

Type 0684L 40A

Square Ceramic Surface Mount Fast Blow Fuse

HF 0684L 40A - 4818 Size

RoHS Compliant

Features

- 350V AC Voltage Rating
- Wide operating temperature range
- Tape & Reel for auto-insert SMD process
- 260°C IR compatible
- RoHS compliant with exemption 7(a)
Full compliance with EU Directive 2011/65/EU and amending directive 2015/863
- Halogen Free
- AEC-Q Compliant
- Meets Bel automotive qualification*
- * - Largely based on internal AEC-Q test plan

Applications

- Lighting system
- LCD monitor
- Office electronic equipment
- Industrial equipment
- Medical equipment
- Power supply

HALOGEN FREE = **HF**



UK
CA c **UL** US CE

AEC-Q Compliant

Physical Specifications

Materials	Body : Ceramic
	Terminations : Silver Plated Caps/ /Gold Plated Caps/Palladium Plated Caps
Marking	On Fuse :
	"40A", "350V" in green color. "bel", stamped in end caps.
	On Label :
	"bel", "0684L", "Current Rating", "Voltage Rating", "Interrupting Rating", "c UL us " and "  ", "  "(China RoHS compliant).

Electrical Characteristics (UL/CSA STD.248-14)

Testing Current	Blow Time	
	Minimum	Maximum
100%	4 hrs.	N/A
200%	N/A	60 sec

Safety Agency Approvals

Safety Agency	Safety Agency Certificate	Ampere Rating / Voltage Rating	Ampere Range / Volt @ I.R. ability*
c UL us	E20624	40A / 350V AC	40A /350V @ 250A AC 125V @ 1000A AC 125V @ 1000A DC

*I.R.= Interrupting Rating = Short Circuit Rating(Amps)

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.).
Solderability	MIL-STD-202G, Method 208H
Resistance to solder Heat	MIL-STD-202G, Method 210F, Test Condition J (260°C, 10 sec)
Thermal Shock	MIL-STD-202G, Method 107G, Test Condition B (-65°C to +125°C).
Operating Temperature	-55°C to +125°C
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, 85°C/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	Nominal Cold Resistance (ohms)	Nominal Volt-drop @100%In (Volt)	Voltage and Interrupting Ratings	Melting I ² T @10 In (A ² Sec) Min.	Agency Approvals
						
0684L9400-X1	40A	0.0016	0.15	See Table of Safety Approvals on Page 1 for Voltage and associated Interrupting Ratings	195	Y

Consult manufacturer for other ratings

NOTES:

Test Conditions

All tests were conducted with fuse samples soldered on a PCB (1.6mm thick) test board with copper traces measuring 0.1mm nominal thickness (3 oz. clad), 25.4mm wide and 100mm overall length.

The maximum temperature recorded in open air was 135 °C in a 25°C ambient (110°C rise). Consideration should be given to checking operating temperatures in end-use application with regard to thermal index of surrounding materials and components.

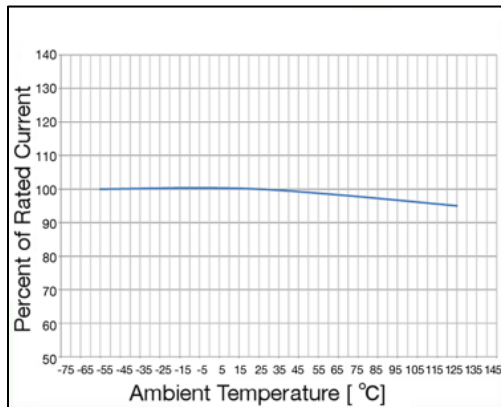
Remark: The marking on fuse shall be facing upward on PCB.

Caution:

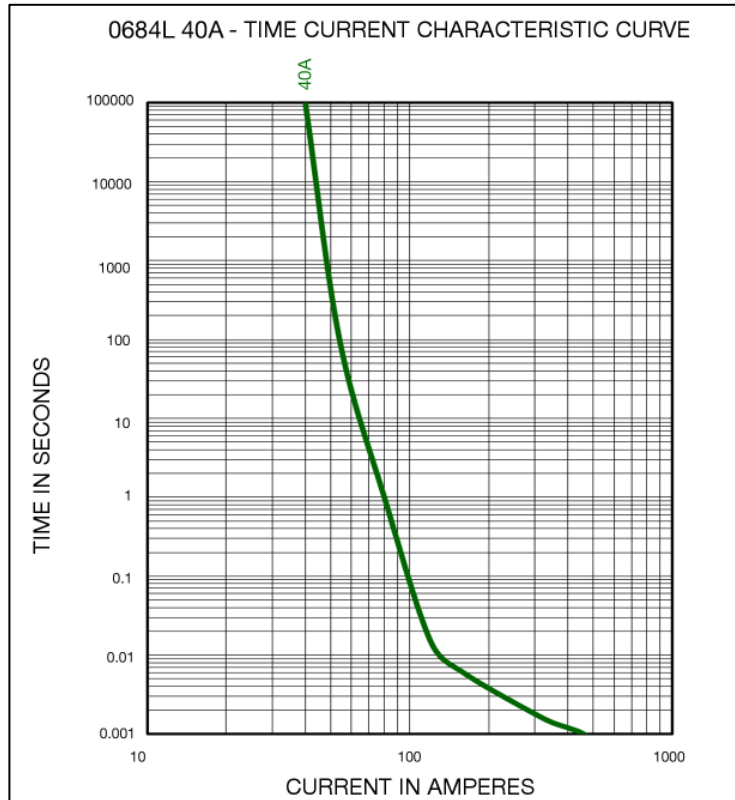
- Minimum fusing point:

The 0684L 40A fuse is NOT intended to be operated at currents between 100% and 200% of ampere rating. Prolonged operation at currents in this range may result in overheating of the fuse and/or desoldering of the fuse caps from the PCB pad.

Temperature Derating Curve

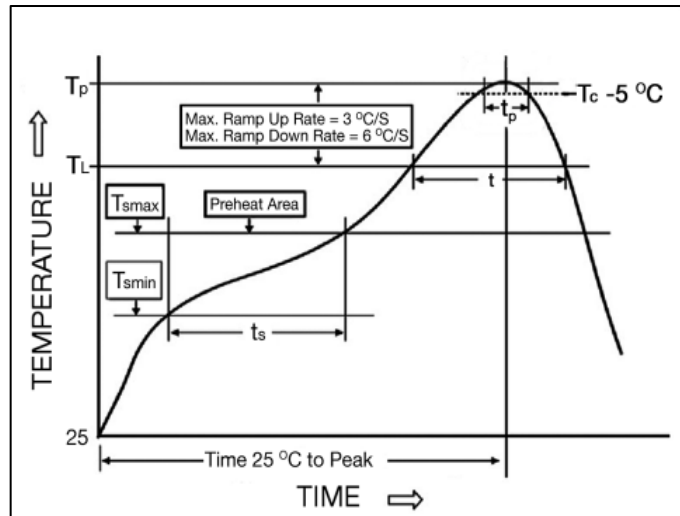


Average Time Current Curve

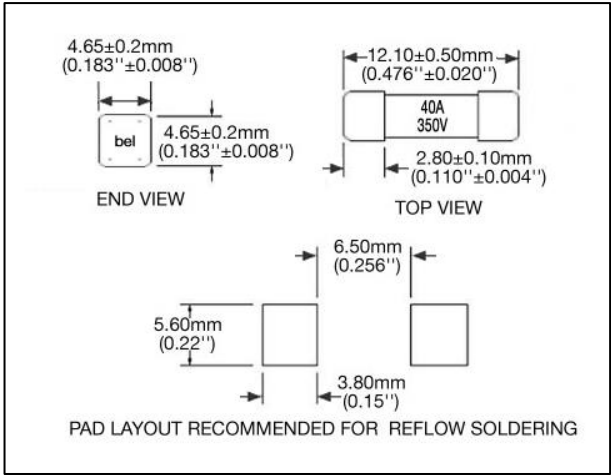


Soldering Parameters

IR Reflow Profile	
Preheat & Soak	
Temperature min (T_{smin})	150°C
Temperature max (T_{smax})	200°C
Time (T_{smin} to T_{smax}) (t_s)	60-120 seconds
Average ramp-up rate(T_{smax} to T_p)	3°C / second max.
Liquidous temperature(T_L)	217°C
Time at liquidous (t_L)	60 – 150 seconds
Peak temperature (T_p)	260°C max,30seconds
Time (t_p) within 5°C of the specified classification temperature (T_c)	30 seconds
Average ramp-down rate(T_p to T_{smax})	6°C / second max.
Time 25°C to peak temperature	8 minutes max.



Mechanical Dimensions



Ordering Information

	0684L	9400	-	X	X
FUSE TYPE					
0684L					
AMPERE RATING					
40A					
PLATING					
0 = Silver Plated Caps					
1 = Gold Plated Caps					
2 = Palladium Plated Caps					
QUANTITY & PACKAGING CODE					
1 = 1500 pcs with Tape and Reel					

Packaging

Packaging Tape & Reel	Packaging Specification	Quantity	Quantity & Packaging Code
24mm wide tape with 13 inches Diameter reel	EIA Standard 481-E	1500	X1

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Bel:

[0684L9400-01](#)