Type 0679L

Square Ceramic Surface Mount Quick Acting Fuse

HF 0679L Series – 2410 Size RoHS Compliant

AEC-Q Compliant

Features

- Quick Acting, 2410 SMD
- Compatible with 260℃, IR Pb-free solder process
- Wide range of current rating from 250mA to 20A
- Wide operating temperature range, -55℃ to 125℃
- Tape & Reel for auto-insert SMD process
- AEC-Q Compliant
- RoHS compliant with exemption 7(a)
  Full compliance with EU Directive 2011/65/EU and amending directive 2015/863
- Halogen Free, (MSL = 1)
- Meets Bel automotive qualification*
  * - Largely based on internal AEC-Q test plan

Applications

- Notebook
- LCD monitor
- PC computer
- Office electronic equipment
- Industrial equipment
- Medical equipment
- POE, POE+
- LCD / LED monitor
- Power supply
- LCD / LED TV

HALOGEN FREE = HF

Electrical Characteristics

(UL/CSA/STD.248-14)

Testing Current	Blow Time	
	Minimum	Maximum
100%	4 Hrs.	N/A
200%	N/A	5 Sec

Safety Agency Approvals

Safety Agency	Safety Agency Certificate	Ampere Rating /Voltage Rating	Ampere Range / Volt @ I.R. ability*
c UL us	E506667	250mA–20A/125V AC 125V DC	250mA –20A / 125V@ 50A AC 125V@300A DC 250mA –10A / 86V@ 10,000A DC
*I.R.= Interrupting Rating = Short Circuit Rating(Amps)			

Physical Specifications

Materials	Body : Ceramic
	Terminations : Silver Plated Caps/ /Gold Plated Caps/Palladium Plated Caps
Marking	On Fuse :
	“Current Rating”, “Q”, ”L”—laser marked on ceramic tube, “bel” stamped in end caps.
	On Label :
	"bel", "0679L", "Current Rating", "Voltage Rating", "Interrupting Rating", "Appropriate Safety Logos" and " ", " " "(China RoHS compliant).

Environmental Specifications

Shock Resistance	MIL-STD-202G, Method 213B, Test Condition 1 (100 G's peak for 6 milliseconds; Sawtooth waveform)
Vibration Resistance	MIL-STD-202G, Method 201A (10-55 Hz, 0.06 inch, total excursion).
Salt Spray Resistance	MIL-STD-202G, Method 101E, Test Condition B (48 hrs.).
Insulation Resistance	MIL-STD-202G, Method 302, Test Condition A (After Opening) 10,000 ohms minimum.
Solderability	MIL-STD-202G, Method 208H
Resistance to solder Heat	MIL-STD-202G, Method 210F, Test Condition C. Top Side (260℃,20 sec) MIL-STD-202G, Method 210F, Test Condition D. Bottom Side (260℃,10 sec)
Thermal Shock	MIL-STD-202G, Method 107G, Test Condition B (-65℃ to +125℃).
Operating Temperature	-55℃ to +125℃
Moisture Sensitivity Level	1 (According to IPC J-Std-020)

High temperature storage	MIL-STD-202 Method 108
Temperature cycling	JESD22 Method JA-104,Test Condition B
Biased humidity	MIL-STD-202 Method 103, 85C/85% RH with 10% operating power for 1000 hrs.
Operational life	MIL-STD-202 Method 108, Test Condition D
Resistance to solvents	MIL-STD-202 Method 215
Mechanical shock	MIL-STD-202 Method 213,Test Condition C
Vibration	MIL-STD-202 Method 204
Resistance to soldering heat	MIL-STD-202 Method 210,Test condition B
Thermal shock	MIL-STD-202 Method 107
Solderability	J-STD-002
Board flex(SMD)	AEC-Q200-005
Terminal strength	AEC-Q200-006
Electrical characterization	3 temperature electrical

Electrical Specifications

Part Number	Ampere Rating (A)	Typical Cold Resistance (ohms)	Volt-drop @100% In (Volt) max.	Voltage and Interrupting Ratings	Melting I²T <10m Sec (A² Sec)	Melting I²T @10 In (A² Sec)	Maximum Power Dissipation (W)	Agency Approvals
0679L0250-XX	250mA	0.55	0.530	See Table of Safety Approvals on Page 1 for Voltage and associated Interrupting Ratings	0.01	0.02	0.13	Y
0679L0375-XX	375mA	0.32	0.480		0.04	0.04	0.18	Y
0679L0500-XX	500mA	0.22	0.470		0.08	0.08	0.24	Y
0679L0630-XX	630mA	0.17	0.410		0.15	0.15	0.26	Y
0679L0750-XX	750mA	0.14	0.380		0.24	0.26	0.29	Y
0679L1000-XX	1A	0.09	0.280		0.51	0.54	0.28	Y
0679L1250-XX	1.25A	0.068	0.250		0.21	0.22	0.31	Y
0679L1500-XX	1.5A	0.053	0.250		0.32	0.29	0.38	Y
0679L2000-XX	2A	0.035	0.240		0.62	0.68	0.48	Y
0679L2500-XX	2.5A	0.028	0.240		0.96	1.13	0.60	Y
0679L3000-XX	3A	0.022	0.220		1.6	1.8	0.66	Y
0679L3500-XX	3.5A	0.019	0.220		2.0	2.2	0.77	Y
0679L4000-XX	4A	0.018	0.220		3.1	3.5	0.88	Y
0679L5000-XX	5A	0.014	0.200		5.3	5.5	1.00	Y
0679L6300-XX	6.3A	0.011	0.190		8.7	8.3	1.20	Y
0679L7000-XX	7A	0.010	0.175		11.1	10.8	1.23	Y
0679L8000-XX	8A	0.0085	0.170		14.8	14.1	1.36	Y
0679L9100-XX	10A	0.0064	0.150		25.7	25.7	1.50	Y
0679L9120-XX	12A	0.0054	0.140		41.0	38.9	1.68	Y
0679L9150-XX	15A	0.0038	0.130		76.7	103.5	1.95	Y
0679L9200-XX	20A	0.0032	0.130		130.5	128.0	2.60	Y

Consult manufacturer for other ratings
XX - Packaging code (see “ordering information”)
NOTES:
All tests were conducted with the fuses soldered to a printed circuit boards with a nominal thickness of 1.6 mm. The copper test circuit trace was a printed circuit with an overall length of 100 mm, copper thickness/width as described below. The printed circuit boards were mounted by screws to a test fixture having brass blocks for connection of the test leads. All samples were soldered to the test boards by the manufacturer.

Fuse rating	Test Board Trace Dimensions
250mA-5A	1 oz. copper, 5.0mm wide.
6A-20A	3 oz. copper, 10mm wide.

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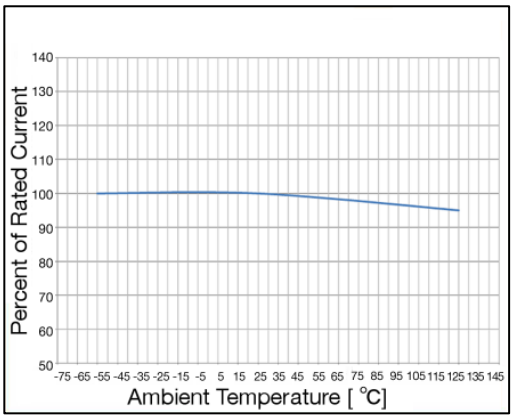
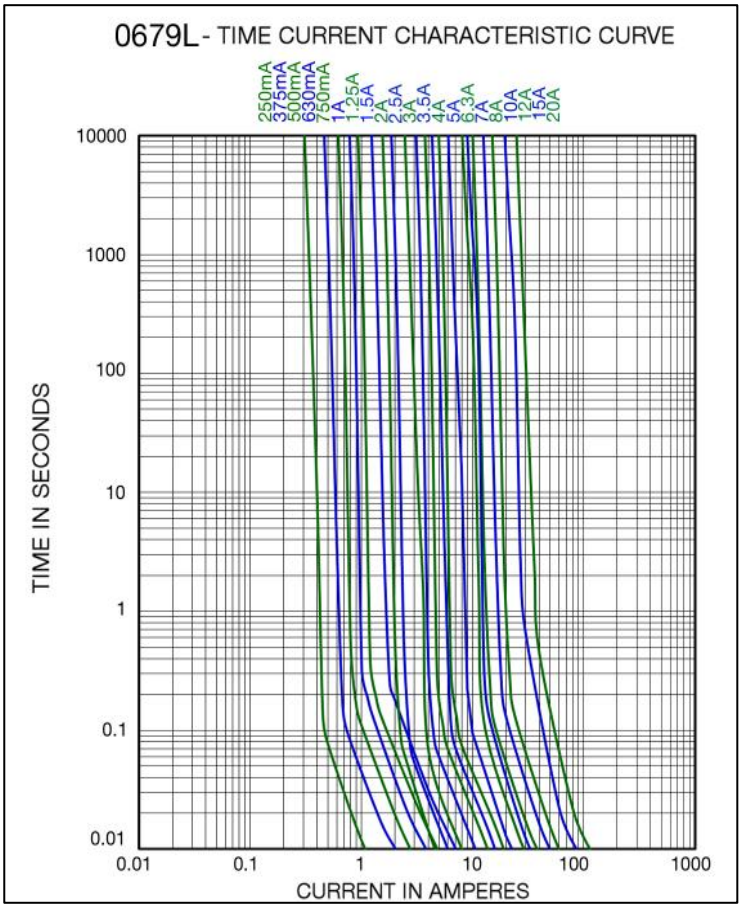
Temperature Derating Curve

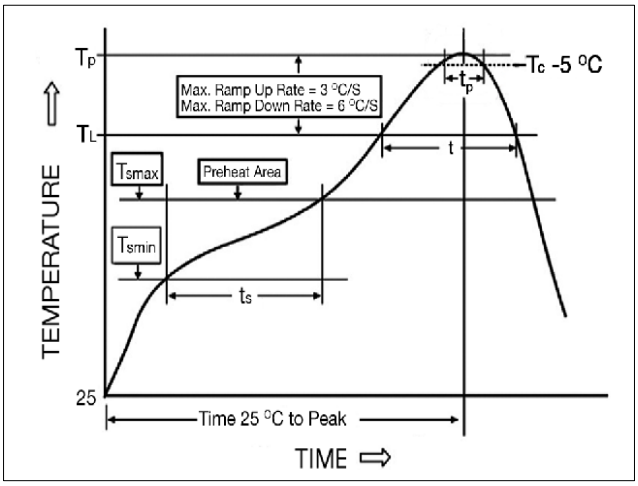


Average Time Current Curve



Soldering Parameters

IR Reflow Profile (IPC/JEDEC J-STD-020D)	
Preheat & Soak Temperature min (T_{smin}) Temperature max (T_{smax}) Time (T_{smin} to T_{smax}) (t_s)	 150℃ 200℃ 60-120 seconds
Average ramp-up rate (T_{smax} to T_p)	3℃/second max.
Liquidous temperature (T_L) Time at liquidous (t_L)	217℃ 60-150 seconds
Peak temperature (T_p)	260℃ max
Time (tp) within 5℃ of the specified classification temperature (Tc)	30 seconds
Average ramp-down rate (T_p to T_{smax})	6℃/second max.
Time 25℃ to peak temperature	8 minutes max.



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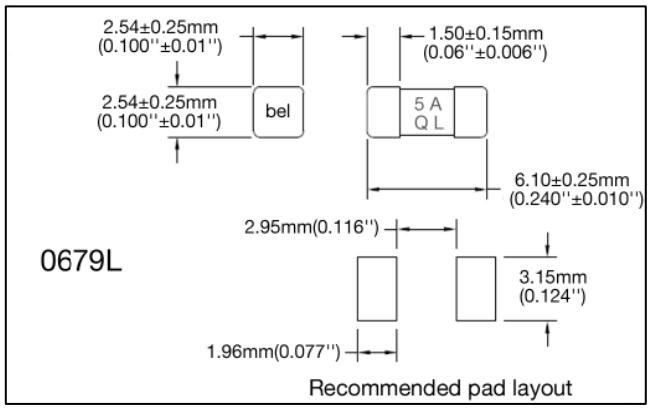
Fuse FGNO Explanation
0679 L [XXXX] -XX
0679L=0679L; [XXXX]=Ampere Rating; XX=See Ordering Information as below

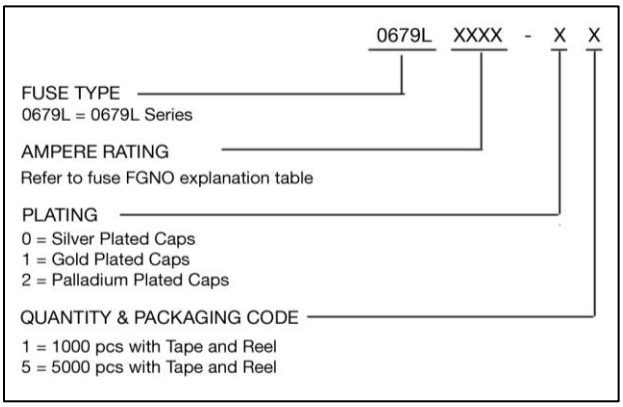
Fraction	Decimal	Milliamps	Bel FGNO[XXXX]
1/4	0.250	250	0250
3/8	.375	375	0375
1/2	.500	500	0500
	.630	630	0630
3/4	.750	750	0750

Fraction	Decimal	Amps	Bel FGNO[XXXX]
	1.0	1	1000
1-1/4	1.25	1.25	1250
1-1/2	1.50	1.5	1500
	2.0	2	2000
2-1/2	2.5	2.5	2500
	3.0	3	3000
3-1/2	3.5	3.5	3500
	4.0	4	4000
	5.0	5	5000
	6.3	6.3	6300
	7.0	7	7000
	8.0	8	8000
		10	9100
		12	9120
		15	9150
		20	9200

Mechanical Dimensions



Ordering Information



Packaging

Packaging Tape & Reel	Packaging Specification	Quantity	Quantity & Packaging Code
12 mm wide tape with 13 inches Diameter reel	EIA Standard 481-E	5000	5
12 mm wide tape with 7 inches Diameter reel	EIA Standard 481-E	1000	1

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