RoHS

SMM Apr2013D

Type SMM

3812 Size

RoHS 6 Compliant

Square Ceramic Surface Mount Medium Blow Fuse

SMM Series Fuse

Features

- Medium Blow
- Suface mount high current fuse
- Current rating from 20A to 30A
- Wide operating temperature range from -55°C to 125°C
- Tape and Reel for auto-insert SMD process
- Compatible with reflow process
- Halogen Free HF
- Leadfree Pb

Applications

- Voltage regulator module
- PC server
- Office electronic equipment
- Industrial equipment
- Medical equipment
- POE, POE+
- Power supply
- DC-DC Converter

HALOGEN FREE = HF

LEAD FREE = Pb

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 RANGE / VOLT @ I.R.ABILITY
c UL us	E20624	20A - 30A / 250V @100A AC 125V @ 150A AC 72V @ 130A DC 65V @ 300A DC
CE		20A - 30A / 250V @100A AC 125V @ 150A AC 72V @ 130A DC 65V @ 300A DC

Specifications Subject to change without notice.

Bel Fuse Inc. 206 Van Vorst Street, Jersey City, NJ 07302 • Tel: 201-432-0463 • Fax: 201-432-9542 • E-Mail: belfuse@belf.com
Website: www.belfuse.com

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Electrical Specifications

Catalog Number	Ampere Rating (A)	Nominal Cold Resistance (ohm)	Nominal Volt-drop @100% In (volt)	Interrupting Rating	Max. Voltage Rating (V)	Melting I2T @ 10 In (A2 Sec) Min.	Nominal Power Dissipation (W)	Agency Approvals	
								cULus	CE
SMM 20	20A	0.0025	0.09	20A - 30A / 250V @100A AC 125V @ 150A AC 72V @ 130A DC 65V @ 300A DC	250	270	1.8	Y	Y
SMM 25	25A	0.0019	0.08		250	420	2.0	Y	Y
SMM 30	30A	0.0013	0.07		250	1000	2.1	Y	Y

Soldering Guidelines

Reflow Conditions Recommended: 240℃, 30 sec. max.

Pb-Free Process Compatibility:

When soldered to test boards using IR reflow in accordance with JEDEC J-STD-020 (260℃, 40 sec. max.), SMM samples exhibited DCR change of +10% to -20% from initial values.
Subsequent tests showed all samples complied with the stated electrical characteristics on this data sheet.

NOT Recommended for Wave solder / Direct immersion / Hand Solder

NOTES:

Test Conditions

For all SMM data, as well as UL Component investigation, all tests were conducted with fuse samples soldered on a PCB (1.6mm thick) test board with copper traces measuring 0.1 mm nominal thickness (3 oz.clad), 10mm wide and 100 mm overall length.

– UL Condition of Acceptability

- the following information is contained in the UL Component Recognition for SMM Fuse Series:

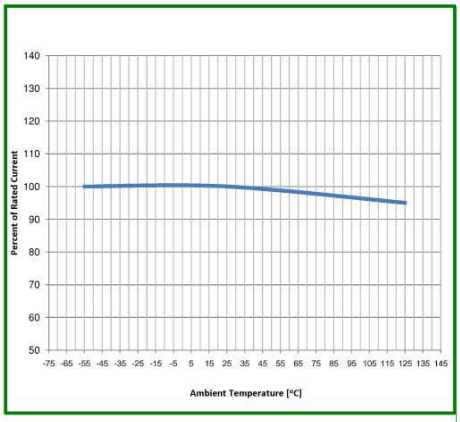
The maximum temperature recorded in open air was 100 °C in a 21 °C ambient (79 °C rise). Consideration should be given to checking operating temperatures in end-use application with regard to thermal index of surrounding materials and components.
(Maximum temperature recorded at 80% of rating (24A) for the SMM30 rating was 69°C (48 °C rise).

Caution:

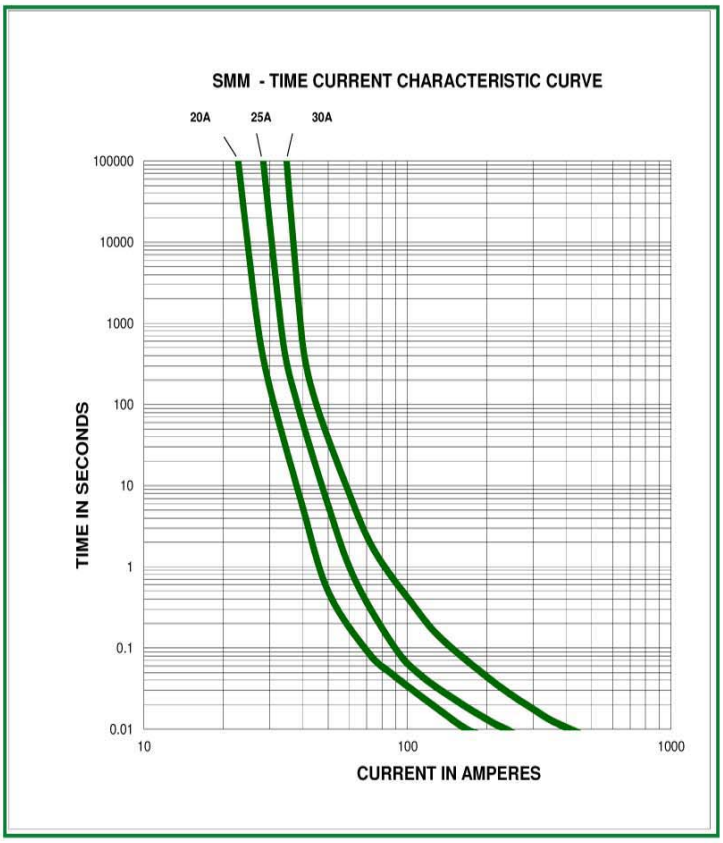
-Minimum fusing point:

The SMM Series fuses are 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



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bel

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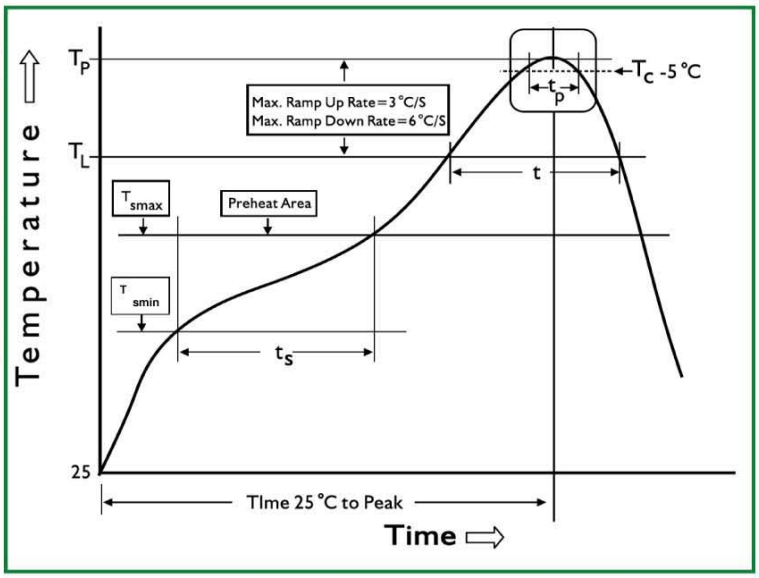
Soldering Parameters

IR Reflow Profile	
Reflow Parameter	
Minimum preheat temperature(TsMIN)	130°C
Maximum preheat temperature(TsMAX)	170°C
Preheat Time	60-180 seconds
TsMAX to TL ramp-up rate	3°C / second max.
Time above temperature TL(tL)	200 °C 60-120 seconds
Peak Temperature (TP)	240 °C max.
Time Within +0 °C / -5°C of Peak TP	20 - 30 seconds.
Ramp-down rate	6°C / second max.



Physical Specifications

Materials	Body : Ceramic
	Terminations: Matte Tin Plated Brass Caps (100% Lead -free)
Marking	On Fuse:
	" bel ", "Current Rating" in black color
	On label:
	"bel" , "SMM", "Current Rating","Voltage Rating","Interrupting Rating", "Appropriate Safety Logos" and " ", " "(China RoHS compliant).

Environmental Specifications

Shock Resistance	MIL-STD-202G, Method 213B, Test Condition I (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
Thermal Shock	MIL-STD-202G, Method 107G, Test Condition B (-65℃ to +125℃).
Operating Temperature	-55℃ to +125℃

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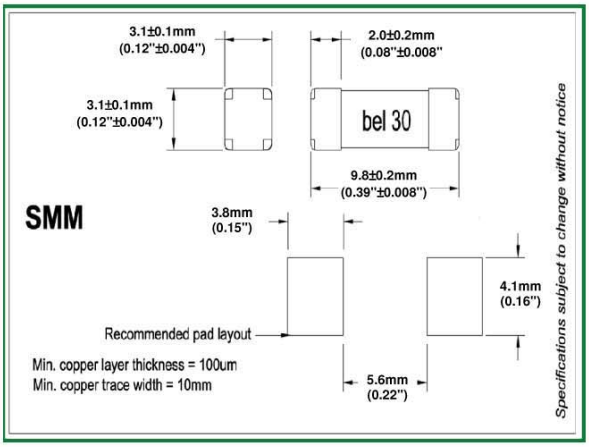
Fuse FGNO Explanation

06XX-[XXXX]-XX, [XXXX]=Ampere Rating

Fraction	Decimal	Milliamps	Bel FGNO[XXXX]
1/32	0.032	32	0032
1/25	.040	40	0040
1/20	.050	50	0050
1/16	.063	63	0063
8/100	.080	80	0080
1/10	.100	100	0100
1/8	.125	125	0125
15/100	.150	150	0150
	.160	160	0160
2/10	.200	200	0200
1/4	.250	250	0250
3/10	.300	300	0300
	.315	315	0315
3/8	.375	375	0375
4/10	.400	400	0400
1/2	.500	500	0500
6/10	.600	600	0600
	.630	630	0630
7/10	.700	700	0700
3/4	.750	750	0750
8/10	.800	800	0800

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
	1.60	1.6	1600
	2.0	2	2000
2-1/4	2.25	2.25	2250
2-1/2	2.5	2.5	2500
	3.0	3	3000
	3.15	3.15	3150
3-1/2	3.5	3.5	3500
	4.0	4	4000
	5.0	5	5000
	6.0	6	6000
	6.3	6.3	6300
	7.0	7	7000
7-1/2	7.5	7.5	7500
	8.0	8	8000
		10	9100
		12	9120
		15	9150
		20	9200
		25	9250
		30	9300

Mechanical Dimensions



Ordering Information

0678 - XXXX - XX

FUSE TYPE
0678

AMPERE RATING
Refer to fuse FGNO explanation table

QUANTITY & PACKAGING CODE
M2 = 2000 pcs with Tape and Reel

Packaging

Packaging Tape & Reel	Packaging Specification	Quantity	Quantity & Packaging Code
16 mm wide tape with 13 inches Diameter reel	EIA Standard 481-D	2000	0678-XXXX-M2

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