

# 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
- AEC-Q Compliant
- RoHS compliant with exemption 7(a)
- Halogen Free
- 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**



**AEC-Q Compliant**


### Physical Specifications

Materials	Body : Ceramic
	Terminations : Silver 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  " 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	Voltage Rating (V)	Ampere Range / Volt @ I.R. ability*
	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, 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	Nominal Cold Resistance (ohms)	Nominal Volt-drop @100%In (Volt)	Voltage and Interrupting Ratings	Melting I²T @10 In (A² Sec) Min.	Agency Approvals
						
0684L9400-01	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.

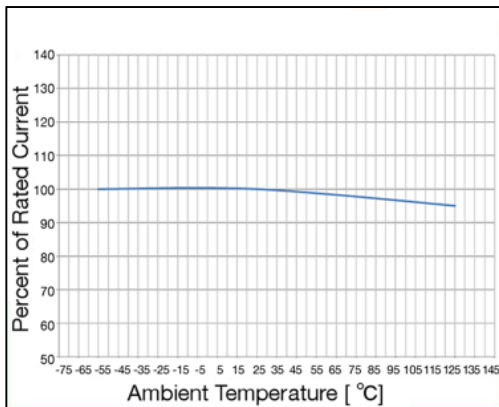


Specifications subject to change without notice

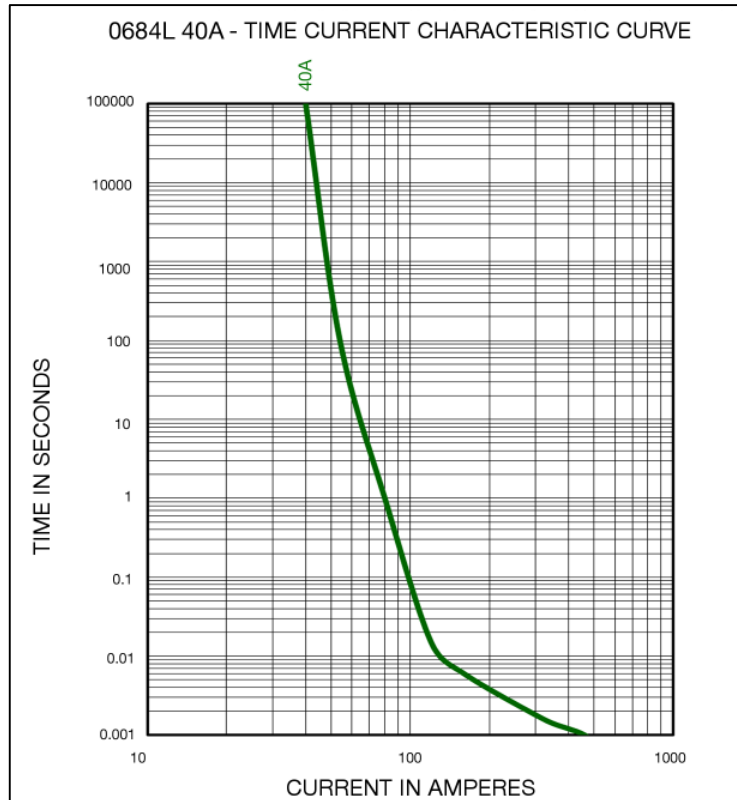
Bel Fuse Inc.  
206 Van Vorst Street  
Jersey City, NJ 07302 USA

+1 201.432.0463  
Bel.US.CS@belf.com  
[belfuse.com/circuit-protection](http://belfuse.com/circuit-protection)

## Temperature Derating Curve

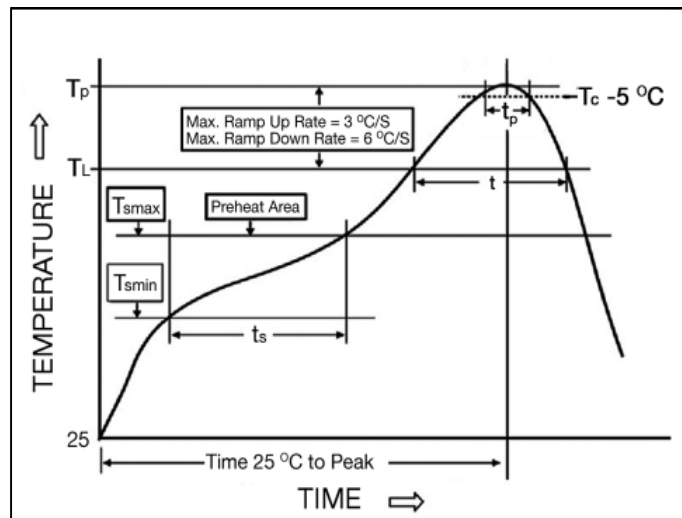


## Average Time Current Curve

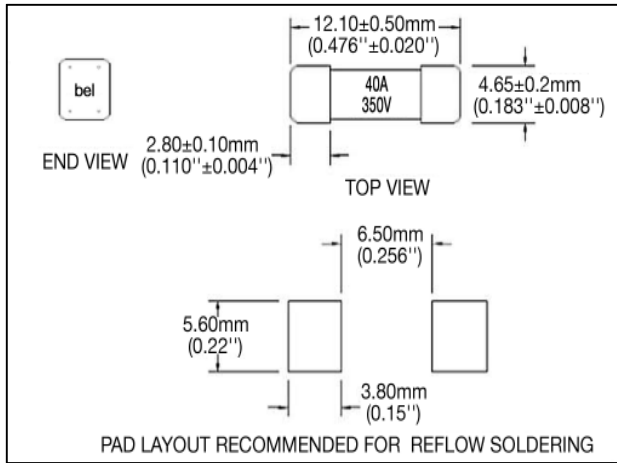


## Soldering Parameters

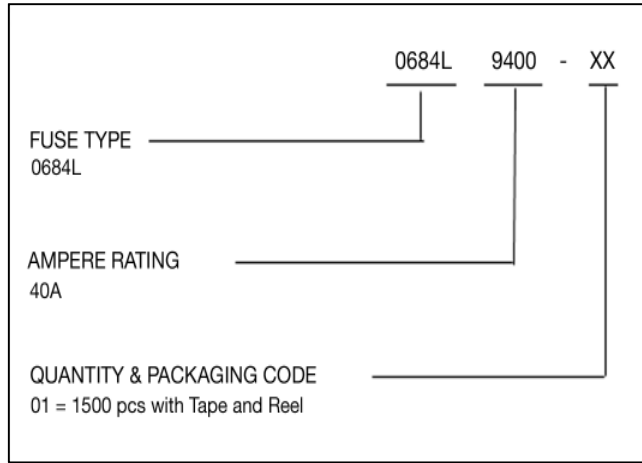
IR Reflow Profile	
<b>Preheat &amp; Soak</b>	
Temperature min ( $T_{smin}$ )	150°C
Temperature max ( $T_{smax}$ )	200°C
Time ( $T_{smin}$ to $T_{smax}$ ) ( $t_s$ )	60-120 seconds
Average ramp-up rate( $T_{smax}$ to $T_p$ )	3°C / second max.
Liquidous temperature( $T_L$ )	217°C
Time at liquidous ( $t_L$ )	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



## Packaging

Packaging Tape & Reel	Packaging Specification	Quantity	Quantity & Packaging Code
24mm wide tape with 13 inches Diameter reel	EIA Standard 481-E	1500	01

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Тел: +7 (812) 336 43 04 (многоканальный)

Email: [org@lifeelectronics.ru](mailto:org@lifeelectronics.ru)