



Product Catalog

UL Fuses: Current Limiting

COOPER Circuit Protection



General Catalog Contents

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Catalog Number ECNR (1 - 600A) 250Vac or Less

Catalog Number ECSR (1 - 600A) 600Vac or Less

Amp Ratings					
ECNR					
1	8	25	70	150	400
2	9	30	75	175	450
3	10	35	80	200	500
4	12	40	90	225	600
5	15	45	100	250	—
6	17.5	50	110	300	—
7	20	60	125	350	—
ECSR					
1	8	25	70	150	400
2	9	30	75	175	450
3	10	35	80	200	500
4	12	40	90	225	600
5	15	45	100	250	—
6	17.5	50	110	300	—
7	20	60	125	350	—

ECNR/ECSR Specifications

Dual-Element Time-Delay

Voltage Rating: ECNR - 250Vac, ECSR - 600Vac

Amp Rating: 1 - 600 Amps

Interrupting Rating: 200,000 RMS Symmetrical Amps

Current Limiting: RK5 Fuse

Agency Approvals:

UL Listed, Class RK5, Guide JDDZ, File E162363
CSA Certified, C22.2, No. 248.12, Class 1422-02, File 700489

Self-Certified DC Ratings:

Voltage Rating: ECNR (1-60A, 110-200A) 125Vdc;
(225-600A) 250Vdc
ECSR (1-600A) 300Vdc

Interrupting Rating: ECNR/ECSR 20,000 Amps DC

Benefits:

- True dual-element construction allows sizing of 125% FLA for motor backup protection.
- Superior overload and cycling capabilities.
- Current limiting provides component short-circuit protection.

Applications:

- Recommended for AC power distribution system mains, feeders, and branch circuits.
- Protection of motors and motor branch circuits.
- Protection of transformers and other inductive loads.
- All general-purpose applications including lighting, heating and other non-inductive loads.

Recommended Fuse Blocks:

Refer to page 124 in this catalog.

Recommended Upgrade:

Class RK1 (LENRK/LESRK) for greater degree of short-circuit protection.

Bullet™ Class RK5 Dual-Element Time-Delay Fuses



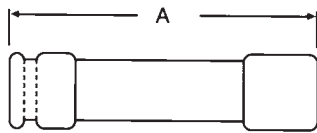
ECNR/ECSR Dual Element Fuses

These fuses are recommended for AC power distribution system mains, feeders and branch circuits having inductive loads (motors, transformers) or non-inductive loads (lighting, heating) where the available short-circuit current does not exceed 200,000 RMS symmetrical amps. These “dual-element, time-delay” fuses have minimum industry standard time-delay of 10 seconds at 5 times the fuse rating (8 sec. minimum for 250V, 30A and less). The time-delay

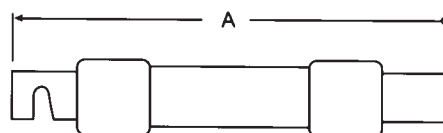
characteristics of these fuses typically allows them to be sized closer to the running ampacity of inductive loads to reduce cost and provide improved overcurrent protection. These fuses will override normal equipment current surges to reduce unnecessary fuse openings. They are the most popular fuses used in the industry and the most economical for most applications, especially motors and transformers. They have moderate current limitation.

Class R fuses will fit Class H, K and R fuse clips. Class R fuse clips will only accept Class R fuses. Fuses rated 600Vac or less may be applied at any lower voltage. Contact Edison Custom Satisfaction for special products or applications.

Dimensions



Ferrule Design—0 through 60 Amps

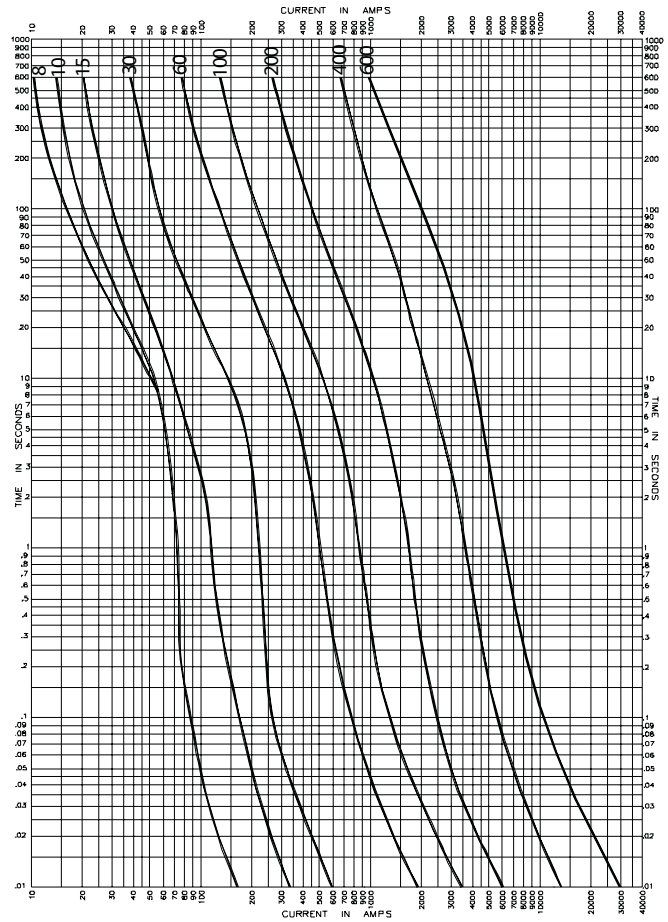
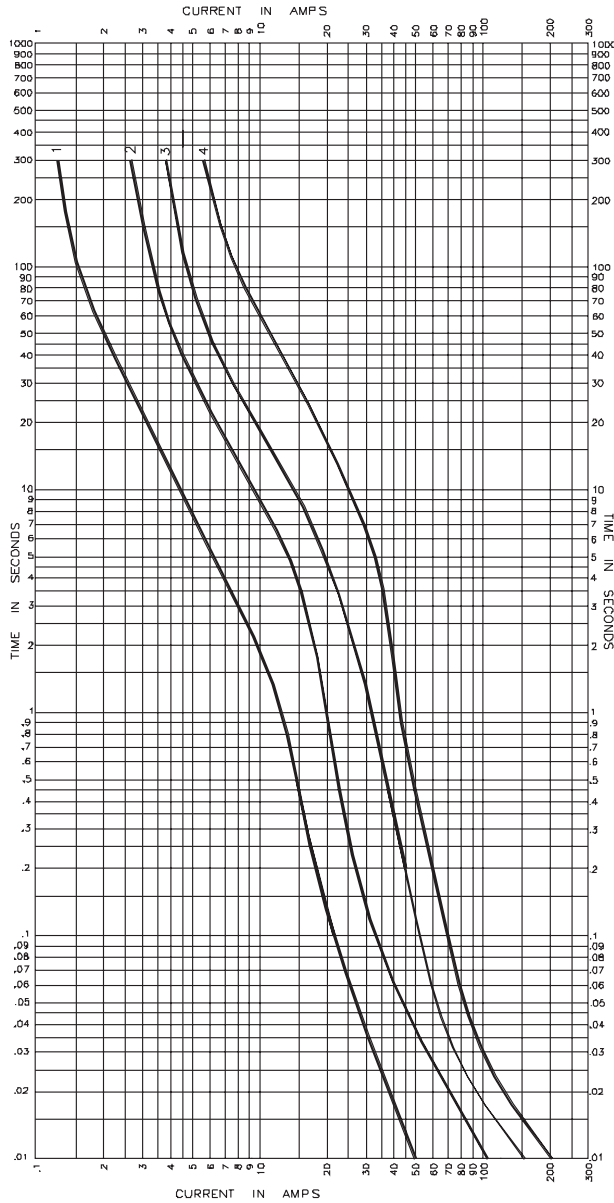


Knife Blade—70 through 600 Amps

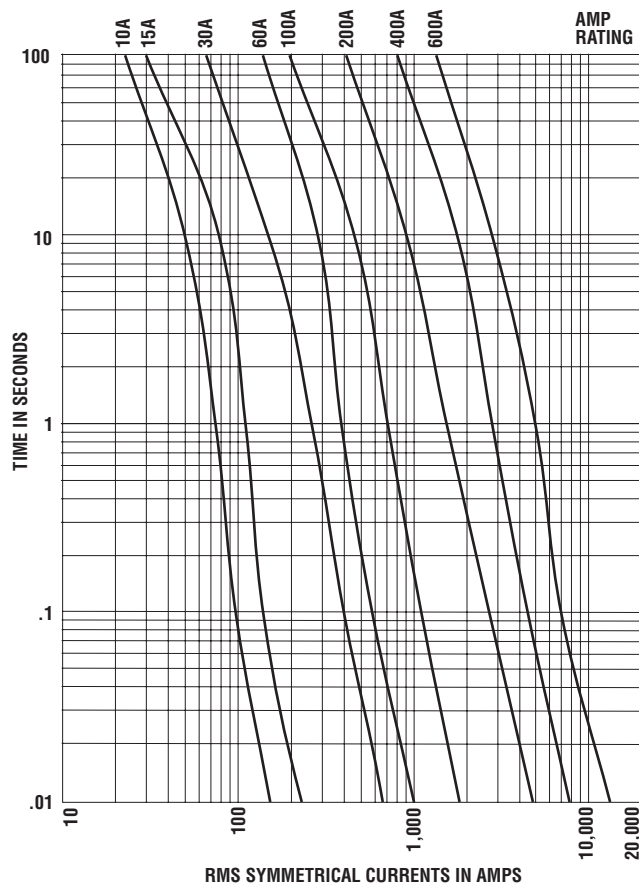
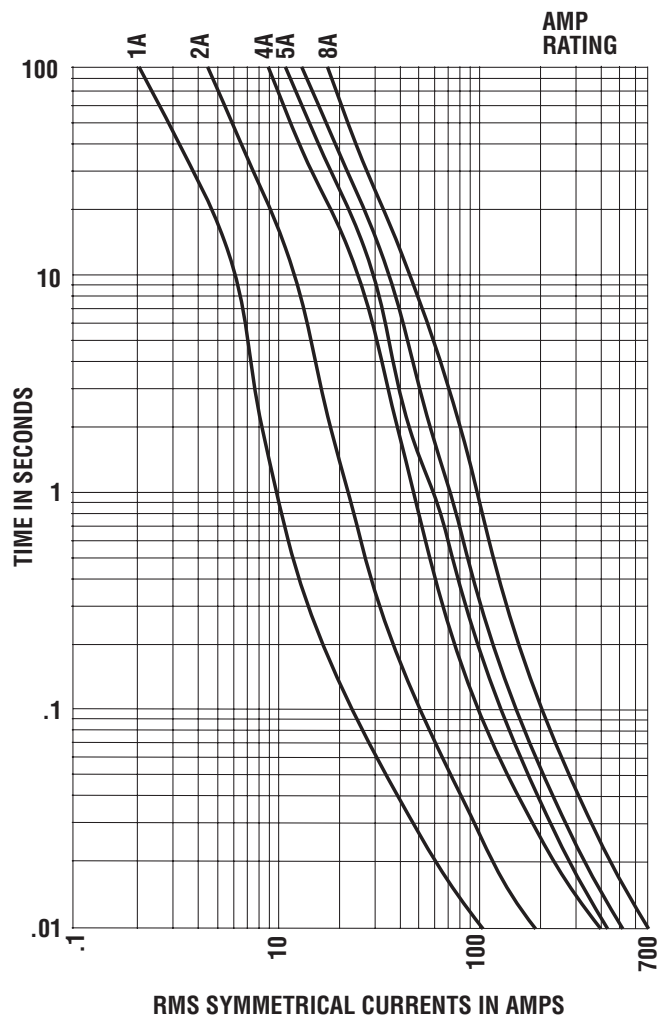


Catalog Number	Amps	Overall Length - in	Max Diameter - in
		A	B
ECNR	0-30	2	0.56
	35-60	3	0.81
	70-100	5.88	1.06
	110-200	7.13	1.56
	225-400	8.63	2.38
	450-600	10.38	2.88
ECSR	0-30	5	0.81
	35-60	5.5	1.06
	65-100	7.88	1.11
	110-200	9.63	1.61
	225-400	11.63	2.34
	450-600	13.38	2.88

Average Melt Time-Current Curves Cat No. ECNR (Amp)

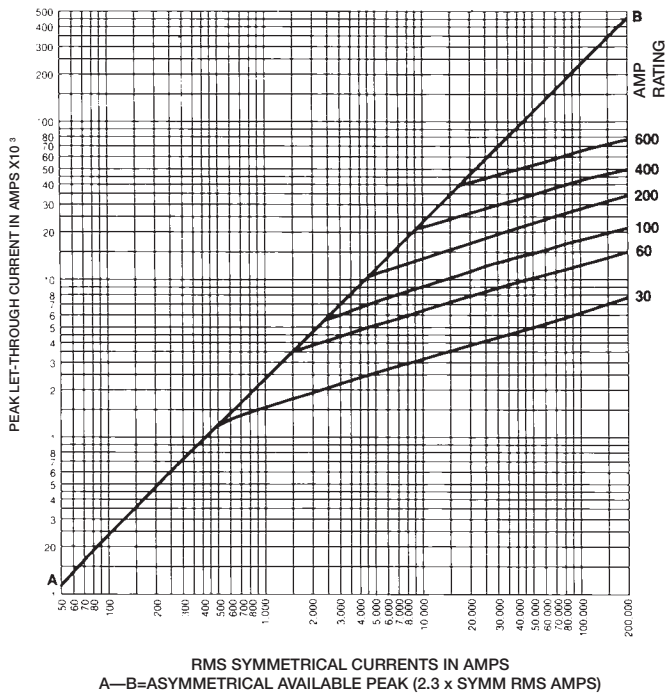


Average Melt Time-Current Curves Cat No. ECSR (Amp)

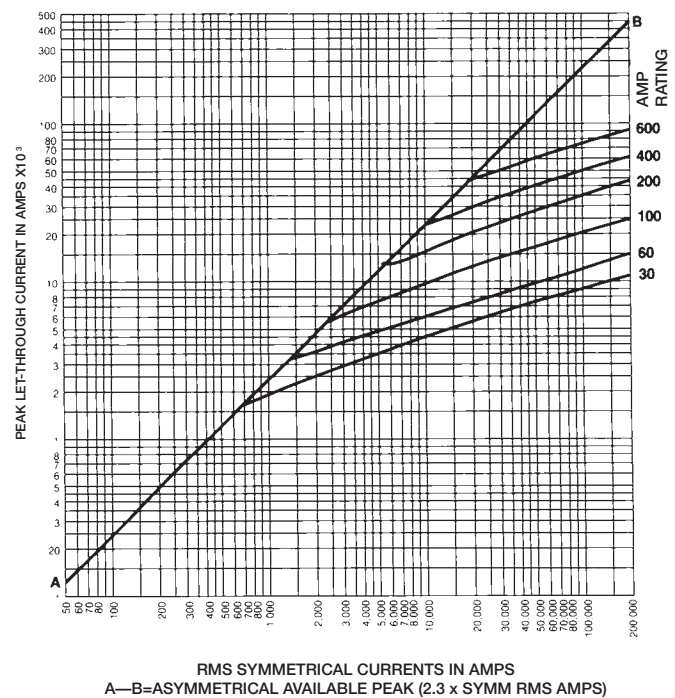


Peak Let-Through Current Curves

ECNR



ECSR



Current Limitation Tables

ECNR*

Available Fault Current RMS Amps	Apparent Effective Let-Through Amps					
	Fuse Amp Ratings					
	30A	60A	100A	200A	400A	600A
5,000	1,050	2,070	2,820	4,300	5,000	5,000
10,000	1,310	2,570	3,630	5,400	8,700	10,000
15,000	1,490	2,920	4,140	6,200	9,900	15,000
20,000	1,630	3,200	4,500	6,800	10,700	16,100
25,000	1,720	3,420	4,800	7,200	11,400	17,200
30,000	1,840	3,630	5,100	7,700	12,100	18,300
35,000	1,920	3,810	5,400	8,100	12,600	19,200
40,000	2,000	3,980	5,600	8,500	13,100	19,900
50,000	2,140	4,200	6,000	9,100	14,000	21,400
60,000	2,260	4,500	6,400	9,600	14,900	22,600
80,000	2,450	4,900	7,000	10,600	16,000	24,600
100,000	2,620	5,200	7,500	11,400	17,100	26,200
150,000	2,920	5,800	8,300	13,000	19,200	29,200
200,000	3,140	6,200	8,900	14,300	20,800	31,700

ECSR*

Available Fault Current RMS Amps	Apparent Effective Let-Through Amps					
	Fuse Amp Ratings					
	30A	60A	100A	200A	400A	600A
5,000	1,290	2,070	2,980	5,000	5,000	5,000
10,000	1,640	2,590	3,810	6,500	8,800	10,000
15,000	1,890	2,940	4,400	7,500	10,200	15,000
20,000	2,110	3,250	4,800	8,300	11,400	18,200
25,000	2,260	3,470	5,200	8,900	12,400	19,600
30,000	2,420	3,660	5,500	9,600	13,200	21,100
35,000	2,570	3,850	5,800	10,100	14,100	22,400
40,000	2,670	4,030	6,000	10,500	14,700	23,400
50,000	2,890	4,300	6,500	11,400	16,000	25,300
60,000	3,060	4,500	6,900	12,100	17,200	27,000
80,000	3,360	4,900	7,600	13,400	19,100	29,500
100,000	3,630	5,200	8,200	14,400	20,700	31,700
150,000	4,100	5,800	9,300	16,500	23,900	36,300
200,000	4,400	6,100	10,400	18,300	26,700	39,500

*"Apparent Let-Through Amps" values are read from "Peak Let-Through Current Curves" and the peak current value divided by 2.3 Asymmetry Factor.



Catalog Number LENRK (0.2 - 600A) 250Vac or Less
Catalog Number LESRK (0.25 - 600A) 600Vac or Less

Amp Ratings				
LENRK				
0.2	2	6.25	40	175
0.3	2.25	8	45	200
0.4	2.5	9	50	225
0.5	3	10	60	250
0.6	3.2	12	70	300
0.8	3.5	15	80	350
1	4	17.5	90	400
1.12	4.5	20	100	450
1.4	5	25	110	500
1.6	5.6	30	125	600
1.8	6	35	150	
LESRK				
0.25	2.25	6.25	35	150
0.5	2.5	7	40	175
0.6	2.8	8	45	200
1	3	9	50	225
1.12	3.2	10	60	250
1.25	3.5	12	70	300
1.4	4	15	80	350
1.5	4.5	17.5	90	400
1.6	5	20	100	450
1.8	5.6	25	110	500
2	6	30	125	600

LENRK/LESRK Specifications

Dual-Element Time-Delay

Voltage Rating: LENRK - 250Vac, LESRK - 600Vac

Amp Rating: 0.2 - 600 Amps

Interrupting Rating: 200,000 RMS Symmetrical Amps

Current Limiting: RK1 Fuse

Agency Approvals:

UL Listed, Class RK1, Guide JDDZ, File E162363

CSA Certified, HRCI-R per C22.2, No. 248.12

Self-Certified DC Ratings:

Voltage Rating: LENRK (0-60A) 125Vdc; (70-600A) 250Vdc

LESRK (0.25-600A) 300Vdc

Interrupting Rating: LENRK/LESRK 20,000 Amps DC

Benefits:

- True dual-element spring - trigger construction allows sizing of 125% FLA for motor backup protection.
- Superior overload and cycling capabilities.
- Extremely current limiting provides superior short-circuit component protection.

Applications:

- Recommended for AC power distribution system mains, feeders, and branch circuits.
- Protection of motors and motor branch circuits.
- Type 2 "No Damage" protection for IEC components.
- All general-purpose applications including lighting, heating and other non-inductive loads.

Recommended Fuse Blocks:

Refer to page 124 in this catalog.

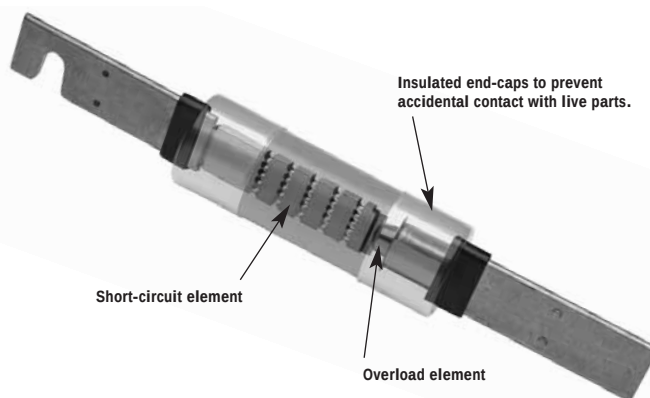
Recommended Upgrade:

None.

LENRK/LESRK Dual-Element Fuses

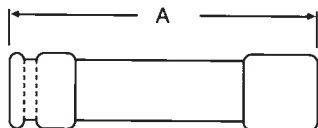
The application recommended for these fuses is exactly the same as for the Edison ECNR/ECSR fuses except for the advantages of greater current limitation. The Edison LENRK/LESRK fuses have up to 40% more current limitation and up to 350% more Amps-Squared-Second (I^2t) limitation under fault conditions than Edison ECNR/ECSR fuses to reduce potential for damage. In addition, LENRK/LESRK fuses allow better selectivity for electrical power system designers and better short-circuit protection for breakers having inadequate interrupting ratings. ECNR/ECSR and LENRK/LESRK fuse lines are physically interchangeable (and electrically interchangeable per UL equipment listing conditions) and are recommended as a practical, economical way to upgrade systems for many situations.

True Dual-Element Construction



Class R fuses will fit Class H, K and R fuse clips. Class R fuse clips will only accept Class R fuses. Fuses rated 600Vac or less may be applied at any lower voltage. Contact Edison Custom Satisfaction for special products or applications.

Dimensions



Ferrule Design—0 through 60 Amps



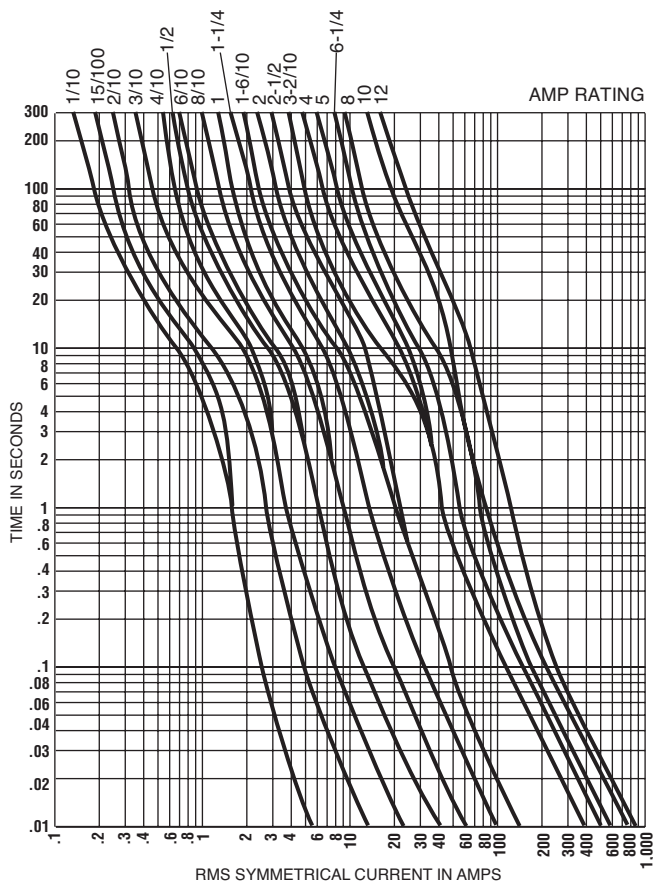
Knife Blade—70 through 600 Amps



Catalog Number	Amps	Overall Length - in	Max Diameter - in
		A	B
LENRK	0-30	2	0.56
	35-60	3	0.81
	70-100	5.88	1.10
	110-200	7.13	1.61
	225-400	8.63	2.38
	450-600	10.38	2.88
LESRK	0-30	5	0.81
	35-60	5.5	1.06
	70-100	7.88	1.11
	110-200	9.63	1.61
	225-400	11.63	2.36
	450-600	13.38	2.88

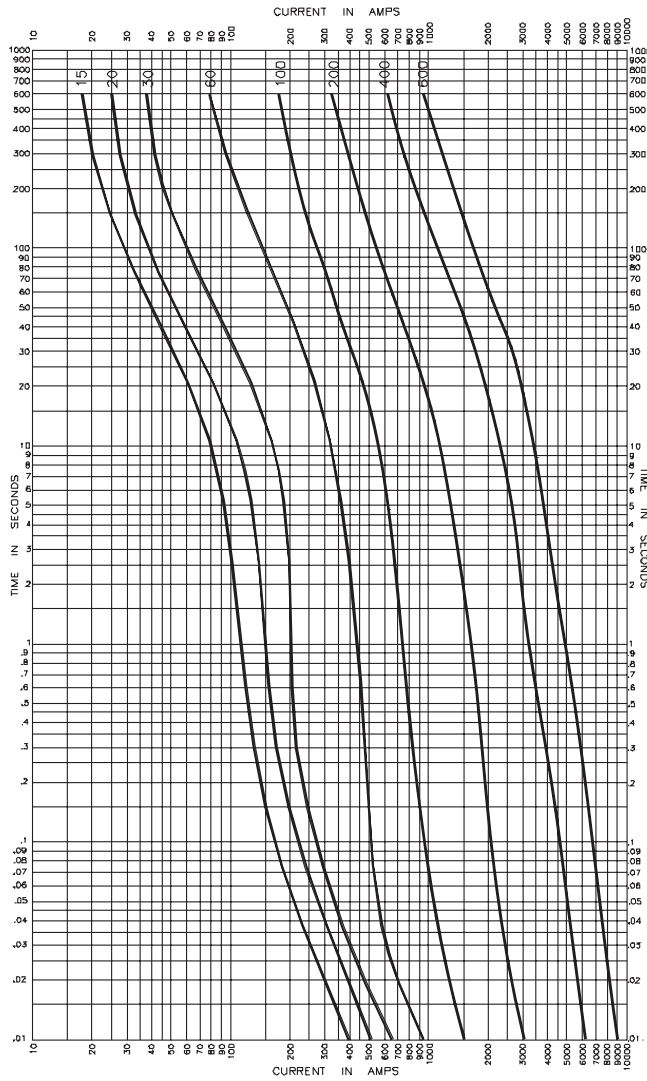
Average Melt Time-Current Curves

LESRK (Amp)

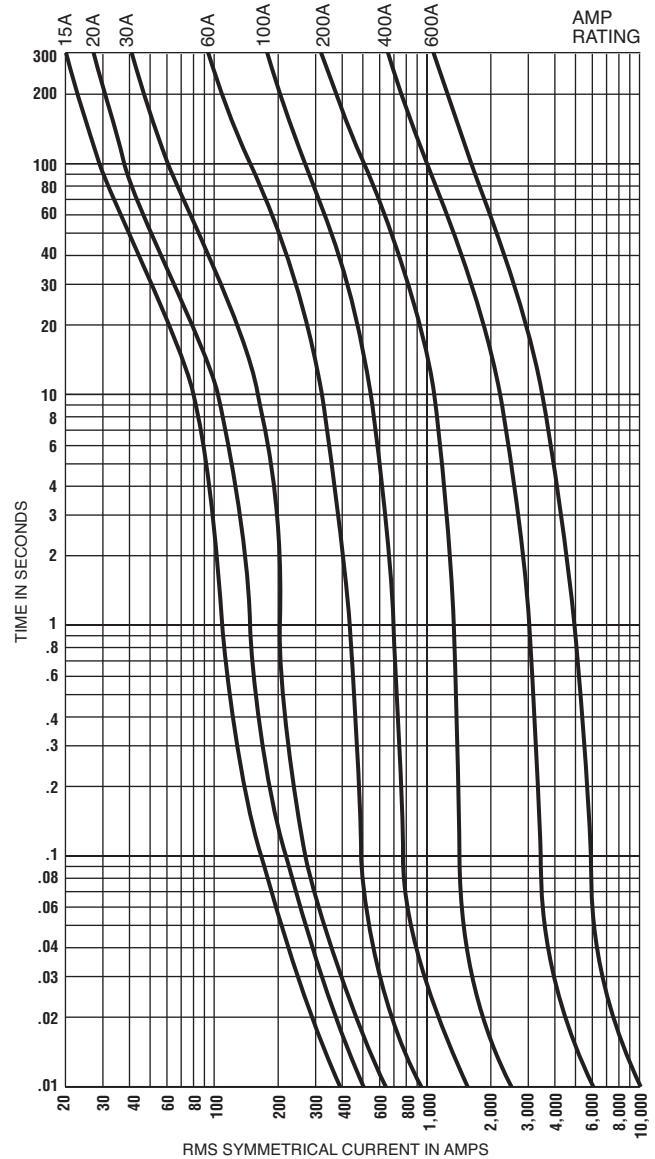


Average Melt Time-Current Curves

LENRK

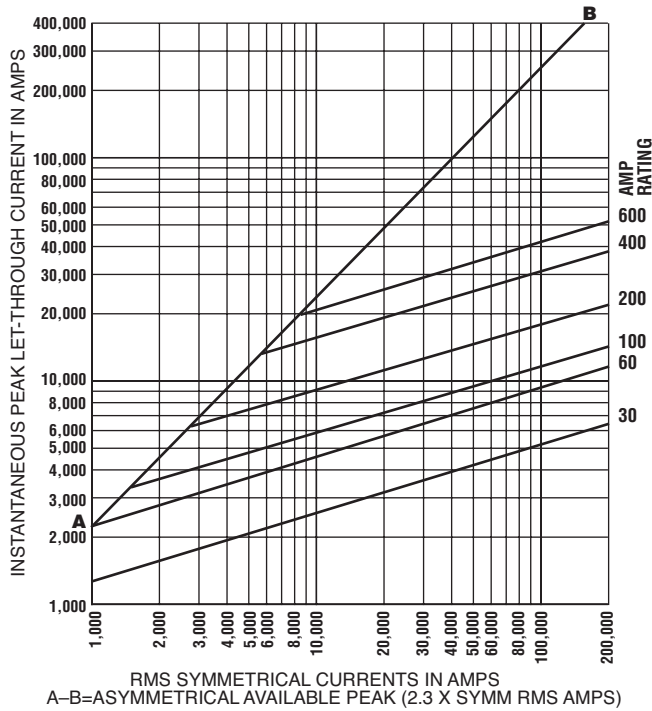


LESRK

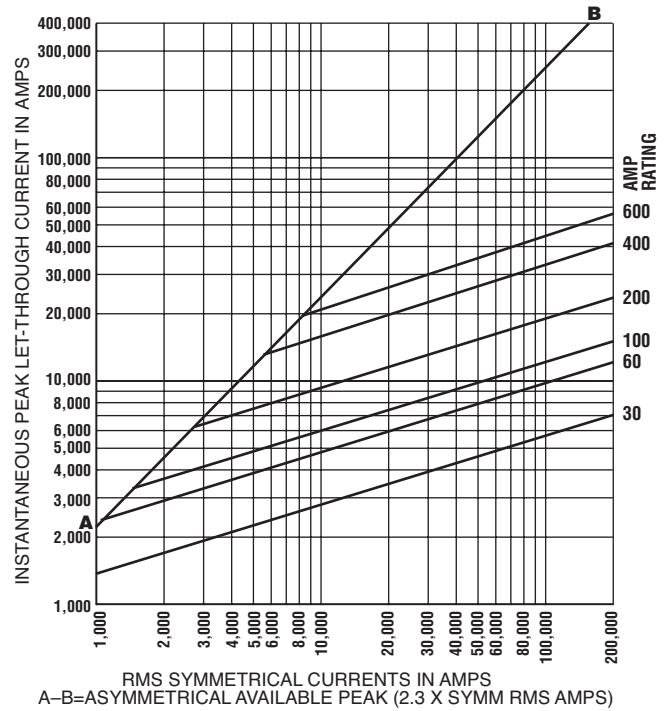


Peak Let-Through Current Curves*

LENRK



LESRK



*Curves test data obtained at 15% short-circuit power factor when possible.

Current Limitation Tables**

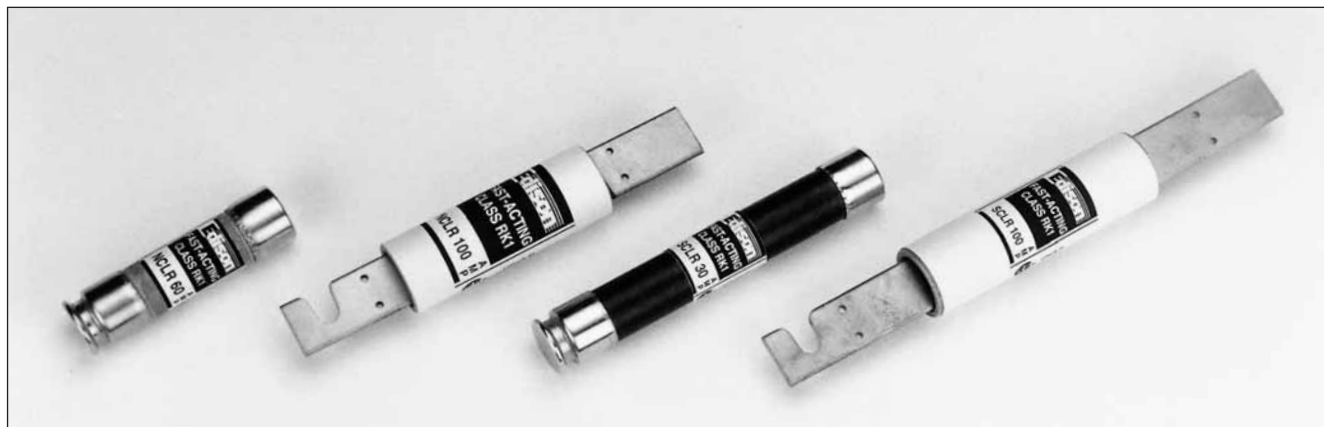
LENRK RMS & Peak Let-Through Currents (kA)

Available Fault current RMS Amperes	Apparent Effective Let-Through Amps (kA)											
	30		60		100		200		400		600	
	I _{RMS}	I _p	I _{RMS}	I _p	I _{RMS}	I _p	I _{RMS}	I _p	I _{RMS}	I _p	I _{RMS}	I _p
1,000	1	1	1	2	1	2	1	2	1	2	1	2
2,000	1	2	1	3	2	4	2	5	2	5	2	5
3,000	1	2	1	3	2	4	3	6	3	7	3	7
5,000	1	2	2	4	2	5	3	7	5	12	5	12
10,000	1	3	2	4	2	6	4	9	7	15	9	21
15,000	1	3	2	5	3	6	4	10	7	17	10	23
20,000	1	3	2	6	3	7	5	11	8	19	11	25
25,000	1	3	3	6	3	7	5	12	9	20	12	27
30,000	2	3	3	6	3	8	5	12	9	21	13	29
35,000	2	4	3	7	4	8	6	13	10	22	13	30
40,000	2	4	3	7	4	9	6	13	10	23	13	31
50,000	2	4	3	7	4	9	6	14	10	24	14	33
60,000	2	4	3	8	4	10	7	15	11	26	15	35
70,000	2	4	3	8	4	10	7	16	12	27	16	36
80,000	2	5	4	8	5	11	7	16	12	28	17	38
90,000	2	5	4	9	5	11	7	17	13	29	17	39
100,000	2	5	4	9	5	11	8	18	13	30	17	40
150,000	2	6	4	10	5	13	8	19	16	36	20	46
200,000	3	6	5	11	6	14	9	21	18	42	22	50

LESRK RMS & Peak Let-Through Currents (kA)

Available Fault current RMS Amperes	Apparent Effective Let-Through Amps (kA)											
	30		60		100		200		400		600	
	I _{RMS}	I _p	I _{RMS}	I _p	I _{RMS}	I _p	I _{RMS}	I _p	I _{RMS}	I _p	I _{RMS}	I _p
1,000	1	1	1	2	1	2	1	2	1	2	1	2
2,000	1	2	1	3	2	4	2	4	2	4	2	4
3,000	1	2	1	3	2	4	3	6	3	7	3	7
5,000	1	2	2	4	2	5	3	7	5	12	5	12
10,000	1	3	2	5	3	6	4	9	7	16	9	21
15,000	1	3	2	5	3	7	5	11	8	18	10	24
20,000	1	3	3	6	3	7	5	12	8	19	11	26
25,000	2	4	3	6	3	8	5	12	9	21	12	28
30,000	2	4	3	6	4	8	6	13	10	22	13	30
35,000	2	4	3	7	4	9	6	14	10	23	13	31
40,000	2	4	3	7	4	9	6	14	10	24	14	32
50,000	2	5	3	8	4	10	7	15	11	26	15	35
60,000	2	5	3	8	4	10	7	16	12	28	16	37
70,000	2	5	4	8	5	11	7	17	13	29	17	39
80,000	2	5	4	9	5	11	8	18	13	30	17	40
90,000	2	5	4	9	5	12	8	18	13	31	18	42
100,000	2	6	4	9	5	12	8	19	14	32	19	44
150,000	3	6	5	11	6	14	9	21	16	36	22	50
200,000	3	7	5	12	7	15	10	23	17	40	23	54

**"Apparent Let-Through Amps" values are read from "Peak Let-Through Current Curves" and the peak current value divided by 2.3 Asymmetry Factor.



Catalog Number NCLR (1- 600A) 250Vac or Less
Catalog Number SCLR (1- 600A) 600Vac or Less

Amp Ratings					
NCLR					
1	10	35	80	175	400
3	12	40	90	200	450
4	15	45	100	225	500
5	20	50	110	250	600
6	25	60	125	300	—
8	30	70	150	350	—
SCLR					
1	8	30	70	150	350
2	10	35	80	175	400
3	12	40	90	200	450
4	15	45	100	225	500
5	20	50	110	250	600
6	25	60	125	300	—

NCLR/SCLR Specifications

Fast-Acting

Voltage Rating: NCLR - 250Vac, SCLR - 600Vac

Amp Rating: 1 - 600 Amps

Interrupting Rating: 200,000 RMS Symmetrical Amps

Current Limiting: RK1 Fuse

Agency Approvals:

UL Listed, Class RK1, Guide JDDZ, File E162363
CSA Certified per C22.2, No. 248.12

Self-Certified DC Ratings:

Voltage Rating: NCLR (1-600) 250Vdc
SCLR (1-600) 300Vdc

Interrupting Rating: NCLR/SCLR 10,000 Amps DC

Benefits:

- No intentional time-delay opens quickly on overload current.

Applications:

- Recommended for protection on non-inductive loads such as lighting and resistance heating circuits.
- Use to protect lower interrupting rating circuit breakers in series rated applications.

Recommended Fuse Blocks:

Refer to page 124 in this catalog.

Recommended Upgrade:

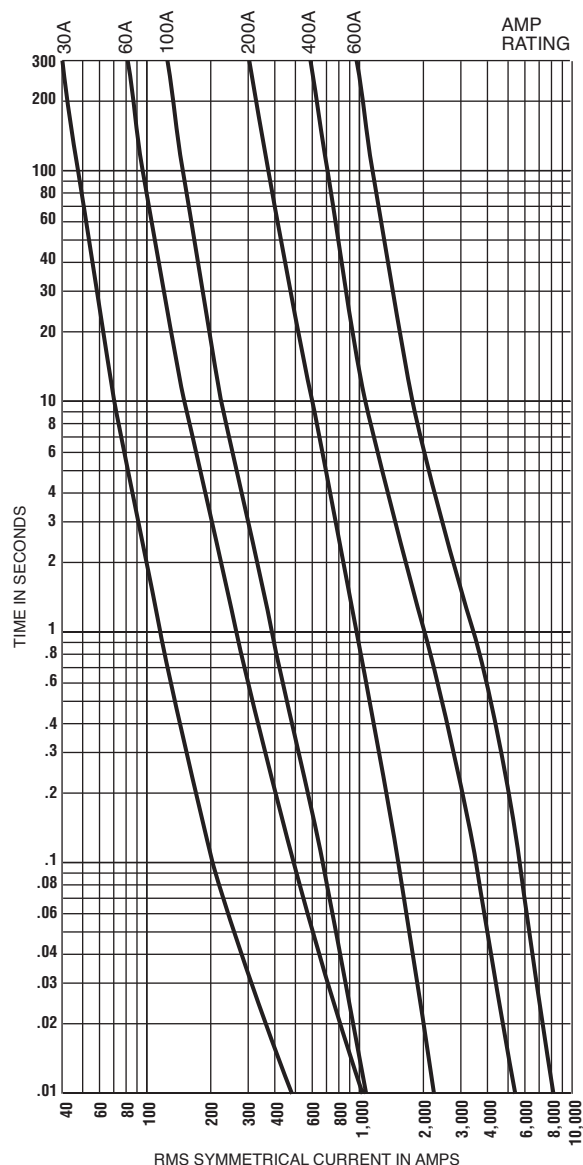
LENRK/LESRK.

Application:

Edison NCLR/SCLR Class RK1 fast-acting fuses are recommended for general power distribution system use for main, feeder and branch circuits having a high percentage of non-inductive loads such as heating and lighting. NCLR/SCLR fuses are suitable for circuit breaker protection.* When NCLR/SCLR fast-acting fuses are used for inductive loads, the fuses usually require oversizing to override normal transient current surges of motors and

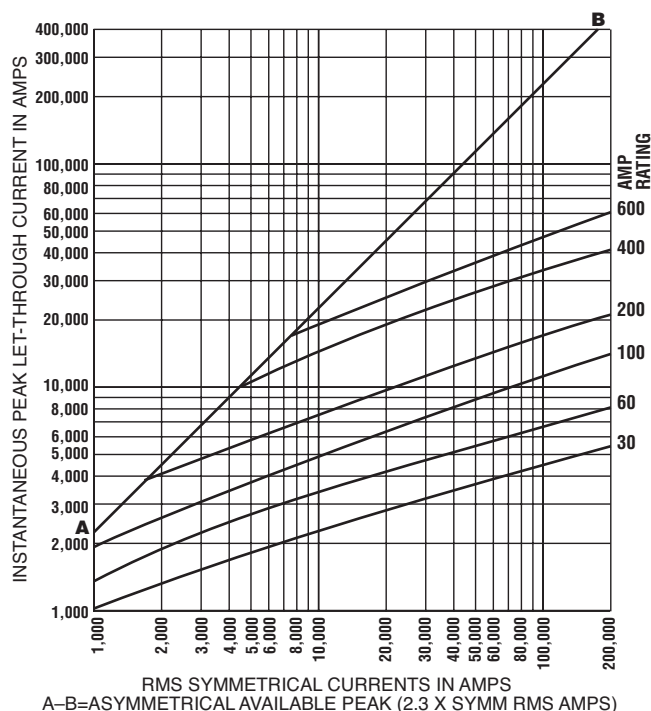
transformers. Oversizing fuses usually increases fuse and equipment cost and reduces overcurrent protection. (For inductive loads, LENRK/LESRK fuses are recommended). NCLR/SCLR Class RK1 fast-acting fuses are physically interchangeable with other Class R fuses. They will replace Class K or Class H fuses in standard fuse clips.

*When used as recommended by a specific circuit breaker manufacturer for a specific application.

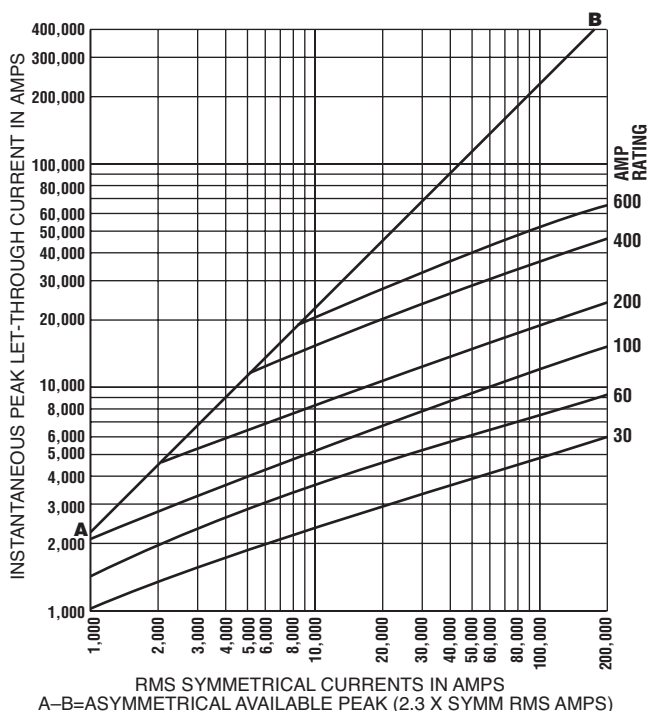
Average Time-Current Curves**Cat. No. NCLR (Amp) and SCLR (Amp)**

Peak Let-Through Current Curves*

NCLR



SCLR



*Curves test data obtained at 15% short-circuit power factor when possible.

Current Limitation Tables**

NCLR

NCLR – RMS & Peak Let-Through Currents (kA)

Prosp. Short C.C.	Fuse Size											
	30		60		100		200		400		600	
	I _{RMS}	I _p	I _{RMS}	I _p	I _{RMS}	I _p	I _{RMS}	I _p	I _{RMS}	I _p	I _{RMS}	I _p
5,000	1	2	1	3	2	4	3	6	5	10	5	12
10,000	1	2	1	3	2	5	3	8	6	14	8	19
15,000	1	3	2	4	2	6	4	9	7	17	10	22
20,000	1	3	2	4	3	6	4	10	8	19	11	25
25,000	1	3	2	5	3	7	4	10	9	20	12	27
30,000	1	3	2	5	3	7	5	11	10	22	13	29
35,000	1	3	2	5	3	8	5	12	10	23	13	31
40,000	1	3	2	5	3	8	5	12	10	24	14	32
50,000	2	4	2	5	4	9	6	13	11	26	15	36
60,000	2	4	2	6	4	9	6	14	12	28	17	38
70,000	2	4	3	6	4	9	6	15	13	29	17	40
80,000	2	4	3	6	4	10	7	15	13	30	18	42
90,000	2	4	3	6	5	10	7	16	13	31	19	44
100,000	2	4	3	7	5	11	7	17	14	32	20	46
150,000	2	5	3	7	5	13	8	19	16	37	23	53
200,000	2	5	3	8	6	14	9	21	18	41	26	59

SCLR

SCLR – RMS & Peak Let-Through Currents (kA)

Prosp. Short C.C.	Fuse Size											
	30		60		100		200		400		600	
	I _{RMS}	I _p	I _{RMS}	I _p	I _{RMS}	I _p	I _{RMS}	I _p	I _{RMS}	I _p	I _{RMS}	I _p
5,000	1	2	1	3	2	4	3	6	5	12	5	12
10,000	1	2	2	4	2	5	4	8	7	15	9	20
15,000	1	3	2	4	3	6	4	10	8	18	11	24
20,000	1	3	2	5	3	7	5	11	9	20	12	28
25,000	1	3	2	5	3	7	5	12	10	22	13	31
30,000	1	3	2	5	3	8	5	13	10	24	14	33
35,000	2	4	2	5	4	8	6	13	11	25	15	35
40,000	2	4	2	6	4	9	6	14	11	26	16	37
50,000	2	4	3	6	4	9	6	14	12	28	17	40
60,000	2	4	3	6	4	10	7	15	13	30	19	43
70,000	2	4	3	7	5	10	7	16	14	32	20	45
80,000	2	4	3	7	5	11	7	17	14	33	21	48
90,000	2	5	3	7	5	12	8	18	15	35	22	50
100,000	2	5	3	7	5	12	8	19	16	36	23	52
150,000	2	5	4	8	6	14	9	21	18	41	26	60
200,000	3	6	4	9	7	15	10	23	20	46	29	66

***"Apparent Let-Through Amps" values are read from "Peak Let-Through Current Curves" and the peak current value divided by 2.3 Asymmetry Factor.



Catalog Number LCL (300 - 6000A) Time-Delay 600Vac or Less
Catalog Number LCU (601 - 6000A) Fast-Acting 600Vac or Less

Amp Ratings					
LCL					
300*	650	801	1350	1800	3500
400*	700	900	1400	2000	4000
500*	750	1000	1500	2500	—
601	800	1200	1600	3000	—
LCU					
601	800	1350	1800	3000	6000
650	1000	1500	2000	3500	—
700	1200	1600	2500	4000	—

* Not UL Listed (See note below).

LCL: Time-delay of 5 seconds minimum at 500% rated current allows closer sizing.

NOTE: LCL 300 - 500 amp fuses are physically the same as 800 amp size; Use in 800 amp switch where load current is not fully utilized and a smaller fuse amp size is desired. Also useful in new installations to allow for future upgrades in service.

LCL/LCU Specifications

LCL: Time-Delay
LCU: Fast-Acting

Voltage Rating: LCL - 600Vac, LCU - 600Vac

Amp Rating: LCL: 300 - 4000 Amps
LCU: 601 - 6000 Amps

Interrupting Rating: 200,000 RMS Symmetrical Amps

Current Limiting: Class L Fuse

Agency Approvals:

UL Listed, Class L, Guide JDDZ, File E162363
CSA Certified HRC-L per C22.2, No. 248.10

Benefits:

- "O-ring" construction insures maximum current limiting ability.
- Silver plated micro-peened terminals.
- High strength melamine fuse tubes.

Applications:

- **LCL:** Recommended for AC power distribution system mains and large feeders.
- **LCU:** Recommended for non-inductive heating and lighting loads. Also suitable for protection of low interrupting rating circuit breakers.

Recommended Sizing:

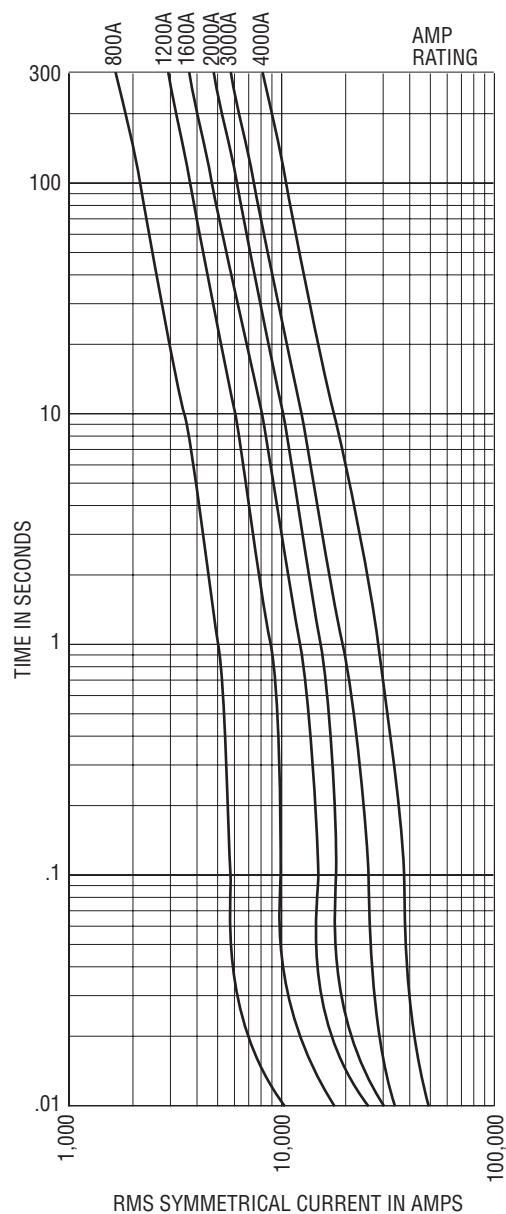
LCL: 150% or more of motor full load current.

Recommended Upgrade:

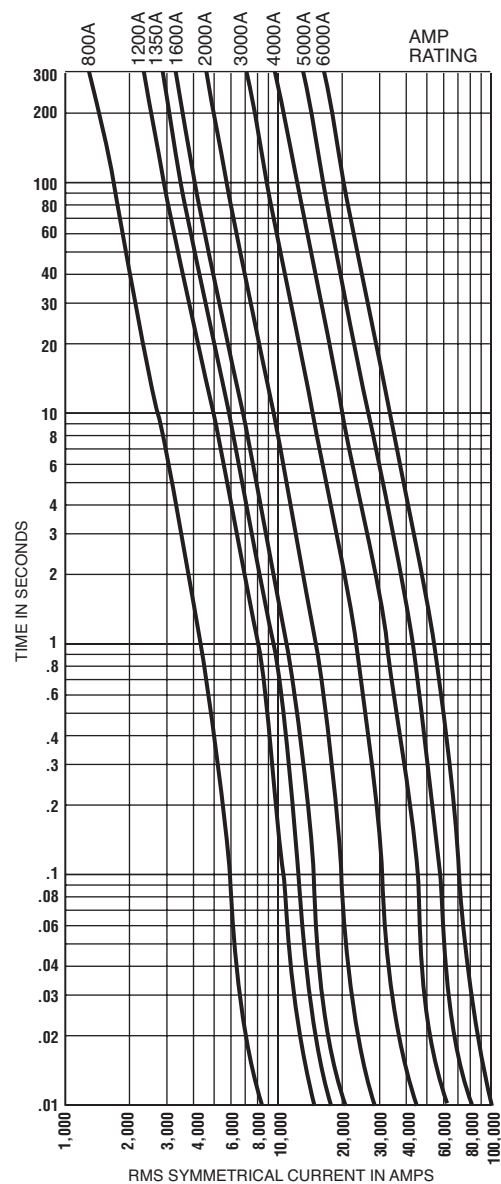
None Available.

Average Time-Current Curves

Cat. No. LCL (Amp)

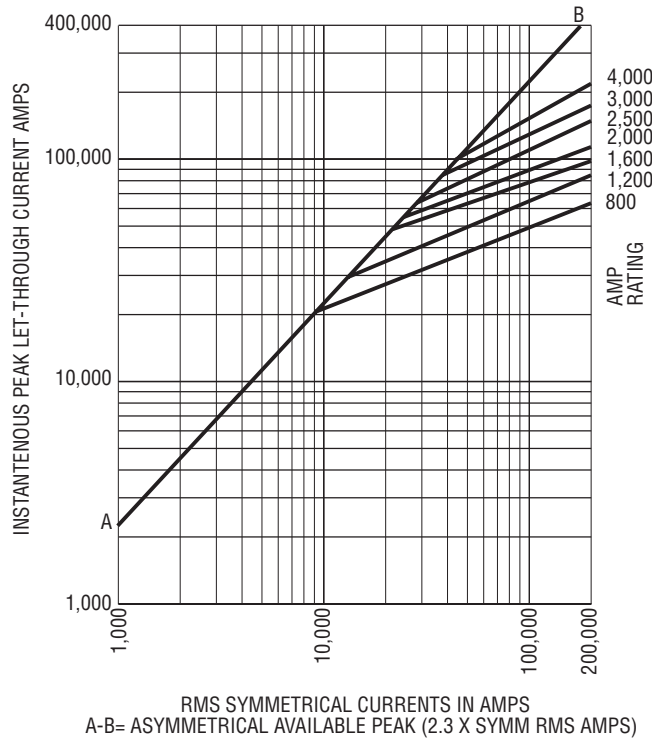


Cat. No. LCU (Amp)

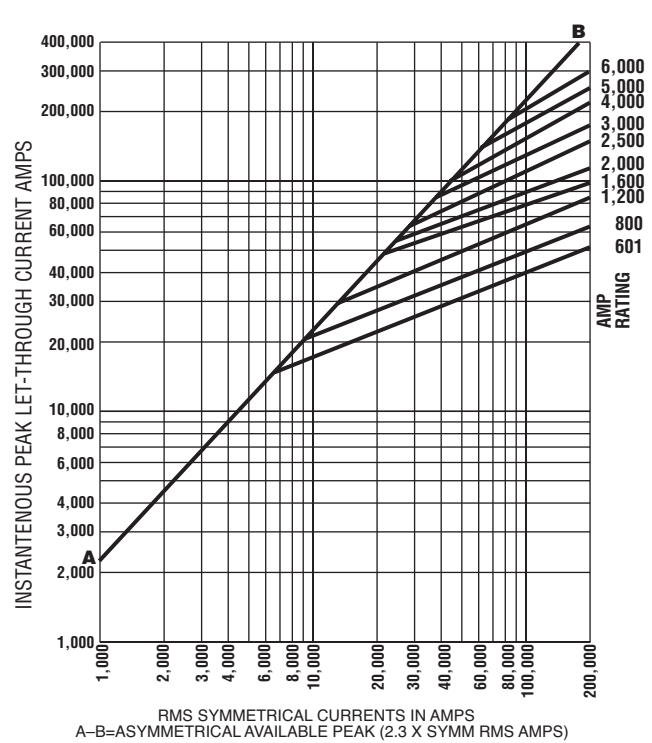


Peak Let-Through Current Curves*

LCL



LCU



*Curves test data obtained at 15% short-circuit power factor when possible.

Current Limitation Tables**

LCL

Current-Limiting Effects

*Prop. S.C.C.	Let-Through Current (Apparent RMS Symmetrical) Versus Fuse Ratings						
	800A	1200A	1600A	2000A	3000A	4000A	6000A
5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
15,000	13,000	15,000	15,000	15,000	15,000	15,000	15,000
20,000	14,000	18,000	20,000	20,000	20,000	20,000	20,000
25,000	16,000	21,000	25,000	25,000	25,000	25,000	25,000
30,000	16,500	22,500	26,000	30,000	30,000	30,000	30,000
40,000	18,000	25,500	29,000	34,000	40,000	40,000	40,000
50,000	19,000	27,000	32,000	37,000	42,000	45,000	50,000
60,000	21,000	29,000	35,000	41,000	45,000	50,000	60,000
80,000	24,000	32,000	39,000	45,000	51,000	57,000	80,000
100,000	26,000	36,000	41,000	51,000	55,000	64,000	90,000
150,000	30,000	40,000	48,000	58,000	66,000	78,000	110,000
200,000	34,000	45,000	52,000	65,000	76,000	92,000	140,000

* RMS Symmetrical Amps Short-Circuit Current.

NOTE: Data derived from Current Limiting Curves.

LCU

Current-Limiting Effects

*Prop. S.C.C.	Let-Through Current (Apparent RMS Symmetrical) Versus Fuse Ratings							
	800A	1200A	1600A	2000A	3000A	4000A	5000A	6000A
5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
10,000	9,700	10,000	10,000	10,000	10,000	10,000	10,000	10,000
15,000	11,500	13,000	15,000	15,000	15,000	15,000	15,000	15,000
20,000	12,500	15,400	18,000	20,000	20,000	20,000	20,000	20,000
25,000	14,000	16,000	21,000	25,000	25,000	25,000	25,000	25,000
30,000	14,500	17,500	22,000	27,000	30,000	30,000	30,000	30,000
35,000	15,000	18,000	24,000	28,000	35,000	35,000	35,000	35,000
40,000	15,500	19,000	25,000	29,000	40,000	40,000	40,000	40,000
50,000	16,000	21,000	26,000	32,000	44,000	48,000	50,000	50,000
60,000	19,000	24,000	28,000	34,000	48,000	51,000	60,000	60,000
80,000	20,000	26,000	31,000	36,000	52,000	60,000	72,000	80,000
100,000	23,000	29,000	39,000	40,000	57,000	68,000	81,000	95,000
150,000	27,000	34,000	40,000	47,000	70,000	79,000	98,000	115,000
200,000	29,000	39,000	43,000	50,000	78,000	93,000	110,000	141,000

* RMS Symmetrical Amps Short-Circuit Current.

NOTE: Data derived from Current Limiting Curves.

***"Apparent Let-Through Amps" values are read from "Peak Let-Through Current Curves" and the peak current value divided by 2.3 Asymmetry Factor.

General Application:

Edison Class L fuses, Catalog Numbers LCL time-delay or LCU fast acting are recommended for high capacity main, feeder or branch circuits in power distribution systems and for special applications such as system upgrading, install ahead of network protectors, etc. The choice of LCL or LCU depends on the extent of mixed inductive and non-inductive loads diversity. Apply LCL fuses for protection of large individual motor circuits. Size LCL fuses at 150% or more of the motor nameplate current rating by checking starting characteristics against minimum melt Time-Current Curve.

Class L Fuses Specification:

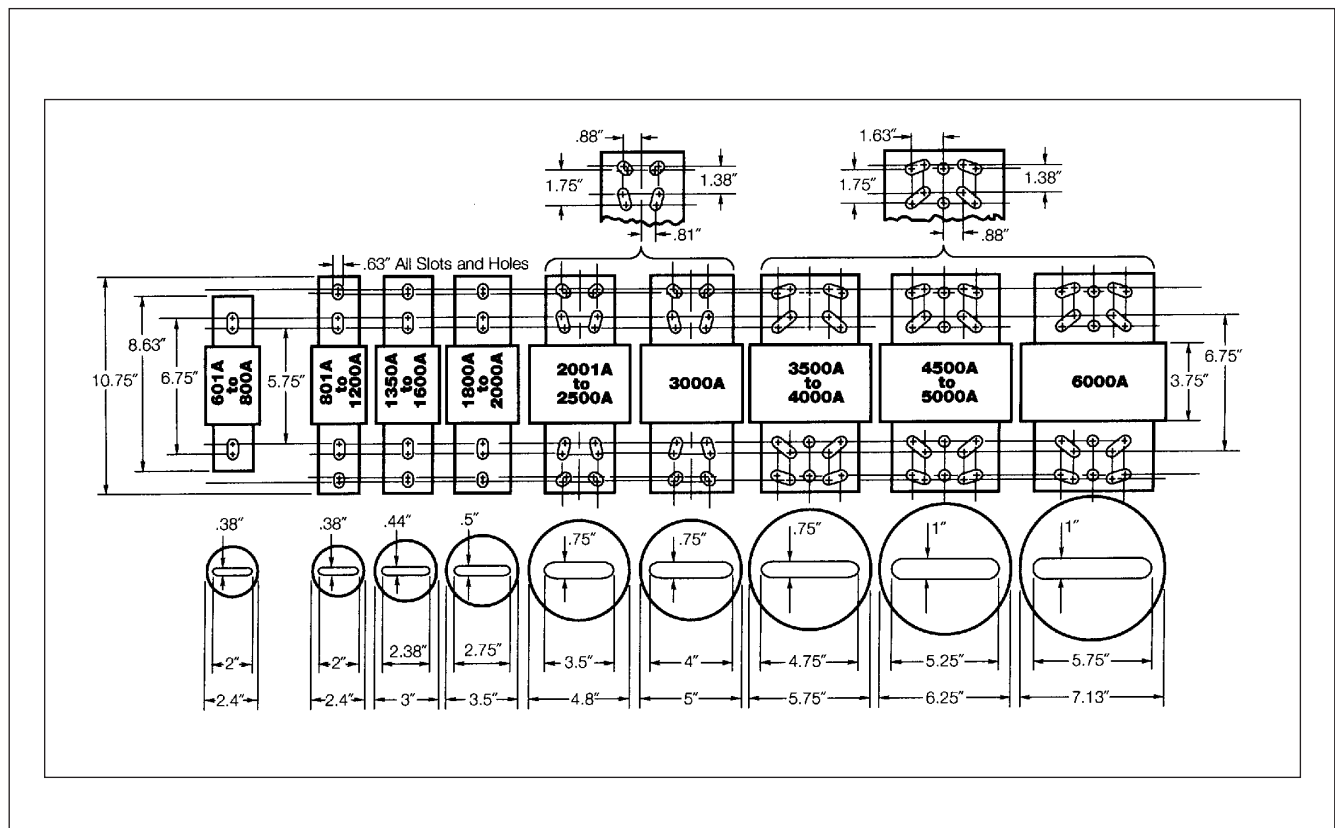
Install Class L Fuses in switches rated 601-6000 amps and in AMP RATINGS and "time-delay" or "fast-acting" types as shown on the plans. Installed and spare

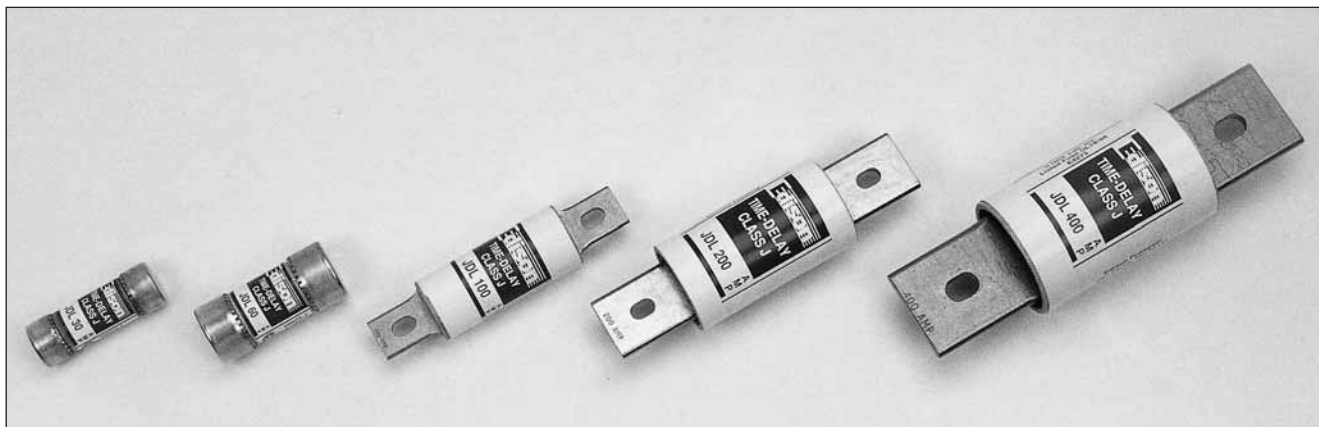
"time-delay" fuses shall be Catalog Number LCL and "fast-acting" fuses shall have silver links and be Catalog Number LCU. Fuses shall be Edison fuses or equivalent submitted to the design engineer for approval 10 days prior to the project bid date.

Mounting of "Bolt-On" Fuses shall be made by installing stainless steel bolts of correct number, diameter and length*, stainless steel spring washers on each side of the bolt and stainless steel nuts. The nuts shall be tightened to the torque recommended by ASTM Standards for the bolt size used.

*Bolts shall have the largest diameter to fit fuse bolt holes and length to allow full nut thread engagement. Bolts shall be installed in each fuse mounting hole.

Class L Fuse Dimensions - inches





Catalog Number JDL (1 - 600A) 600Vac or Less

Amp Ratings					
JDL					
1	4	12	40	100	250
1.25	5	15	45	110	300
1.6	5.6	17.5	50	125	350
2	6	20	60	150	400
2.5	7	25	70	175	450
3	8	30	80	200	500
3.5	10	35	90	225	600

Edison JDL Class J fuses are among the most current limiting time-delay fuses available. Their small physical size and high performance characteristics makes Class J fuses ideal for any space-limited application.

JDL Specifications

Dual-Element, Time-Delay

Voltage Rating: JDL - 600Vac

Amp Rating: 1 - 600 Amps

Interrupting Rating: 200,000 RMS Symmetrical Amps

Current Limiting: Class J Fuse

Agency Approvals:

UL Listed, Class J, Guide JDDZ, File E162363
CSA Certified per C22.2, No. 248.8

Self-Certified DC Ratings:

Voltage Rating: JDL (1-600) 300Vdc
Interrupting Rating: JDL 20,000 Amps DC

Benefits:

- Space saving dimensions vs. Class R.
- Dual-Element construction provides superior time-delay to pass harmless motor or transformer surges.
- High performance with fatigue - free cycling capabilities.
- Extremely current limiting.

Applications:

- Recommended for Type 2 "No Damage" protection of IEC style motor starters and contactors.
- Use to protect lower interrupting rating circuit breakers.
- All general purpose circuits with inductive (high inrush) loads, including motor and motor branch circuits, and transformer circuits. Also suitable for lighting loads.

Recommend Fuse Blocks:

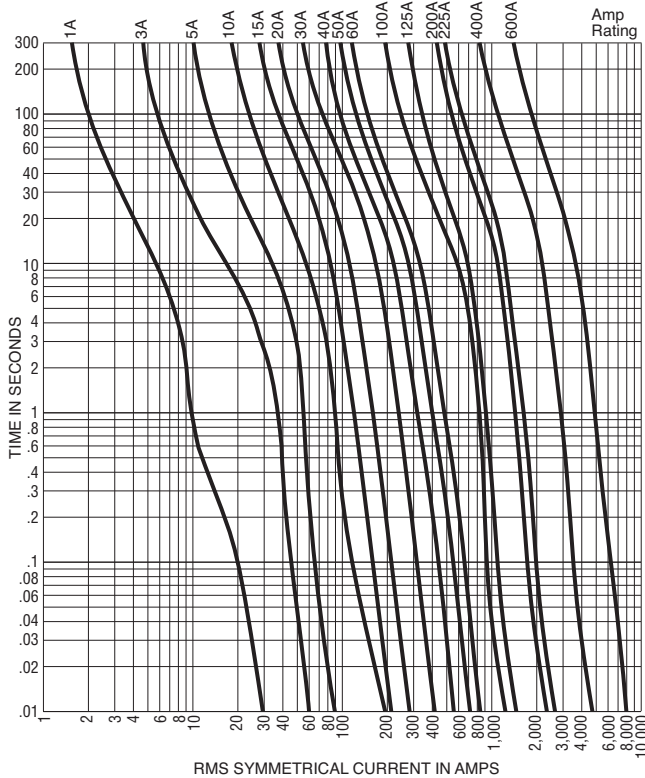
Refer to page 130 in this catalog.

Recommend Upgrade:

None.

Average Time-Current Curve

Cat. No. JDL (Amp)



Current-Limiting Effects

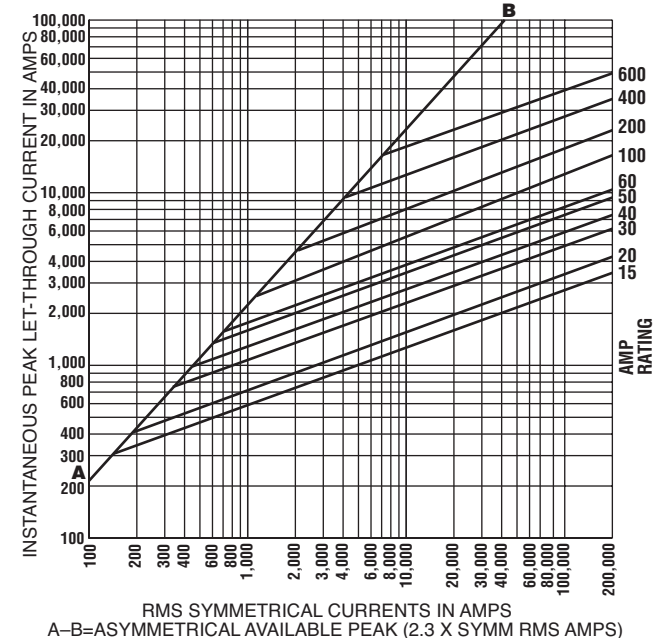
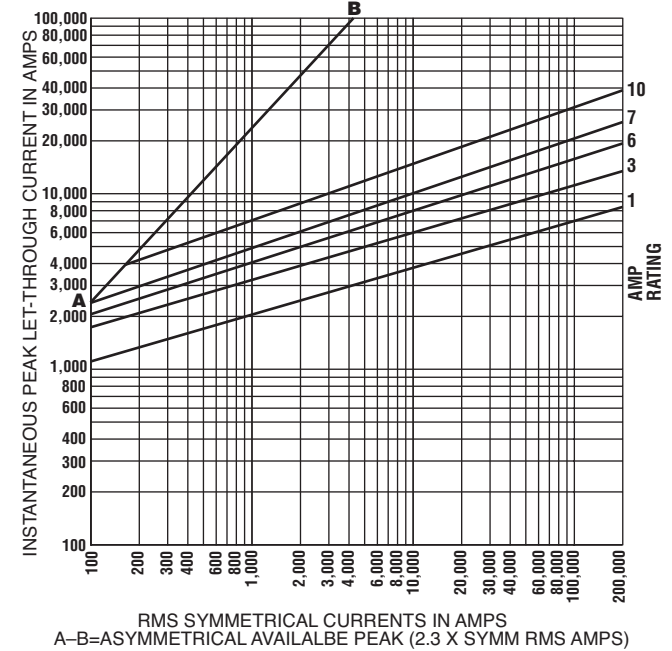
*Prop. S.C.C.	Let-Through Current (Apparent RMS Symmetrical)						
	JDL Fuse Ratings						
	15A	30A	60A	100A	200A	400A	600A
1,000	270	470	750	—	—	—	—±
3,000	370	670	1,130	1,640	2,360	—	—
5,000	450	800	1,420	1,910	2,760	4,400	—
10,000	550	1,000	1,730	2,450	3,520	5,540	8,000
15,000	625	1,220	1,890	2,850	4,000	6,420	9,000
20,000	700	1,330	2,120	3,090	4,400	7,000	10,000
25,000	750	1,440	2,250	3,400	5,000	7,500	11,100
30,000	800	1,530	2,370	3,650	5,140	8,000	11,800
35,000	820	1,600	2,580	3,780	5,430	8,330	12,500
40,000	900	1,640	2,670	4,000	5,640	9,000	13,270
50,000	925	1,760	2,790	4,470	6,000	9,380	13,820
60,000	1,000	1,850	3,000	4,670	6,420	10,000	15,000
80,000	1,160	2,000	3,220	5,000	7,400	11,270	16,000
100,000	1,220	2,150	3,520	5,360	7,950	12,180	17,270
150,000	1,400	2,460	4,000	6,170	9,000	14,360	19,270
200,000	1,560	2,640	4,450	7,000	10,000	15,820	20,600

*RMS Symmetrical Amps Short-Circuit Current.

NOTE: Data derived from Current Limiting Curves.

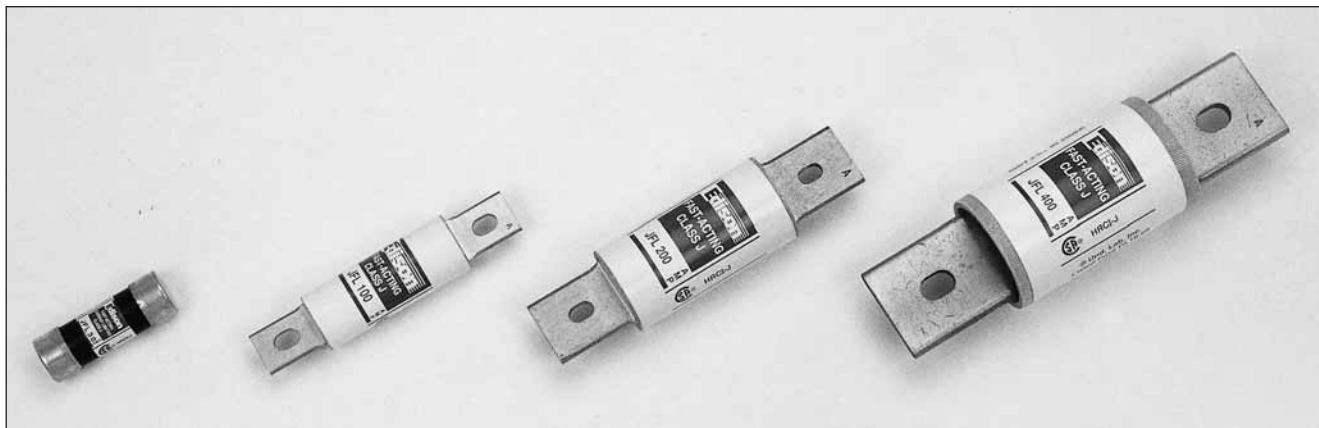
Peak Let-Through Current Curves

Cat. No. JDL (Amp)



Dimensions

Refer to JFL Section on page 21.

**Catalog Number JFL (1 - 600A) 600Vac or Less**

Amp Ratings					
JFL					
1	8	30	70	150	350
2	10	35	80	175	400
3	12	40	90	200	450
4	15	45	100	225	500
5	20	50	110	250	600
6	25	60	125	300	—

Edison JFL Class J fuses are among the most current limiting fuses available. Their small physical size and high performance characteristics makes Class J fuses ideal for any space - limited application.

Edison JFL fuses are best suited for the protection of non-inductive loads such as resistive heating, and lighting circuits.

JFL Specifications

Fast-Acting

Voltage Rating: JFL - 600Vac**Ampere Rating:** 1 - 600 Amps**Interrupting Rating:** 200,000 RMS Symmetrical Amps**Current Limiting:** Class J Fuse**Agency Approvals:**

UL Listed, Class J, Guide JDDZ, File E162363

CSA Certified per C22.2, No. 248.8

Benefits:

- Space saving dimensions vs. Class R.
- Fast-acting design permits quick response for both overloads and shorts.
- Extremely current-limiting.

Applications:

- Recommended for protection of non-inductive loads, such as lighting and resistance heating circuits.
- For motor applications, refer to Edison JDL.

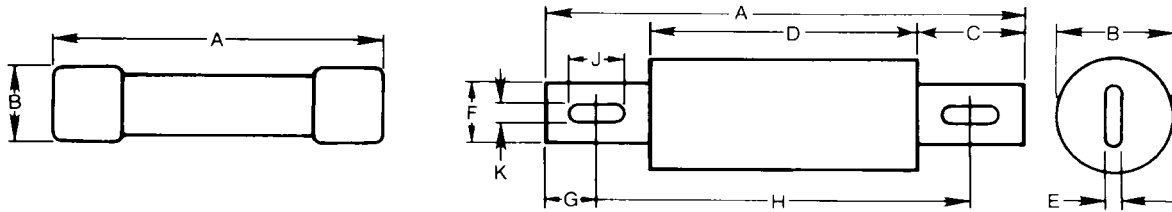
Recommended Fuse Blocks:

Refer to page 130 in this catalog.

Recommended Upgrade:

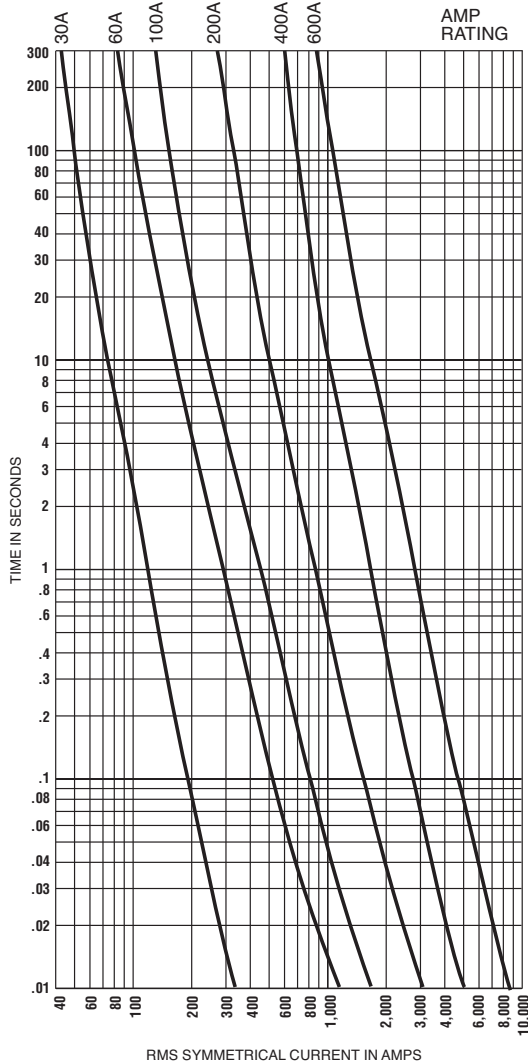
JDL.

Cat No. JFL and JDL Dimensions - inches



Amp Rating Range	Overall Length A	Max. Dia. B	Blade Length C	Barrel Length D	Blade Thickness E	Blade Width F	Mounting Hole Spacing			
							G	H	J	K
1-30	2-1/4	13/16	—	—	—	—	—	—	—	—
35-60	2-3/8	1-1/16	—	—	—	—	—	—	—	—
70-100	4-5/8	1-1/18	1	2-5/8	1/8	3/4	1/2	3-5/8	3/8	9/32
110-200	5-3/4	1-5/8	1-3/8	3	3/16	1-1/8	11/16	4-3/8	3/8	9/32
225-400	7-1/8	2-1/8	1-7/8	3-3/8	1/4	1-5/8	15/16	5-1/4	17/32	13/32
450-600	8	2-5/8	2-1/8	3-3/4	3/8	2	1	6	11/16	17/32

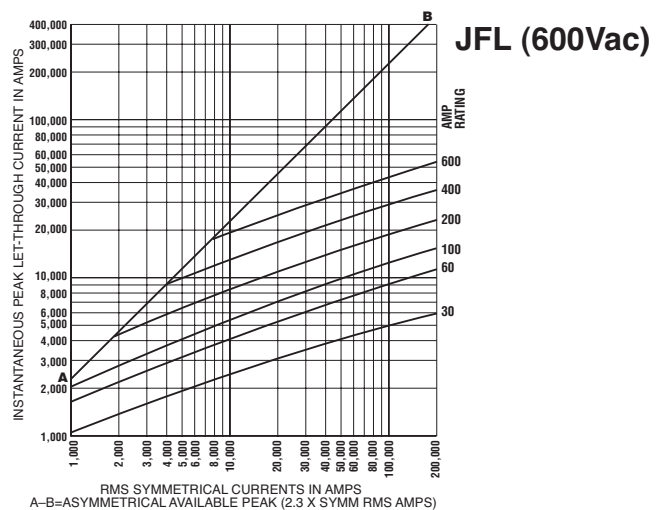
**Average Time-Current Curve
Cat. No. JFL (Amp)**



**Current Limitation Table*
JFL**

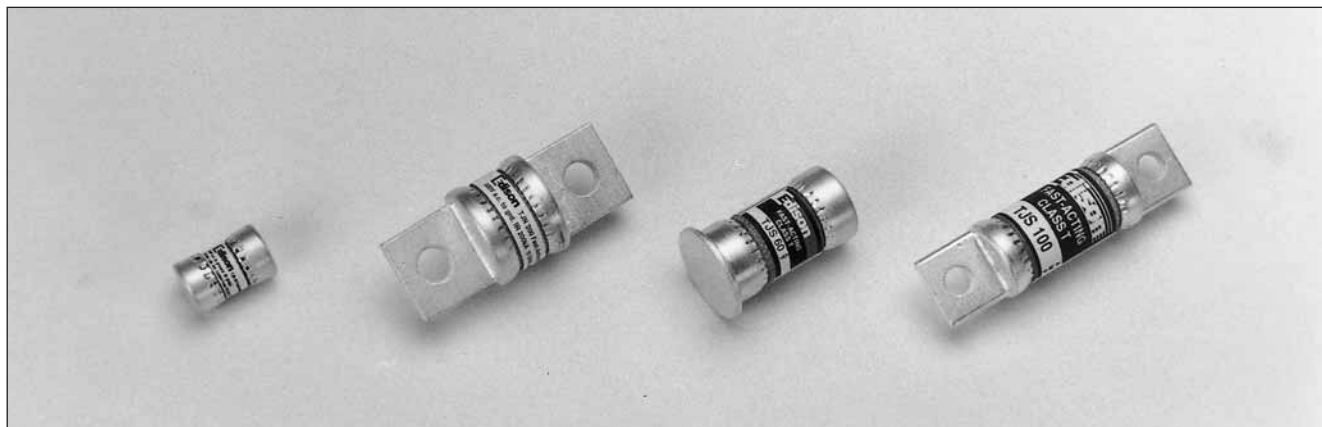
Prosp. Short C.C.	Fuse Size											
	30		60		100		200		400		600	
	I _{RMS}	I _p	I _{RMS}	I _p	I _{RMS}	I _p	I _{RMS}	I _p	I _{RMS}	I _p	I _{RMS}	I _p
5,000	1	2	1	3	2	4	3	7	4	10	5	12
10,000	1	3	2	4	3	6	4	9	6	13	9	19
15,000	1	3	2	4	3	6	4	10	7	15	10	22
20,000	1	3	2	5	3	7	5	12	8	18	11	25
25,000	2	4	3	6	3	8	6	13	9	19	12	28
30,000	2	4	3	6	3	8	6	13	9	20	13	30
35,000	2	4	3	7	4	9	6	14	9	21	13	30
40,000	2	4	3	7	4	9	7	15	10	22	14	32
50,000	2	5	3	8	4	10	7	16	10	23	15	35
60,000	2	5	3	8	5	11	7	17	11	25	16	37
70,000	2	5	3	8	5	12	8	18	11	25	17	39
80,000	2	5	3	8	5	12	8	18	12	28	17	39
90,000	2	5	4	9	6	13	9	19	13	29	18	41
100,000	2	5	4	9	6	13	9	19	13	30	18	42
150,000	2	5	5	11	6	14	9	21	14	33	22	50
200,000	3	6	5	12	7	15	10	22	16	37	24	55

Peak Let-Through Current Curves**



* "Apparent Let-Through Amps" values are read from "Peak Let-Through Current Curves" and the peak current value divided by 2.3 Asymmetry Factor.

** Curves test data obtained at 15% short-circuit power factor when possible.



Catalog Number TJN (1 - 1200A) 300Vac or Less

Catalog Number TJS (1 - 800A) 600Vac or Less

Amp Ratings					
TJN					
1	30	70	150	350	800
3	35	80	175	400	1000
6	40	90	200	450	1200
10	45	100	225	500	—
15	50	110	250	600	—
20	60	125	300	700	—
TJS					
1	25	60	125	300	800
3	30	70	150	350	—
6	35	80	175	400	—
10	40	90	200	450	—
15	45	100	225	500	—
20	50	110	250	600	—

Edison Class T fuses are extremely fast-acting fuses in a compact, space saving size. These fuses are ideal as the main fuse protection for panelboards, load centers and meter stacks.

TJN/TJS Specifications

Extremely Fast-Acting

Voltage Rating: TJN - 300Vac, TJS - 600Vac

Amp Rating: TJN: 1 - 1200 Amps TJS: 1 - 800 Amps

Interrupting Rating: 200,000 RMS Symmetrical Amps

Current Limiting: Class T Fuse

Agency Approvals:

UL Listed, Class T, Guide JDDZ,, File E162363
CSA Certified per C22.2, No. 248.15, LR700489

Self-Certified DC Ratings:

Voltage Rating: TJN (15-1200) 160Vdc

Interrupting Rating:

TJN (15-600) 20,000 Amps DC
TJN (601-1200) 100,000 Amps DC

Benefits:

- No intentional time-delay; opens quickly on overload.
- Extremely current-limiting silver link construction; provides superior short-circuit component protection.

Applications:

- Recommended for protection of non-inductive loads, such as lighting and resistance heating circuits.
- Use to protect lower interrupting rating circuit breakers when series rated with Class T fuses.
- For motor protection, size at 300% FLA which provides short circuit protection only.

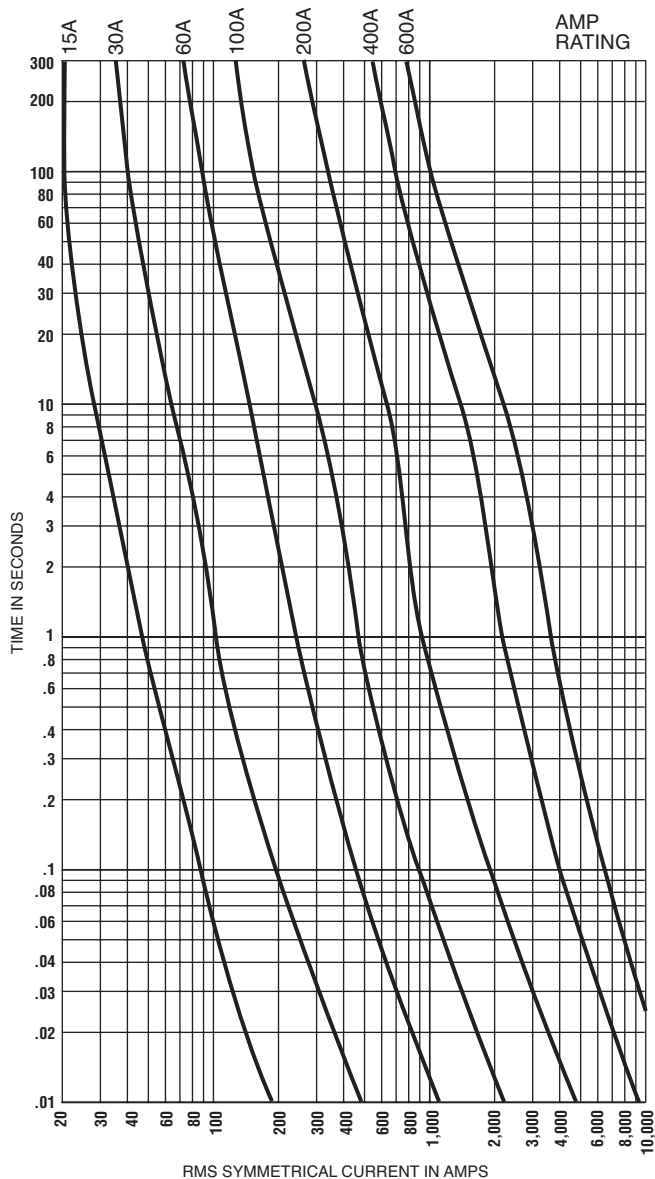
Recommended Fuse Blocks:

Refer to page 131 in this catalog.

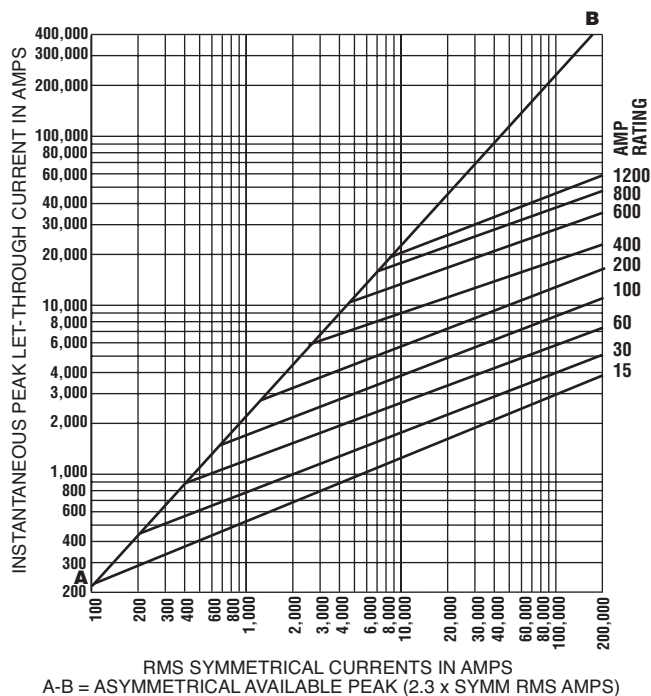
Recommended Upgrade:

None Available.

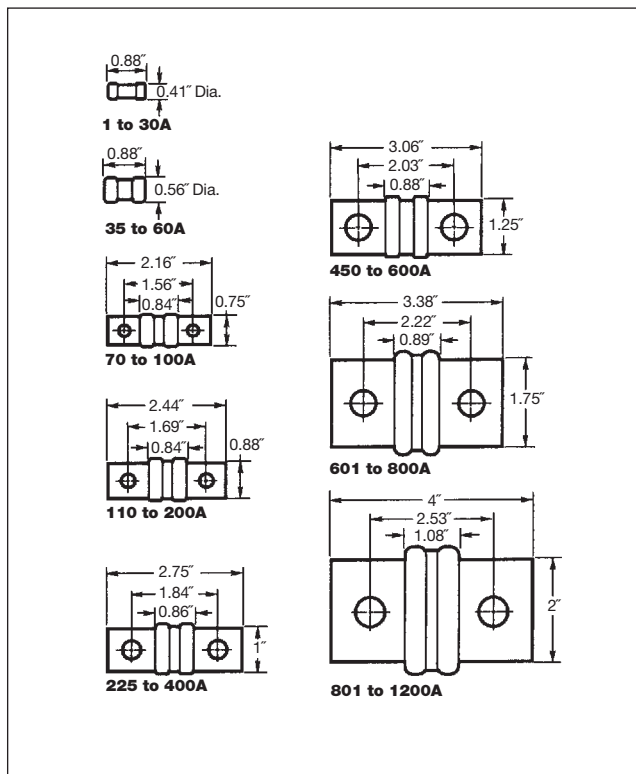
Average Time-Current Curve Cat. No. TJN (Amp)



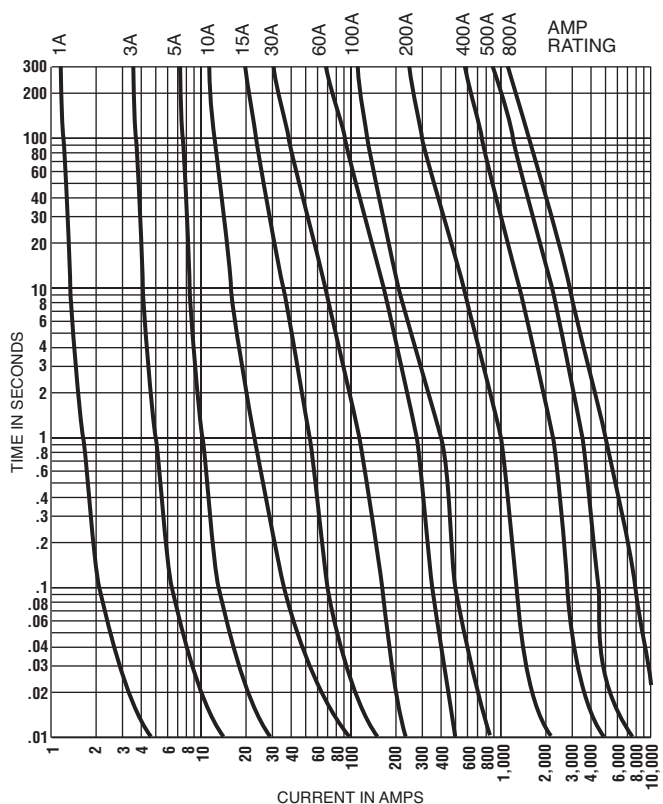
Peak Let-Through Current Curve Cat. No. TJN (Amp)



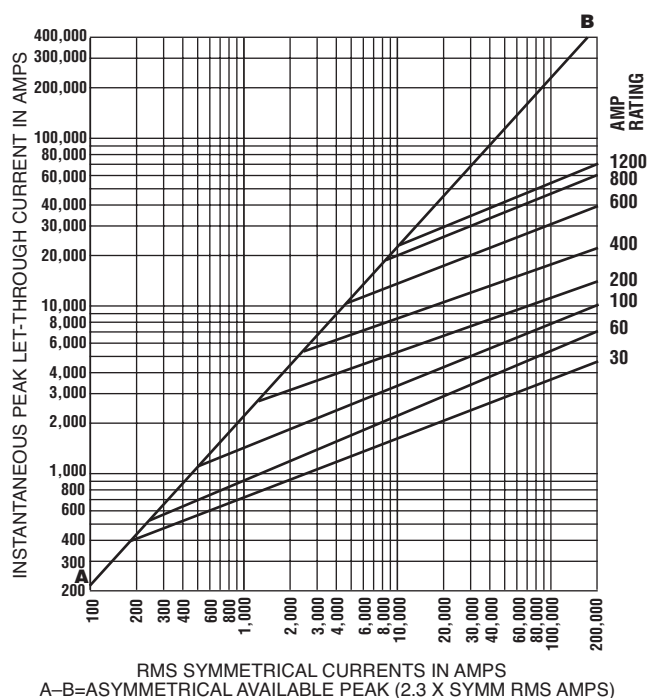
TJN Dimensions - in



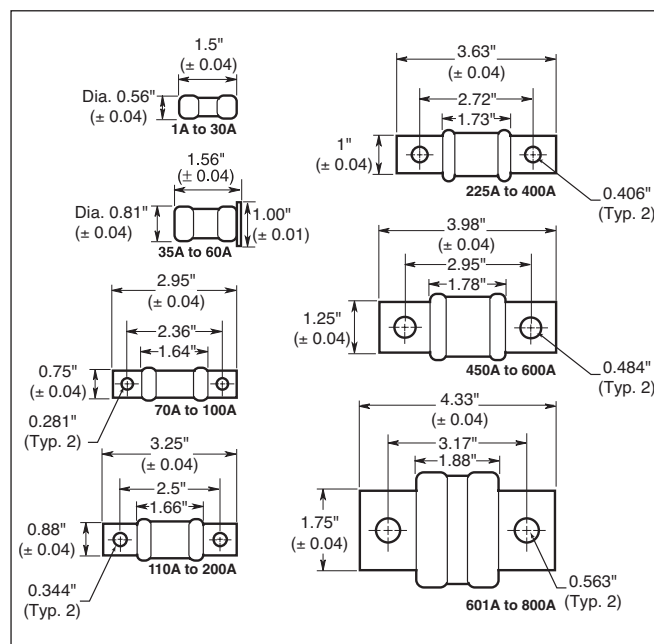
Average Time-Current Curve Cat. No. TJS (Amp)



Peak Let-Through Current Curve Cat. No. TJS (Amp)



TJS Dimensions - inches





Catalog Number SEC (0.5 - 60A) 600Vac or Less

Amp Ratings				
SEC				
.5	3	8	25	45
1	4	10	30	50
1.5	5	15	35	60
2	6	20	40	—

Dimensions - inches		
Amps	Ferrule Diameter	Length
1 - 15	0.41	1.31
20	0.41	1.41
25 - 30	0.41	1.63
35 - 60	0.41	2.25

SEC Specifications

Fast-Acting; Time-Delay*

Voltage Rating: SEC 0.5 to 20 600Vac
SEC 25 to 60 480Vac

Amp Rating: 0.5 to 6 Amps (fast-acting),
7 to 60 Amps (time-delay)

Interrupting Rating: 100,000 RMS Symmetrical Amps

Current Limiting: Class G Fuse

Agency Approvals:

UL Listed, Std. 248-5, Class G, Guide JDDZ, File E162363
CSA Certified, C22.2 No. 248.5, Class 1422-01, File 700489

Self-Certified DC Ratings:

Voltage Rating: SEC (0.5-20A) 170Vdc;
SEC (30 and 60A only) 300Vdc

Interrupting Rating: 10,000 Amps DC

*Fast-acting/time-delay varies by amp rating

Benefits:

- Branch circuit rated for 480Vac.
- Compact size features varying length rejection feature which helps prevent overfusing.
- Time-delay of 12 sec. min. at 200% rating for amp sizes 6 through 60.

Applications:

- General purpose for use in 120/208 and 277/480 circuits. Ideal for fluorescent fixture protection.
- Light inductive loads including motors, solenoids, etc. (For additional delay, refer to Edison EDCC or JDL).

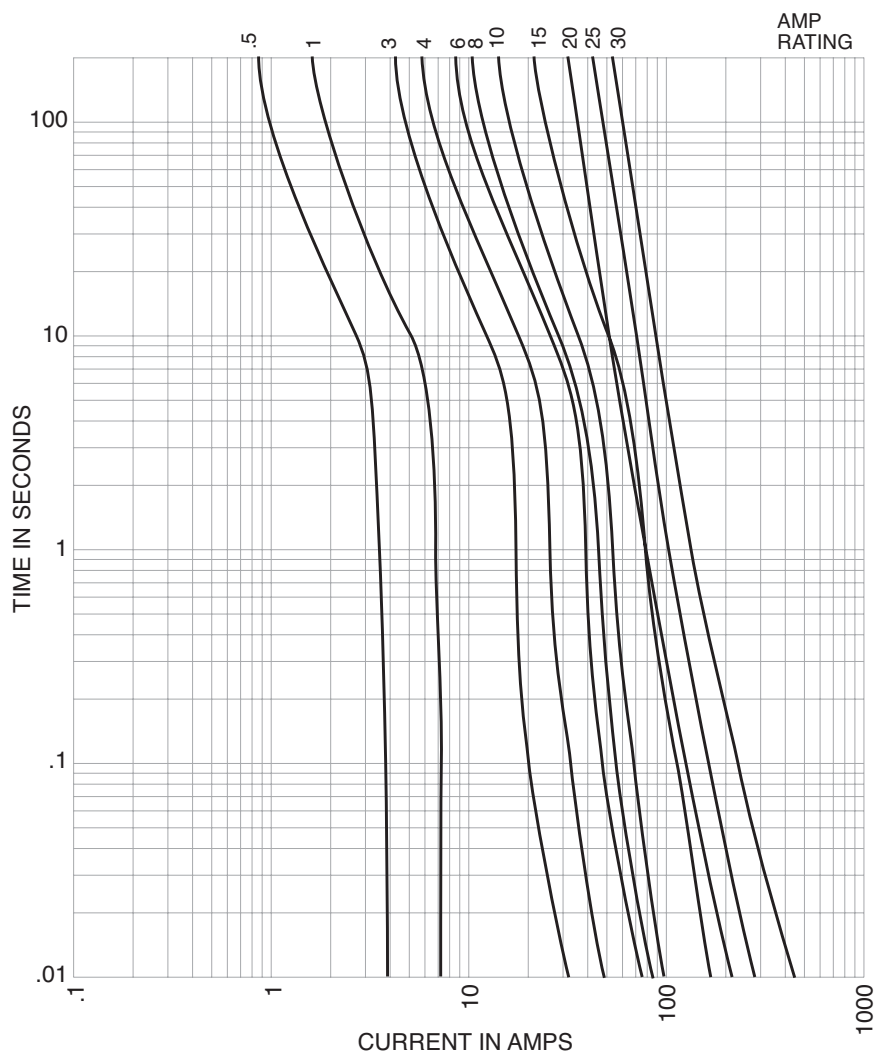
Recommended Fuse Blocks:

Refer to page 133 in this catalog.

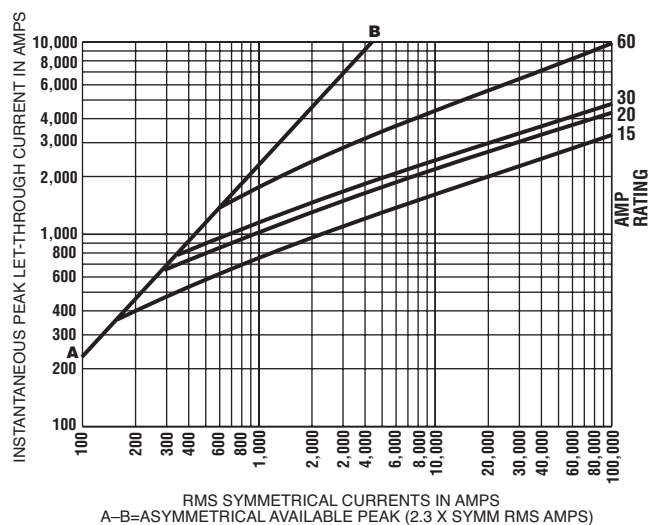
Recommended Upgrade:

None Available.

Average Time-Current Curve
Cat. No. SEC (Amp)



Peak Let-Through Current Curve
Cat. No. SEC (Amp)





Catalog Number EDCC (0.5 - 30A) 600Vac or Less

Amp Ratings				
EDCC				
0.5	1.5	3	6	12
0.6	1.6	3.2	6.25	15
0.8	1.8	3.5	7	20
1	2	4	7.5	25
1.125	2.25	4.5	8	30
1.25	2.5	5	9	—
1.4	2.8	5.6	10	—

Dimensions - inches		
Amps	Ferrule	Length
0.5 - 30	13/32	1-1/2

Edison EDCC Class CC fuses are extremely current-limiting fuses in a compact size.

EDCC fuses are designed specifically for the protection of small horsepower motor circuits.

Recommended sizing for most applications is 200% FLA. Refer to time-current curves for specific applications.

EDCC Specifications

Time-Delay

Voltage Rating: EDCC - 600Vac

Amp Rating: 0.5 - 30 Amps

Interrupting Rating: 200,000 RMS Symmetrical Amps

Current Limiting: Class CC Fuse

Agency Approvals:

UL Listed, Class CC, Guide JDDZ, File E162363

CSA Certified per C22.2, No. 248.4

UL Listed DC Rating:

Voltage Rating: EDCC 0.5-2.8A, 20-30A 300Vdc
3-15A 150Vdc

Interrupting Rating: 20,000 Amps DC

Benefits:

- Branch circuit rated for 600Vac.
- Time-delay for motor branch circuit protection.
- Excellent current-limiting performance.
- Upgrade for standard "midget" fuses.

Applications:

- Use for protection of small horsepower motor circuits or other circuits requiring small dimension, time-delay fuses.
- Can provide Type 2 "No Damage" protection for IEC or NEMA starters/contactors.
- For control transformer applications, refer to HCTR.

Recommended Fuse Blocks:

Refer to page 134 in this catalog.

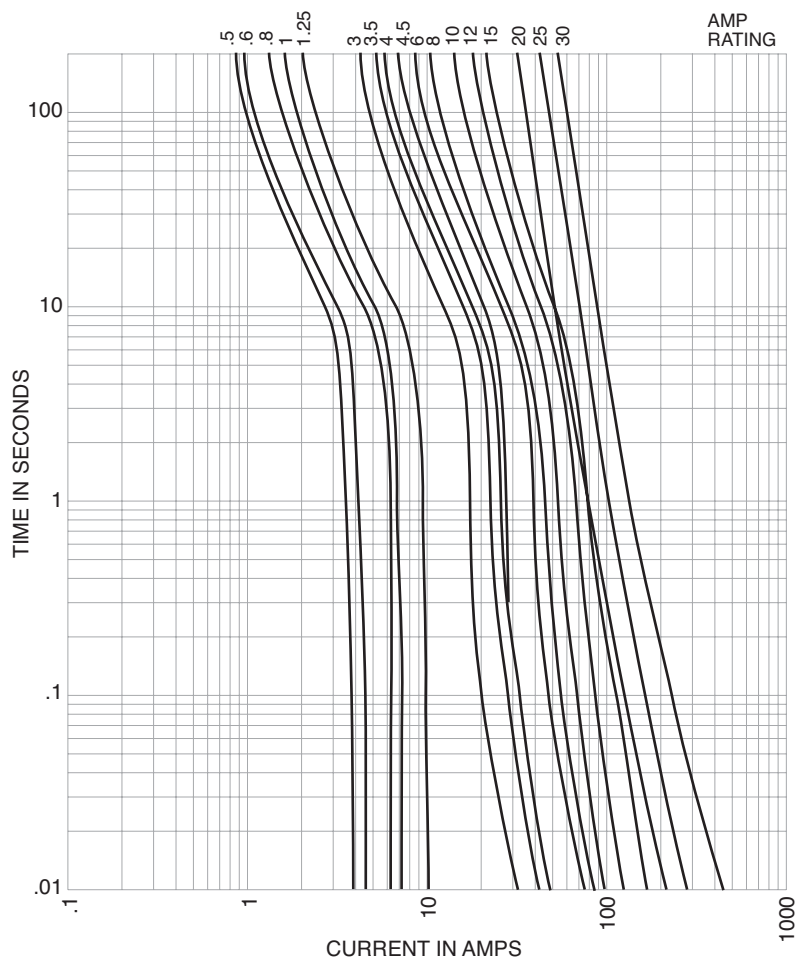
Recommended Inline Fuse Holders:

Refer to page 147 in this catalog.

Recommended Upgrade:

None Available.

Time- Current Characteristics Curve Average Melt EDCC Fuses



Current-Limiting Effects EDCC Fuse Rating

*Prospective Short-Circuit Current	Let-Through Current (Apparent RMS Symmetrical) Versus Fuse Ratings					
	1.25A	2.8A	15A	20A	25A	30A
1000	100	135	240	305	380	435
3000	140	210	350	440	575	580
5000	165	255	420	570	690	710
10,000	210	340	540	700	870	1,000
20,000	260	435	680	870	1,090	1,305
30,000	290	525	800	1,030	1,300	1,520
40,000	315	610	870	1,150	1,390	1,700
50,000	340	650	915	1,215	1,520	1,820
60,000	350	735	1,050	1,300	1,650	1,980
80,000	390	785	1,130	1,500	1,780	2,180
100,000	420	830	1,210	1,600	2,000	2,400
200,000	525	1,100	1,600	2,000	2,520	3,050

*RMS Symmetrical amps short-circuit current.

NOTE: To calculate I_p (I_{peak}) multiply I_{RMS} value x 2.3.



**Catalog Number HCLR (0.1 - 30A)
600Vac or Less
Fast-Acting**

Amp Ratings				
0.1	0.5	2.5	6	12
0.125	0.75	3	7	15
0.2	1	3.5	8	20
0.25	1.5	4	9	25
0.3	2	5	10	30

Dimensions - inches		
Amps	Ferrule	Length
0.1 - 30	13/32	1-1/2

HCLR Specifications

Fast-Acting

Voltage Rating: HCLR - 600Vac

Amp Rating: 0.1 - 30 Amps

Interrupting Rating: 200,000 RMS Symmetrical Amps

Current Limiting: Class CC Fuse

Agency Approvals:

UL Listed, Class CC, Guide JDDZ, File E162363
CSA Certified per C22.2, No. 248.4

Benefits:

- Branch circuit rated for 600Vac.
- Compact dimensions.
- Fast-acting design responds quickly to both overload and short-circuit current.

Applications:

- Lighting and resistive heating loads.

Recommended Fuse Blocks:

Refer to page 134 in this catalog.



**Catalog Number HCTR (0.25 - 30A)
600Vac or Less
Time-Delay**

Amp Ratings						
0.25	0.75	1.3	2	3.2	6.25	12
0.3	0.8	1.4	2.25	3.5	7.5	15
0.4	1	1.5	2.5	4	8	20
0.5	1.125	1.6	2.8	5	9	25
0.6	1.25	1.8	3	6	10	30

Dimensions - inches		
Amps	Ferrule	Length
0.25 - 30	13/32	1-1/2

HCTR Specifications

Time-Delay

Voltage Rating: HCTR - 600Vac

Amp Rating: 0.25 - 30 Amps

Interrupting Rating: 200,000 RMS Symmetrical Amps

Current Limiting: Class CC Fuse

Agency Approvals:

UL Listed, Class CC, Guide JDDZ, File E162363
CSA Certified per C22.2, No. 248.4

Benefits:

- Branch circuit rated for 600Vac.
- Compact dimensions.
- Time-delay design allows closer sizing for inductive loads such as control transformers and solenoids.

Applications:

- Primary protection for control transformers.

Recommended Fuse Blocks:

Refer to page 134 in this catalog.

Recommended Inline Fuse Holders:

Refer to page 147 in this catalog.

Recommended Panel Mount Holders:

Refer to page 150 in this catalog.

Average Time-Current Curve

Cat. No. HCLR (Amp) Fast-Acting

Cat. No. HCTR (Amp) Time-Delay

