

KLKD SERIES 10x38 FUSES

600 VAC • 600 VDC • 1/10-30 A • Fast Acting



Description

The KLKD fuse series is fast-acting with a high DC voltage rating. This family of Midget style fuses (10 x 38 mm) is used in solar combiner boxes and in circuits with DC fault currents up to 50,000 amperes. KLKD fuses are available in standard and board-mount configurations.

In addition, the KLKD series has been designed to meet both the UL and IEC photovoltaic fuse standards.

Littelfuse offers a wide range of ampere ratings to match specific requirements in a variety of applications.

Features/Benefits

- Designed to UL and IEC photovoltaic specifications
- 1/10-30 A ratings available
- 50 kA DC Voltage Interrupting Rating (1/10-30 A)
- Both standard and board-mount configurations available
- 1-5 A meets UL1741 GFDI requirements

Applications

- Combiner boxes
- Inverters
- Power supplies
- Desktop meters
- 600 V circuit protection

Recommended Fuse Holders

LPSM Dead-Front Series

L60030M Series

L60030MPCB Board Mount Holder

Web Resources

Downloadable CAD drawings and other technical information: Littelfuse.com/klkd

Specifications

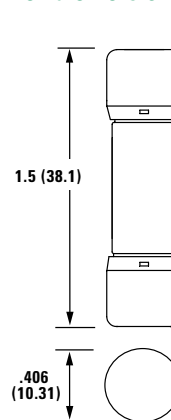
Voltage Rating:	600 VAC/VDC
Amperage Rating:	1/10, 1/8, 2/10, 1/4, 3/10, 1/2, 3/4, 1, 1 1/2, 2, 2 1/2, 3, 3 1/2, 4, 5, 6, 7, 8, 9, 10, 12, 15, 20, 25, 30
Interrupting Ratings:	AC: 100 kA DC: 1/10-30: 10 kA (UL 2579) 1/10-30: 50 kA (UL 248-14)
Material:	Body: Melamine Caps: Copper Alloy
Operating Temperature:	See Rerating Curve
Approvals:	1/10-30 A UL 2579 Listed (File: E339112) 2-25 A IEC 60269-6 (VDE Approved to Cert: 40033094) UL 248-14 Listed (File: E10480) CSA Certified (File: LR29862) (1/10-30 A Ferrule Style Only) CE Certified RoHS Compliant
Environmental:	RoHS Compliant
Country of Origin:	Mexico

Ordering Information

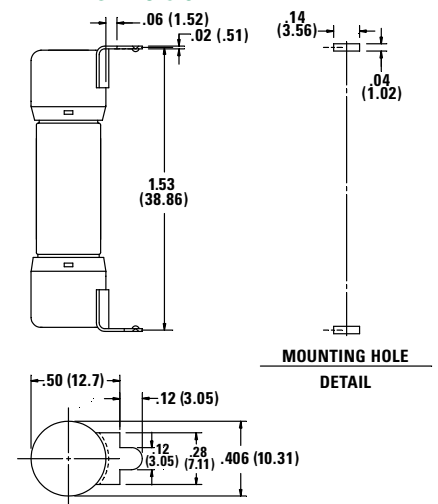
SERIES	AMP	MOUNTING METHOD	CATALOG NUMBER	ORDERING NUMBER
KLKD	1/8	FERRULE	KLKD.125	KLKD.125T
KLKD	5	FERRULE	KLKD005	KLKD005.T
KLKD	30	FERRULE	KLKD030	KLKD030.T
KLKD	30	PCB TABS	KLKD030R	KLKD030.HXR

Dimensions Inches (mm)

Ferrule Version



PCB Version



Look for this logo to indicate products that are used in solar applications. Visit our website Littelfuse.com/solar for the latest updates on approvals, certifications, and new products.

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Ordering Information Ferrule Version

CATALOG NUMBER	ORDERING NUMBER	AMP RATING	VOLTAGE RATING	INTERRUPTING RATING (kA)		UPC	WEIGHT IN POUNDS (GRAMS)	AGENCY APPROVALS		
			DC & AC	AC	DC			UL	VDE	CSA
KLKD 1/10	KLKD.100T	1/10	600	100	50	07945810189	.013 (5.90)	•		•
KLKD 1/8	KLKD.125T	1/8	600	100	50	07945810190	.013 (5.90)	•		•
KLKD 2/10	KLKD.200T	2/10	600	100	50	07945810191	.013 (5.90)	•		•
KLKD 1/4	KLKD.250T	1/4	600	100	50	07945810192	.013 (5.90)	•		•
KLKD 3/10	KLKD.300T	3/10	600	100	50	07945810193	.013 (5.90)	•		•
KLKD 1/2	KLKD.500T	1/2	600	100	50	07945810194	.013 (5.90)	•		•
KLKD 3/4	KLKD.750T	3/4	600	100	50	07945810195	.013 (5.90)	•		•
KLKD 1	KLKD001.T	1	600	100	50	07945810196	.013 (5.90)	•		•
KLKD 1 1/2	KLKD01.5T	1 1/2	600	100	50	07945810197	.013 (5.90)	•		•
KLKD 2	KLKD002.T	2	600	100	50	07945810198	.017 (7.71)	•	•	•
KLKD 2 1/2	KLKD02.5T	2 1/2	600	100	50	07945810199	.017 (7.71)	•	•	•
KLKD 3	KLKD003.T	3	600	100	50	07945810200	.017 (7.71)	•	•	•
KLKD 3 1/2	KLKD03.5T	3 1/2	600	100	50	07945810214	.017 (7.71)	•	•	•
KLKD 4	KLKD004.T	4	600	100	50	07945810201	.017 (7.71)	•	•	•
KLKD 5	KLKD005.T	5	600	100	50	07945810202	.017 (7.71)	•	•	•
KLKD 6	KLKD006.T	6	600	100	50	07945810203	.017 (7.71)	•	•	•
KLKD 7	KLKD007.T	7	600	100	50	07945810204	.017 (7.71)	•	•	•
KLKD 8	KLKD008.T	8	600	100	50	07945810205	.017 (7.71)	•	•	•
KLKD 9	KLKD009.T	9	600	100	50	07945810215	.017 (7.71)	•	•	•
KLKD 10	KLKD010.T	10	600	100	50	07945810206	.017 (7.71)	•	•	•
KLKD 12	KLKD012.T	12	600	100	50	07945810207	.017 (7.71)	•	•	•
KLKD 15	KLKD015.T	15	600	100	50	07945810208	.017 (7.71)	•	•	•
KLKD 20	KLKD020.T	20	600	100	50	07945810209	.017 (7.71)	•	•	•
KLKD 25	KLKD025.T	25	600	100	50	07945810210	.017 (7.71)	•	•	•
KLKD 30	KLKD030.T	30	600	100	50	07945810211	.017 (7.71)	•		•

Ordering Information PCB Version

CATALOG NUMBER	ORDERING NUMBER	AMP RATING	VOLTAGE RATING	INTERRUPTING RATING (kA)		UPC	AGENCY APPROVALS	
			DC & AC	AC	DC		UL	CE
KLKD 1/10-R	KLKD.100HXR	1/10	600	100	50	07945814857	•	•
KLKD 1/2-R	KLKD.500HXR	1/2	600	100	50	07945814858	•	•
KLKD 1-R	KLKD001.HXR	1	600	100	50	07945812133	•	•
KLKD 2-R	KLKD002.HXR	2	600	100	50	07945894349	•	•
KLKD 3-R	KLKD003.HXR	3	600	100	50	07945818991	•	•
KLKD 4-R	KLKD004.HXR	4	600	100	50	07945811495	•	•
KLKD 5-R	KLKD005.HXR	5	600	100	50	07945814859	•	•
KLKD 6-R	KLKD006.HXR	6	600	100	50	07945894350	•	•
KLKD 8-R	KLKD008.HXR	8	600	100	50	07945894351	•	•
KLKD 10-R	KLKD010.HXR	10	600	100	50	07945814860	•	•
KLKD 12-R	KLKD012.HXR	12	600	100	50	07945894352	•	•
KLKD 15-R	KLKD015.HXR	15	600	100	50	07945894353	•	•
KLKD 20-R	KLKD020.HXR	20	600	100	50	07945894354	•	•
KLKD 25-R	KLKD025.HXR	25	600	100	50	07945894355	•	•
KLKD 30-R	KLKD030.HXR	30	600	100	50	07945894356	•	•

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Electrical Specifications

CATALOG NUMBER	AMP RATING	NOM COLD RESISTANCE (ohm)	AVERAGE MELT TIME	AVERAGE MELTING I ² t	WATTS LOSS AT 100% RATED CURRENT (W)	WATTS LOSS AT 80% RATED CURRENT (W)	AVERAGE PEAK ARC VOLTAGE	AVERAGE CLEARING TIME	TOTAL CLEARING I ² t (A ² s) 20 kA	TOTAL CLEARING I ² t (A ² s) 100 kA
KLKD 1/10	1/10	85.5	–	–	0.780	0.505	754.32	0.000047	0.019	–
KLKD 1/8	1/8	65	–	–	0.975	0.659	811.56	0.000050	0.010	–
KLKD 2/10	2/10	30.9	–	–	1.213	0.773	834.19	0.000073	0.032	–
KLKD 1/4	1/4	22	–	–	1.364	0.870	–	–	–	–
KLKD 3/10	3/10	16.2	–	–	1.519	0.960	862.46	0.000101	0.067	–
KLKD 1/2	1/2	8.16	–	–	1.961	1.237	961.38	0.000141	0.197	–
KLKD 3/4	3/4	0.402	0.000063	0.234	0.361	0.199	1675.55	0.000170	0.753	–
KLKD 1	1	0.252	0.000094	0.678	0.388	0.273	1422.41	0.000247	1.827	0.008
KLKD 1 1/2	1 1/2	0.134	0.000153	2.890	0.409	0.229	1256.92	0.000828	13.956	280
KLKD 2	2	0.124	0.000145	2.379	0.823	0.606	2867.96	0.000291	3.919	0.012
KLKD 2 1/2	2 1/2	0.0989	0.000186	5.142	0.912	0.618	2820.44	0.000387	8.877	–
KLKD 3	3	0.0773	0.000211	7.821	0.957	0.654	2521.83	0.000449	14.835	–
KLKD 3 1/2	3 1/2	0.0613	0.000249	12.417	1.12	0.826	2762.89	0.000471	21.048	–
KLKD 4	4	0.0511	0.000284	18.945	1.367	0.891	2498.89	0.000507	30.76	0.019
KLKD 5	5	0.0363	0.000347	34.163	1.4	0.938	2397.30	0.000607	56.514	0.024
KLKD 6	6	0.0261	0.000423	62.951	1.516	0.998	2558.28	0.000735	96.824	0.035
KLKD 7	7	0.0205	0.000505	105.143	1.577	1.066	2433.04	0.000898	168.578	0.087
KLKD 8	8	0.0194	0.000541	130.266	1.824	1.205	2499.40	0.000945	210.595	0.656
KLKD 9	9	0.0166	0.000587	164.221	2.208	1.428	2191.16	0.000992	266.633	–
KLKD 10	10	0.0128	0.000701	278.390	1.893	1.3	2296.23	0.001200	454.628	211.667
KLKD 12	12	0.0103	0.000822	445.010	2.296	1.584	2114.97	0.001455	744.775	440
KLKD 15	15	0.00782	0.000544	137.333	2.045	1.57	1428.37	0.001721	351.24	–
KLKD 20	20	0.0045	0.000826	462.056	2.133	1.593	1436.40	0.006144	1151.185	2120
KLKD 25	25	0.003532	0.001007	834.529	2.55	1.933	1701.60	0.002085	1744.033	2085
KLKD 30	30	0.002776	0.000819	452.465	2.99	2.16	1353.76	0.002924	2021.801	3220

Note: Test Circuit 600 VDC / 20 kA

Current-Limiting Effects

SHORT CIRCUIT CURRENT*	APPARENT RMS SYMMETRICAL CURRENT FOR VARIOUS FUSE RATINGS			
	1 1/2 A	12 A	25 A	30 A
5,000	240	292	654	722
10,000	303	367	823	910
15,000	347	420	943	1042
20,000	381	463	1037	1147
25,000	411	498	1117	1235
30,000	437	530	1188	1313
35,000	460	558	1250	1382
40,000	481	583	1307	1445
50,000	518	628	1408	1556
60,000	550	667	1496	1654
80,000	605	735	1647	1820
100,000	652	791	1774	1961

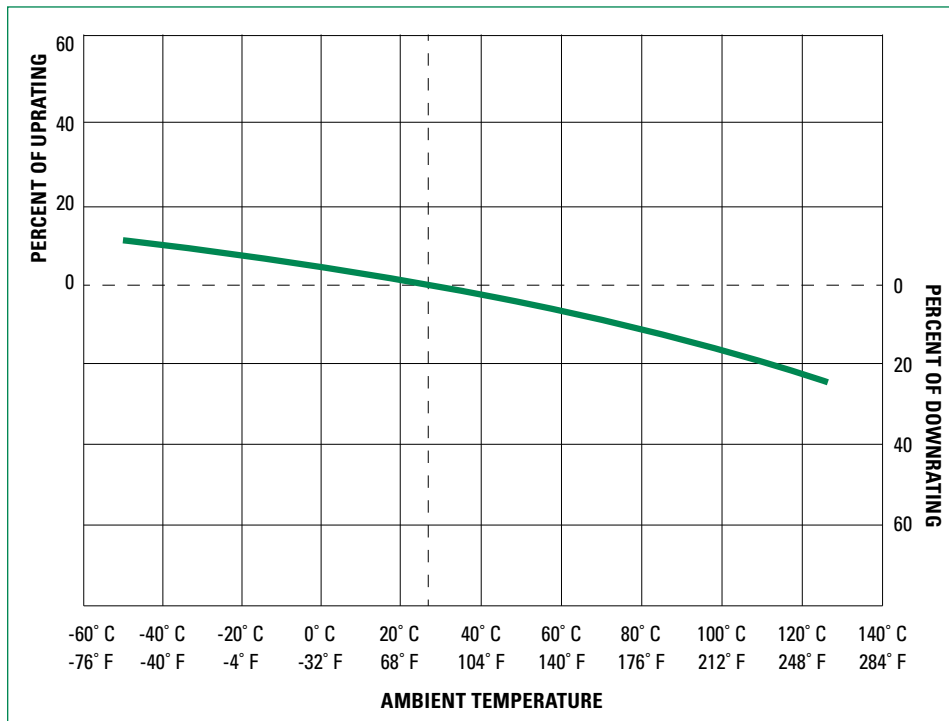
*Prospective RMS Symmetrical Amperes Short-Circuit Current

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Electrical Specification – Agency Requirements

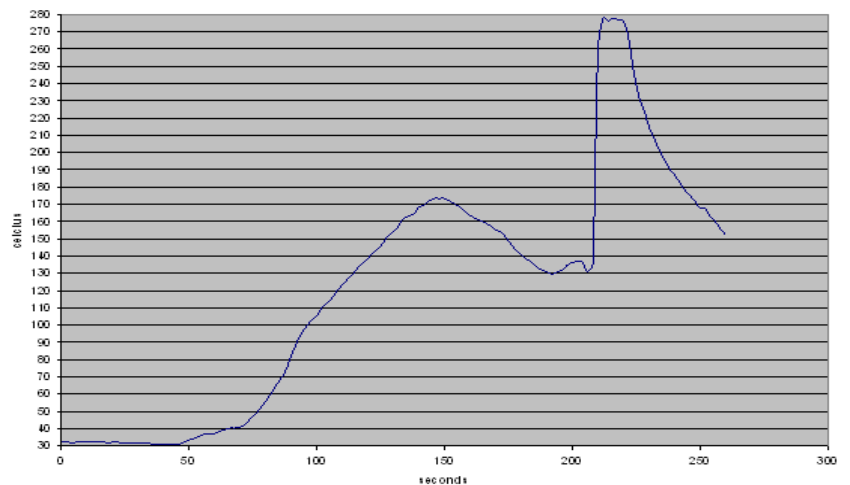
AMPERAGE RATING	OPENING TIME (MINUTES)				
	100% of Amp Rating per UL	113% of Amp Rating per UL & IEC	135% of Amp Rating per UL	145% of Amp Rating per IEC	200% of Amp Rating per UL
1-30	60 Min	60 Min	60 Max	60 Max	4 Max

Temperature Derating Curve (Temperature of Air Immediately Surrounding Fuse)



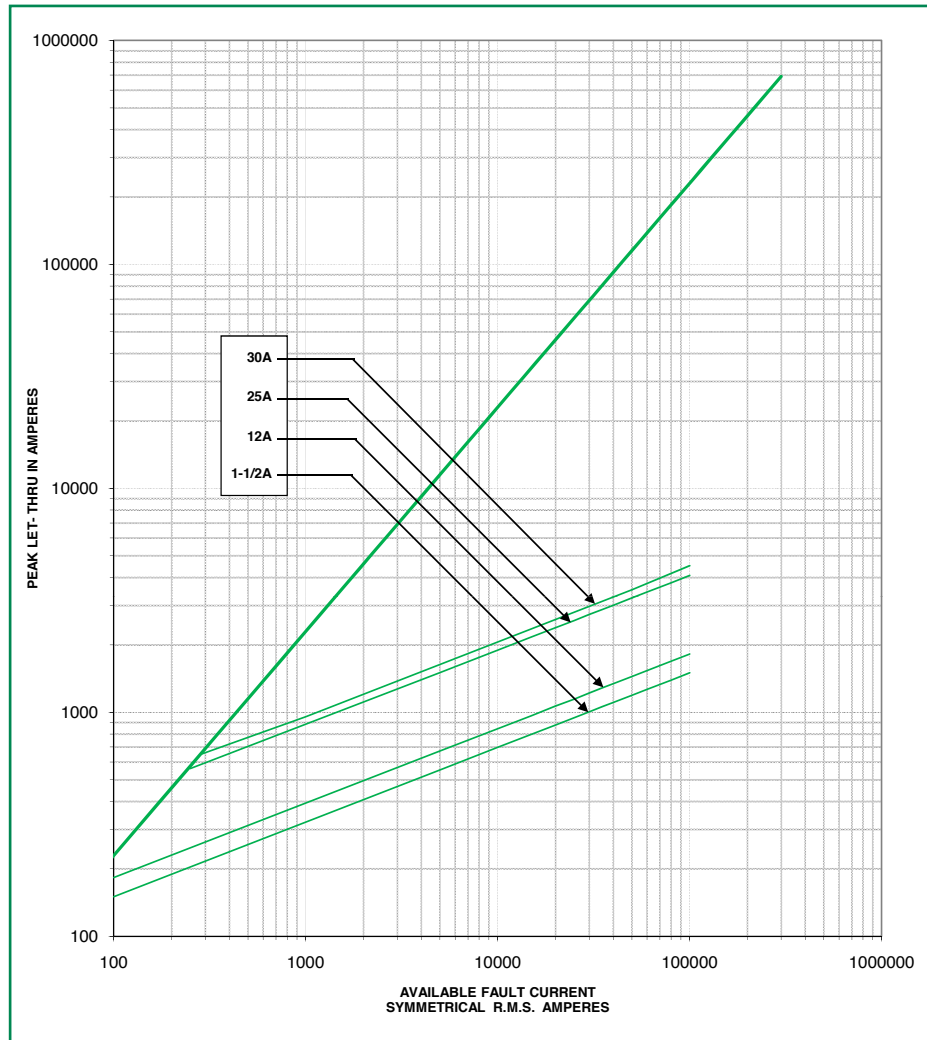
Recommended Process and Soldering Parameters

WAVE PARAMETER	LEAD FREE RECOMMENDATION
Preheat:	(Typical Industry Recommendation)
Temperature Minimum:	130° C
Temperature Maximum:	—
Pre-heat time	75 Seconds Maximum
Solder Pot Temperature	280° C Maximum
Solder Dwell Time	270° C for 8 Seconds Maximum
Complete Cycle Time	250 Seconds Maximum



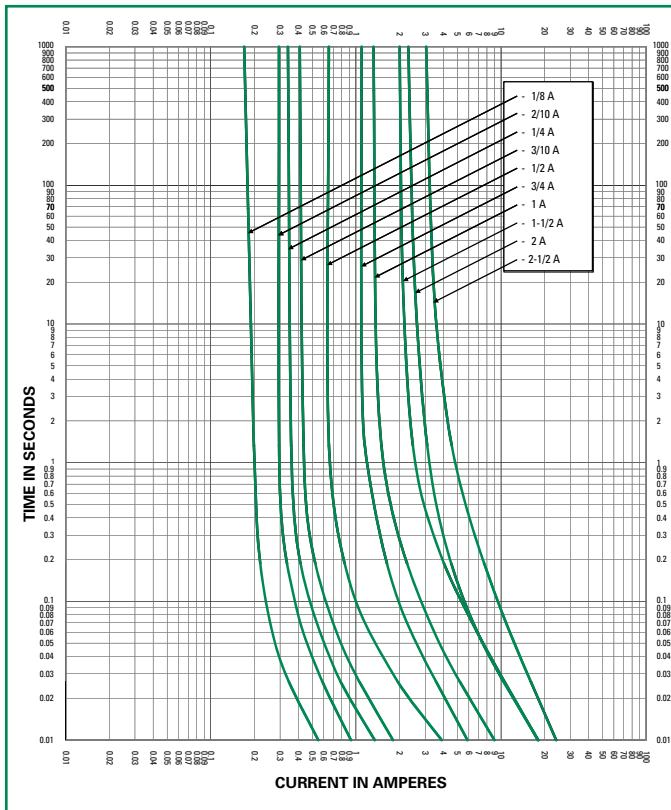
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Peak Let Thru Curve

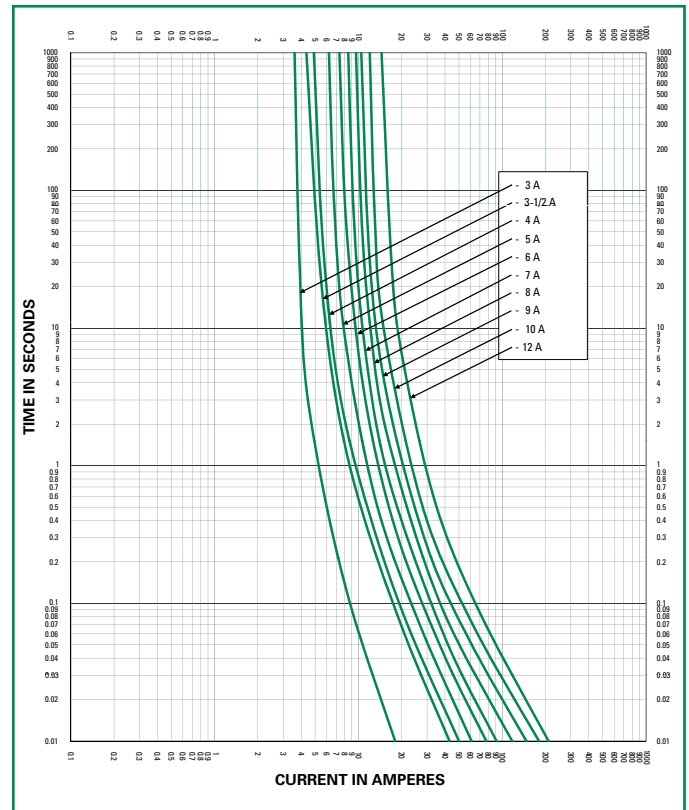


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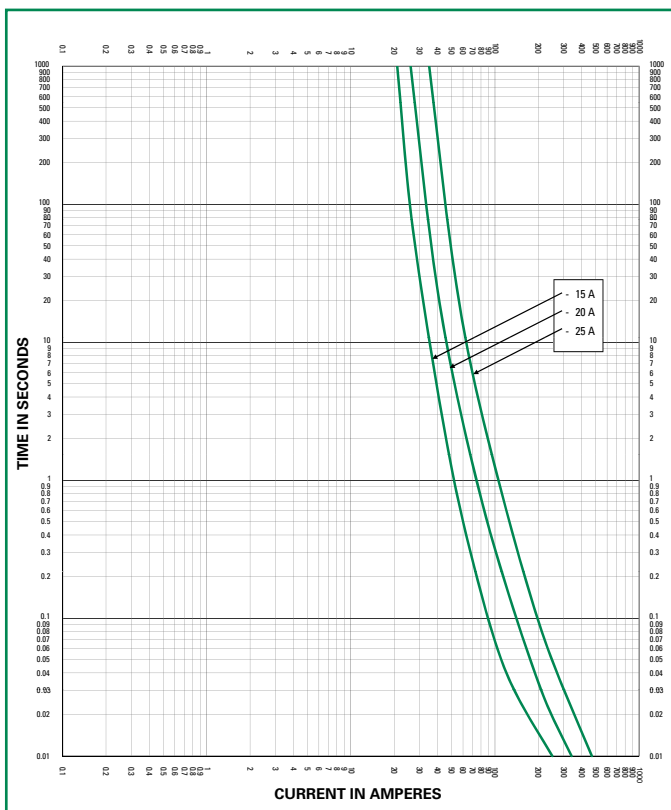
Time Current Curve (1/8 - 2 1/2 A)



Time Current Curve (3 - 12 A)



Time Current Curve (15 - 25 A)



Time Current Curve (30 A)

