	140
800	LA100P800-4TI	4TI	1200	140
1000	LA100P1000-4	4	1900	190

Figure 1

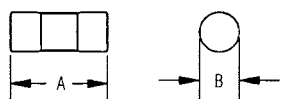


Figure 2

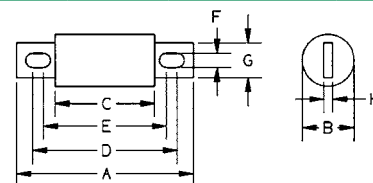


Figure 3

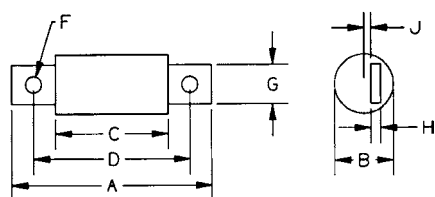
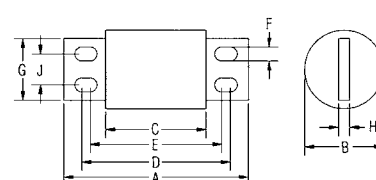


Figure 4



Dimensions

Dimensions for reference only.

Amperes	Mount. Type	Fig. No.	Dimensions in Inches (mm in parentheses)								
			A	B	C	D	E	F	G	H	J
15 – 30	1	1	2.53 (66.8)	0.56 (14.2)	–	–	–	–	–	–	–
35 – 60	4, 4TI	2	5.00 (127)	1.00 (25.4)	3.50 (73.2)	4.31 (109)	4.19 (106)	0.31 (7.9)	0.75 (19.1)	0.13 (3.3)	–
65 – 100	4, 4TI	2	5.00 (127)	1.22 (31)	3.50 (73.2)	4.31 (109)	4.19 (106)	0.31 (7.9)	1.00 (25.4)	0.19 (4.8)	–
125 – 200	4, 4TI	2	5.72 (145)	2.00 (50.8)	3.47 (88.1)	4.78 (121)	4.16 (106)	0.41 (10.4)	1.00 (25.4)	0.25 (6.4)	–
225 – 400	4, 4TI	2	5.72 (145)	2.00 (50.8)	3.47 (88.1)	4.78 (121)	4.16 (106)	0.41 (10.4)	1.50 (38.1)	0.25 (6.4)	–
500 – 600	4, 4TI	2	7.72 (196)	2.50 (63.5)	3.47 (88.1)	5.88 (149)	5.56 (141)	0.53 (13.5)	2.00 (50.8)	0.38 (9.7)	–
650 – 800	4, 4TI	3	7.44 (189)	2.88 (73.2)	3.94 (100)	5.94 (151)	–	0.63 (16)	2.00 (50.8)	0.38 (9.7)	0.31 (7.9)
1000	4	4	8.22 (209)	3.50 (88.9)	4.47 (114)	6.59 (167)	5.84 (148)	0.63 (16)	2.75 (69.9)	0.50 (12.7)	1.38 (35.1)

Contact Littelfuse for characteristic curves.

LA120X Semiconductor Fuses

1200 VAC • Very Fast Acting • 1/2 – 30 Amperes



Littelfuse LA120X semiconductor protection fuses, rated 1/2 through 30A, 1200 VAC are popular for use in traction drive auxiliary circuits and similar applications. LA120X fuses are also suitable for use on 1000VDC auxiliary circuits with low time constants.

Features

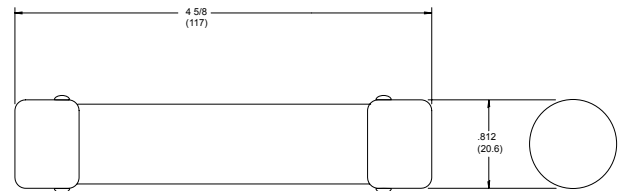
- 1000 Volt DC rating for a wide range of circuits.
- Compact size fits in where competitive sizes will not fit.

Applications

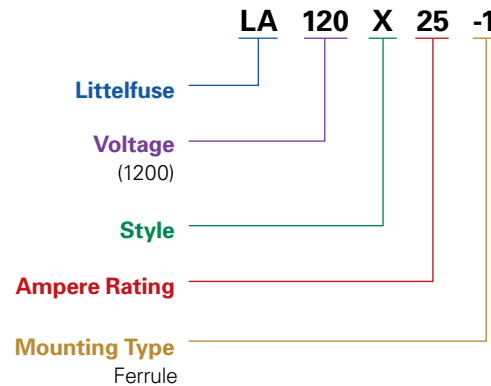
Protection of traction drive auxiliary circuits, etc.

Dimensions

In Inches (mm in parentheses)



Ordering Information



Catalog Numbers & Technical Data

Ampere Rating	Littelfuse Catalog Number	Mounting Type	Maximum Clearing I ² t @1200 VAC (A ² S)
1/2	LA120A1/2-1	1	1.9
1	LA120X1-1	1	7.5
2	LA120X2-1	1	30
3	LA120X3-1	1	69
4	LA120X4-1	1	120
5	LA120X5-1	1	190
6	LA120X6-1	1	280
10	LA120X10-1	1	970
15	LA120X15-1	1	2100
20	LA120X20-1	1	3700
25	LA120X25-1	1	5700
30	LA120X30-1	1	8300

Specifications

Voltage Rating: AC: 1200 Volts
DC: 1000 Volts

Interrupting Rating: 100,000 Amperes

Ampere Range: 1/2 – 30 Amperes

Note: Mounting type 1 can use 109002 and 129002 clips.

Square Body Semiconductor Fuses

700/1300 VAC • Very Fast Acting • 40 – 2500 Amperes



Littelfuse North American style square body semiconductor fuses provide maximum flexibility in equipment design and ultimate protection for today's power conversion equipment. Available in different body sizes and multiple mounting styles, the broad range of ampere ratings allows great flexibility in equipment design.

Engineered to provide state-of-the-art protection for SCR's, diodes, thyristors, GTO's, and IGBT devices, Littelfuse square body fuses have pure die-cut elements embedded in solidified sand to control arcing and lower I^2t . All fuses are also equipped with a blown fuse trip indicator.

Features

- Choice of mounting styles provides a wide choice for equipment design.
- Broad range of ampere ratings in a given body size for design flexibility.
- Very low I^2t minimizes damage to protected components.
- Superior cycling ability for long, reliable life on high cyclic loading.
- Extremely fast acting and current-limiting for improved protection to equipment.

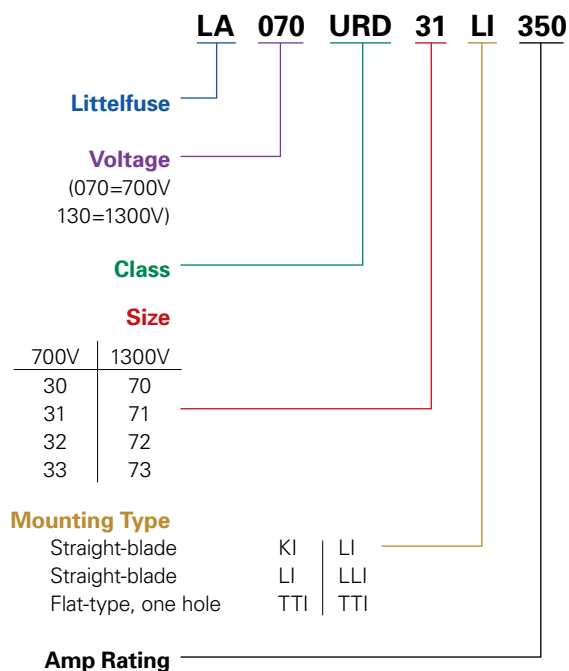
Applications

Protection of rectifiers, inverters, DC drives, UPS systems, reduced voltage motor starters, and other equipment in globally accepted applications.

Specifications

Voltage Rating:	AC: 700 Volts (LA070)
	1300 Volts (LA130)
Interrupting Rating:	DC: Contact factory
	AC: 200,000 Amperes (LA070) 100,000 Amperes (LA130)
Ampere Range:	DC: Contact factory
	40 – 2500 Amperes
Approvals:	UL Recognized Component

Ordering Information



Square Body Semiconductor Fuses

700/1300 VAC • Very Fast-Acting • 40 – 2500 Amperes

700 Volt North American Style Ratings and Application Data

Body Size	Amp Rating	Rated Voltage	Melting I ² t (A ² S x 10 ³)	Total I ² t @ Rated Voltage (A ² S x 10 ³)	**Watts Loss @ Rated Current (W)	Long Blade Catalog No. Type LI	Short Blade Catalog No. Type KI	Tapped Terminal Catalog No. Type TTI
30	63	700	0.2	1.2	14	LA070URD30LI0063	LA070URD30KI0063	LA070URD30TTI0063
	80	700	0.33	1.9	19	LA070URD30LI0080	LA070URD30KI0080	LA070URD30TTI0080
	100	700	0.47	2.7	26	LA070URD30LI0100	LA070URD30KI0100	LA070URD30TTI0100
	125	700	0.85	4.9	30	LA070URD30LI0125	LA070URD30KI0125	LA070URD30TTI0125
	160	700	1.6	9.2	37	LA070URD30LI0160	LA070URD30KI0160	LA070URD30TTI0160
	200	700	3	16.7	42/43	LA070URD30LI0200	LA070URD30KI0200	LA070URD30TTI0200
	250	700	5.8	32.4	48/50	LA070URD30LI0250	LA070URD30KI0250	LA070URD30TTI0250
	315	700	12	67	53/55	LA070URD30LI0315	LA070URD30KI0315	LA070URD30TTI0315
	350	700	15.5	86	57/60	LA070URD30LI0350	LA070URD30KI0350	LA070URD30TTI0350
	400	700	23	130	60/65	LA070URD30LI0400	LA070URD30KI0400	LA070URD30TTI0400
	450	700	26	165	80/88	LA070URD30LI0450	LA070URD30KI0450	LA070URD30TTI0450
	500	700	41	264	80/88	LA070URD30LI0500	LA070URD30KI0500	LA070URD30TTI0500
	550	700	52	330	80/90	LA070URD30LI0550	LA070URD30KI0550	LA070URD30TTI0550
	200	700	2.5	14.6	45	LA070URD31LI0200	LA070URD31KI0200	LA070URD31TTI0200
	250	700	4.7	27	52	LA070URD31LI0250	LA070URD31KI0250	LA070URD31TTI0250
31	315	700	7.5	43	65	LA070URD31LI0315	LA070URD31KI0315	LA070URD31TTI0315
	350	700	10.5	59	67	LA070URD31LI0350	LA070URD31KI0350	LA070URD31TTI0350
	400	700	19	110	68	LA070URD31LI0400	LA070URD31KI0400	LA070URD31TTI0400
	450	700	26.5	150	70	LA070URD31LI0450	LA070URD31KI0450	LA070URD31TTI0450
	500	700	37	210	70/72	LA070URD31LI0500	LA070URD31KI0500	LA070URD31TTI0500
	550	700	52	300	70/75	LA070URD31LI0550	LA070URD31KI0550	LA070URD31TTI0550
	630	700	75	421	75/85	LA070URD31LI0630	LA070URD31KI0630	LA070URD31TTI0630
	700	700	95	530	85/95	LA070URD31LI0700	LA070URD31KI0700	LA070URD31TTI0700
	800	700	140	880	105/120	LA070URD31LI0800	LA070URD31KI0800	LA070URD31TTI0800
	400	700	15	86	72/75	LA070URD32LI0400	LA070URD32KI0400	LA070URD32TTI0400
32	450	700	22	124	77/80	LA070URD32LI0450	LA070URD32KI0450	LA070URD32TTI0450
	500	700	28	157	85/90	LA070URD32LI0500	LA070URD32KI0500	LA070URD32TTI0500
	550	700	37	211	90/95	LA070URD32LI0550	LA070URD32KI0550	LA070URD32TTI0550
	630	700	54	302	95/105	LA070URD32LI0630	LA070URD32KI0630	LA070URD32TTI0630
	700	700	76	432	100/110	LA070URD32LI0700	LA070URD32KI0700	LA070URD32TTI0700
	800	700	115	648	110/120	LA070URD32LI0800	LA070URD32KI0800	LA070URD32TTI0800
	900	700	170	972	110/125	LA070URD32LI0900	LA070URD32KI0900	LA070URD32TTI0900
	1000	700	240	1350	115/135	LA070URD32LI1000	LA070URD32KI1000	LA070URD32TTI1000
	1100	650	270	1620	140/165	LA065URD32LI1100	—	LA065URD32TTI1100
	1250	600	410	2100	150/180	LA060URD32LI1250	—	LA060URD32TTI1250
	1400	550	555	2600	160/190	LA055URD32LI1400	—	LA055URD32TTI1400
	1600	550	870	4000	165/195	LA055URD32LI1600	—	LA055URD32TTI1600
	1800	500	1050	4400	195/330	LA050URD32LI1800	—	LA050URD32TTI1800
	500	700	19	108	105	LA070URD33LI0500	LA070URD33KI0500	LA070URD33TTI0500
33	550	700	27	151	105/110	LA070URD33LI0550	LA070URD33KI0550	LA070URD33TTI0550
	630	700	40	227	110/120	LA070URD33LI0630	LA070URD33KI0630	LA070URD33TTI0630
	700	700	55	324	115/125	LA070URD33LI0700	LA070URD33KI0700	LA070URD33TTI0700
	800	700	95	529	120/130	LA070URD33LI0800	LA070URD33KI0800	LA070URD33TTI0800
	900	700	135	760	120/135	LA070URD33LI0900	LA070URD33KI0900	LA070URD33TTI0900
	1000	700	170	970	135/155	LA070URD33LI1000	LA070URD33KI1000	LA070URD33TTI1000
	1100	700	240	1360	135/160	LA070URD33LI1100	LA070URD33KI1100	LA070URD33TTI1100
	1250	700	350	2000	150/180	LA070URD33LI1250	LA070URD33KI1250	LA070URD33TTI1250
	1400	700	480	2700	160/200	LA070URD33LI1400	LA070URD33KI1400	LA070URD33TTI1400
	1600	650	555	3250	210/240	LA065URD33LI1600	—	LA065URD33TTI1600
	1800	650	720	4330	225/260	LA065URD33LI1800	—	LA065URD33TTI1800
	2000	600	950	5000	250/290	LA060URD33LI2000	—	LA060URD33TTI2000
	2250	550	1250	5900	280/330	LA050URD33LI2250	—	LA050URD33TTI2250
	2500	500	1870	7600	280/330	LA050URD33LI2500	—	LA050URD33TTI2500

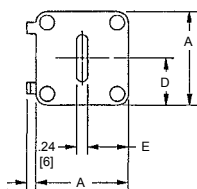
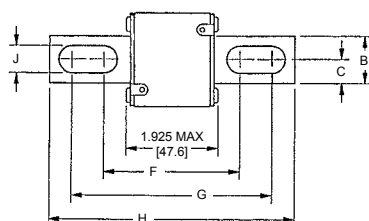
** Watts loss data is published for both blade and tapped style mounting configurations.
When two watts loss values are shown, this represents tapped/blade values respectively.
Contact Littelfuse for characteristic curves.

Square Body Semiconductor Fuses

700/1300 VAC • Very Fast Acting • 40 – 2500 Amperes

North American Straight Blade, Type KI

TYPES KI AND LI



Dimensions - 700V Fuses

Dimensions for reference only.

Catalog Number	Dimensions in Inches (mm in parentheses)								
	A	B	C	D	E	F	G	H	J
LA070URD30KI (63-550)	1.57 (40)	0.98 (25)	0.49 (12.5)	0.83 (21)	0.71 (18)	2.68 (68)	4.21 (107)	5.08 (129)	0.41 (10.5)
LA070URD31KI (200-800)	2.01 (51)	0.98 (25)	0.49 (12.5)	1.0 (25.5)	0.89 (22.5)	2.66 (67.6)	4.22 (107.1)	5.07 (128.8)	0.56 (14.3)
LA070URD32KI (400-1000)	2.36 (60)	1.26 (32)	0.63 (16)	1.18 (30)	1.06 (27)	2.92 (74.2)	4.29 (109)	5.28 (134)	0.57 (14.6)
LA070URD33KI (500-1400)	2.93 (74.5)	1.57 (40)	0.79 (20)	1.46 (37.2)	1.35 (34.2)	2.97 (75.4)	4.24 (107.6)	5.28 (134)	0.63 (15.9)

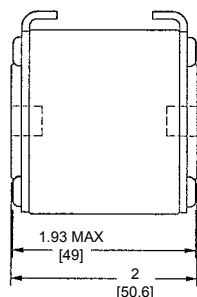
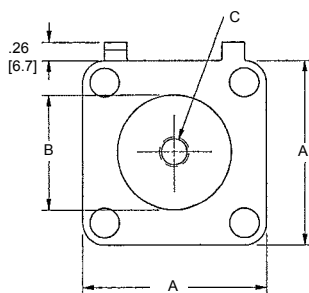
North American Straight Blade Types LI

Dimensions - 700V Fuses

Dimensions for reference only.

Catalog Number	Dimensions in Inches (mm in parentheses)								
	A	B	C	D	E	F	G	H	J
LA070URD30LI (63-550)	1.57 (40)	0.98 (25)	0.49 (12.5)	0.83 (21)	0.71 (18)	3.45 (87.6)	4.98 (126.6)	5.85 (148.6)	0.41 (10.5)
LA070URD31LI (200-800)	2.01 (51)	0.98 (25)	0.49 (12.5)	1.0 (25.5)	0.89 (22.5)	3.61 (91.6)	4.82 (122.4)	5.85 (148.6)	0.57 (14.6)
LA070URD32LI (400-1000) LA065URD32LI (1250) LA055URD32LI (1400-1600) LA050URD32LI (1800)	2.36 (60)	1.26 (32)	0.63 (16)	1.18 (30)	1.06 (27)	3.71 (94.2)	5.08 (129)	6.02 (153)	0.57 (14.6)
LA070URD33LI (500-1400) LA065URD33LI (1600-1800) LA060URD33LI (2000) LA055URD33LI (2250) LA050URD33LI (2500)	2.93 (74.5)	1.57 (40)	0.79 (20)	1.46 (37.2)	1.35 (34.2)	3.72 (94.4)	4.98 (126.6)	6.02 (153)	0.63 (15.9)

TYPE TTI



North American Flat Single Hole, Type TTI

Dimensions - 700V Fuses

Dimensions for reference only.

Catalog Number	Dimensions in Inches (mm in parentheses)		
	A	B	C
LA070URD30TTI (100-550)	1.57 (40)	1.00 (25)	5/16-18 x 0.35
LA070URD31TTI (200-800)	2.00 (50.8)	1.19 (30.2)	5/16-18 x 0.35
LA070URD32TTI (400-1000) LA065URD32TTI (1100) LA060URD32TTI (1250) LA055URD32TTI (1400-1600)	2.37 (60.3)	1.50 (38.1)	3/8-16 x 0.35
LA060URD33TTI (1800) LA070URD33TTI (500-1400) LA065URD33TTI (1600) LA060URD33TTI (2000) LA055URD33TTI (2250) LA050URD33TTI (2500)	2.94 (74.5)	1.81 (46)	1/2-18 x 0.35

Square Body Semiconductor Fuses

700/1300 VAC • Very Fast Acting • 40 – 2500 Amperes

1300 Volt North American Style Ratings and Application Data

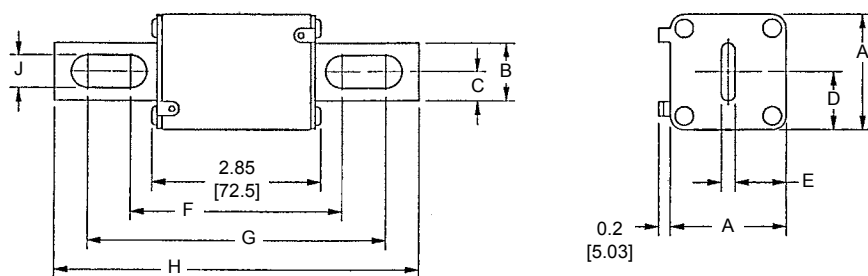
Body Size	Amp Rating	Rated Voltage	Melting I ² t (A ² S x 10 ³)	Total I ² t @ Rated Voltage (A ² S x 10 ³)	**Watts Loss @ Rated Current (W)	Long Blade Catalog No. Type LI/LLI	Tapped Terminal Catalog No. Type TTI
70	63	1300	0.21	1.8	26	LA130URD70LI0063	LA130URD70TTI0063
	80	1300	0.47	4	27	LA130URD70LI0080	LA130URD70TTI0080
	100	1300	0.83	7.2	30	LA130URD70LI0100	LA130URD70TTI0100
	125	1300	1.3	11	38	LA130URD70LI0125	LA130URD70TTI0125
	160	1300	2.5	22	45	LA130URD70LI0160	LA130URD70TTI0160
	200	1300	4.7	40	54/56	LA130URD70LI0200	LA130URD70TTI0200
	250	1300	9.6	82	58/61	LA130URD70LI0250	LA130URD70TTI0250
	315	1300	20	172	66/72	LA130URD70LI0315	LA130URD70TTI0315
	350	1200	28	205	68/75	LA120URD70LI0350	LA120URD70TTI0350
71	160	1300	2.6	22	46	LA130URD71LI0160	LA130URD71TTI0160
	200	1300	4.7	40	54	LA130URD71LI0200	LA130URD71TTI0200
	250	1300	8.9	76	61	LA130URD71LI0250	LA130URD71TTI0250
	280	1300	12	102	68/70	LA130URD71LI0280	LA130URD71TTI0280
	315	1300	16	138	73/76	LA130URD71LI0315	LA130URD71TTI0315
	350	1300	22	190	76/80	LA130URD71LI0350	LA130URD71TTI0350
	400	1300	38	330	76/80	LA130URD71LI0400	LA130URD71TTI0400
	450	1300	47	405	87/95	LA130URD71LI0450	LA130URD71TTI0450
	500	1200	68	500	90/100	LA120URD71LI0500	LA120URD71TTI0500
	550	1200	84	620	98/112	LA120URD71LI0550	LA120URD71TTI0550
	630	1100	125	930	105	LA110URD71LI0630	—
	630	1200	125	930	120	—	LA120URD71TTI0630
72	280	1300	10	90	72	LA130URD72LI0280	LA130URD72TTI0280
	315	1300	15	130	76	LA130URD72LI0315	LA130URD72TTI0315
	350	1300	21	180	77	LA130URD72LI0350	LA130URD72TTI0350
	400	1300	32	285	80	LA130URD72LI0400	LA130URD72TTI0400
	450	1300	44	380	87/89	LA130URD72LI0450	LA130URD72TTI0450
	500	1300	57	500	94/98	LA130URD72LI0500	LA130URD72TTI0500
	550	1300	68	590	110/120	LA130URD72LI0550	LA130URD72TTI0550
	630	1200	105	920	113	LA120URD72LI0630	—
	630	1300	105	920	125	—	LA130URD72TTI0630
	700	1100	145	1040	122	LA110URD72LI0700	—
	700	1200	145	1040	140	—	LA120URD72TTI0700
	800	1100	215	1590	125	LA110URD72LI0800	—
	800	1200	215	1590	146	—	LA120URD72TTI0800
73	315	1300	12	102	84	LA130URD73LI0315	LA130URD73TTI0315
	350	1300	17	150	86	LA130URD73LI0350	LA130URD73TTI0350
	400	1300	25	220	93	LA130URD73LI0400	LA130URD73TTI0400
	450	1300	35	310	99/100	LA130URD73LI0450	LA130URD73TTI0450
	500	1300	44	390	110/112	LA130URD73LI0500	LA130URD73TTI0500
	550	1300	57	500	116/120	LA130URD73LI0550	LA130URD73TTI0550
	630	1300	84	730	125/132	LA130URD73LI0630	LA130URD73TTI0630
	700	1300	110	960	135/146	LA130URD73LI0700	LA130URD73TTI0700
	800	1200	190	1630	136	LA120URD73LI0800	—
	800	1300	190	1630	148	—	LA130URD73TTI0800
	900	1100	250	2160	150	LA110URD73LI0900	—
	900	1300	250	2160	170	—	LA130URD73TTI0900
	1000	1100	370	2430	152/174	LA100URD73LI1000	LA100URD73TTI1000
	1100	1000	445	2580	168/208	LA100URD73LI1100	LA100URD73TTI1100
	1250	1000	585	3480	186/200	LA100URD73LI1250	LA100URD73TTI1250
	1400	900	755	3880	210/228	LA090URD73LI1400	LA090URD73TTI1400
	1600	700	1430	5630	203	LA070URD73LI1600	LA070URD73TTI1600
	1800	660	2040	7600	206	LA065URD73LI1800	LA065URD73TTI1800

** Watts loss data is published for both blade and tapped style mounting configurations.
When two watts loss values are shown, this represents tapped/blade values respectively.
Contact Littelfuse for characteristic curves.

Square Body Semiconductor Fuses

700/1300 VAC • Very Fast Acting • 40 – 2500 Amperes

TYPES LI AND LLI



North American Straight Blade, Types LI and LLI

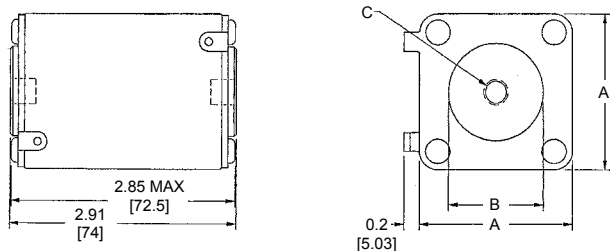
Dimensions - 1300V Fuses

Dimensions for reference only.

Catalog Number	Dimensions In Inches (mm in parentheses)								
	A	B	C	D	E	F	G	H	J
LA130URD70LI (63-315) LA120URD70LI (350)	1.57 (40)	0.98 (25)	0.49 (12.5)	0.83 (21)	0.71 (18)	3.60 (91.4)	5.13 (130.4)	6.00 (152.4)	0.41 (10.5)
LA130URD71LLI (160-450) LA120URD71LLI (500-550) LA110URD71LLI (630)	2.01 (51)	0.98 (25)	0.49 (12.5)	1.0 (26.5)	0.89 (22.5)	3.60 (91.4)	5.13 (130.4)	6.00 (152.4)	0.57 (14.6)
LA130URD72LI (280-550) LA120URD72LI (800) LA110URD72LI (700-800)	2.36 (60)	1.26 (32)	0.63 (16)	1.18 (30)	1.06 (27)	3.84 (97.6)	5.2 (132.4)	6.20 (157.4)	0.57 (14.6)
LA130URD73LI (315-700) LA120URD73LI (800) LA110URD73LI (900-1000) LA090URD73LI (1400) LA070URD73LI (1600) LA065URD73LI (1800)	2.93 (74.5)	1.57 (40)	0.79 (20)	1.46 (37.2)	1.35 (34.2)	3.89 (98.8)	5.21 (132.4)	6.20 (157.4)	0.63 (15.9)

North American Flat Single Hole, Type TTI

TYPE TTI



Dimensions - 1300V Fuses

Dimensions for reference only.

Catalog Number	Dimensions in Inches (mm)		
	A	B	C
LA130URD70TTI (63-315) LA120URD70TTI (350)	1.57 (40)	1.00 (26.4)	5/16-18 x 0.23 DP
LA130URD71TTI (160-450) LA120URD71TTI (550-630)	2.01 (51)	1.19 (30.2)	5/16-18 x 0.36 DP
LA130URD72TTI (280-630) LA120URD72TTI (700-800)	2.36 (60)	1.50 (38.1)	3/8-18 x 0.36 DP
LA130URD73TTI (315-900) LA120URD73TTI (1000) LA110URD73TTI (1250) LA090URD73TTI (1400) LA070URD73TTI (1600) LA065URD73TTI (1800)	2.93 (74.5)	1.81 (46)	1/2-18 x 0.36 DP

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Littelfuse:

[LA130URD73TTI0350](#) [LA130URD72TTI0315](#) [LA070URD31TTI0350](#) [LA130URD71TTI0350](#) [LA130URD70TTI0315](#)
[LA070URD30TTI0315](#) [LA130URD73TTI0315](#) [LA130URD72TTI0350](#) [LA070URD30TTI0350](#) [LA130URD71TTI0315](#)
[LA070URD31TTI0315](#) [LA120URD70TTI0350](#) [LA070URD33TTI0700](#) [LA130URD73TTI0700](#) [LA070URD31TTI0700](#)
[LA120URD72TTI0700](#) [LA070URD32TTI0700](#) [LA110URD73LI0900](#) [LA130URD71LLI0250](#) [LA130URD71LLI0200](#)
[LA130URD71LLI0280](#) [LA130URD70LI0250](#) [LA130URD72LI0280](#) [LA130URD70LI0200](#) [LA065URD32TTI1100](#)
[LA130URD73LI0450](#) [LA130URD72LI0450](#) [LA050URD32LI1800](#) [LA130URD72LI0400](#) [LA130URD73LI0400](#)
[LA090URD73LI1400](#) [LA130URD70LI0080](#) [LA130URD70LI0063](#) [LA065URD33LI1800](#) [LA065URD73LI1800](#)
[LA120URD73LI0800](#) [LA130URD71LLI0450](#) [LA130URD71LLI0400](#) [LA055URD32TTI1400](#) [LA130URD71LLI0315](#)
[LA130URD71LLI0350](#) [LA055URD33TTI2250](#) [LA130URD72LI0315](#) [LA130URD70LI0315](#) [LA130URD73LI0315](#)
[LA130URD72LI0350](#) [LA120URD70LI0350](#) [LA130URD73LI0350](#) [LA065URD33TTI1800](#) [LA130URD73LI0700](#)
[LA065URD73TTI1800](#) [LA060URD33LI2000](#) [LA065URD32LI1100](#) [LA130URD70LI0125](#) [LA130URD70LI0160](#)
[LA130URD70LI0100](#) [LA065URD33TTI1600](#) [LA055URD32TTI1600](#) [LA120URD71LLI0550](#) [LA120URD71LLI0500](#)
[LA130URD73LI0550](#) [LA130URD72LI0550](#) [LA130URD72LI0500](#) [LA130URD73LI0500](#) [LA130URD71LLI0160](#)
[LA070URD32TTI0450](#) [LA130URD72TTI0450](#) [LA070URD30TTI0450](#) [LA070URD31TTI0450](#) [LA130URD71TTI0450](#)
[LA130URD73TTI0450](#) [LA130URD73TTI0400](#) [LA130URD71TTI0400](#) [LA070URD31TTI0400](#) [LA070URD30TTI0400](#)
[LA130URD72TTI0400](#) [LA070URD32TTI0400](#) [LA070URD30TTI0063](#) [LA130URD70TTI0063](#) [LA070URD30TTI0080](#)
[LA130URD70TTI0080](#) [LA070URD31TTI0800](#) [LA070URD33TTI0800](#) [LA130URD73TTI0800](#) [LA120URD72TTI0800](#)
[LA070URD32TTI0800](#) [LA130URD72TTI0630](#) [LA070URD32TTI0630](#) [LA120URD71TTI0630](#) [LA070URD31TTI0630](#)
[LA130URD73TTI0630](#) [LA070URD33TTI0630](#) [LA110URD72LI0800](#) [LA055URD33LI2250](#) [LA130URD71TTI0225](#)
[LA130URD72TTI0280](#) [LA130URD70TTI0200](#) [LA070URD30TTI0200](#) [LA130URD71TTI0200](#) [LA070URD31TTI0200](#)