

Type SMP Surface Mount Power Cross Protection Fuse

RoHS 6 Compliant



SMP Series Fuse



Description

SMP Surface mount Power Cross Protection Fuses are primarily intended for use in telecommunication circuit applications requiring low current protection with high surge tolerance.

These fuses will withstand transient surge currents generated by lightning in accordance with the attached table.



SMP fuse guard protected circuitry against sustained overload or short circuit conditions. Such sustained overloads may be generated by accidental contact between utility cables and phone lines (power line cross).

SMP fuse are intended for use in circuits which require compliance with the test requirements specified in UL/IEC 1950/60950 and Telcordia GR 1089, Issue 3.

Features

- Surface mount power cross protection fuse.
- Designed to allow compliance with Telcordia GR-1089-Core
- Designed to serve the requirements of a wide range of telecommunication and networking equipment.
- Product is RoHS6 Compliant

Safety Agency Approvals

SAFETY AGENCY	SAFETY AGENCY CERTIFICATE	AMPERE RANGE / VOLT @ I.R.ABILITY
	E20624	500mA - 2A / 125V @100A DC and 600V @60A AC
		500mA - 2A / 125V @100A DC and 600V @60A AC

Specifications Subject to change without notice.

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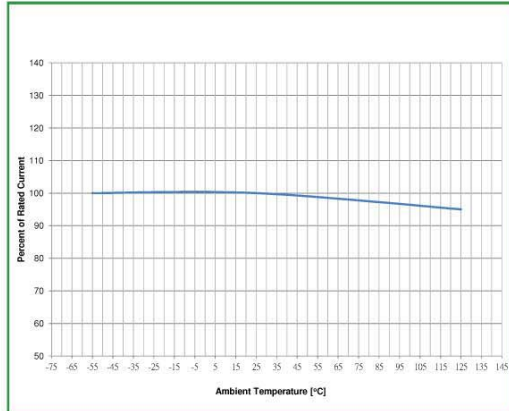


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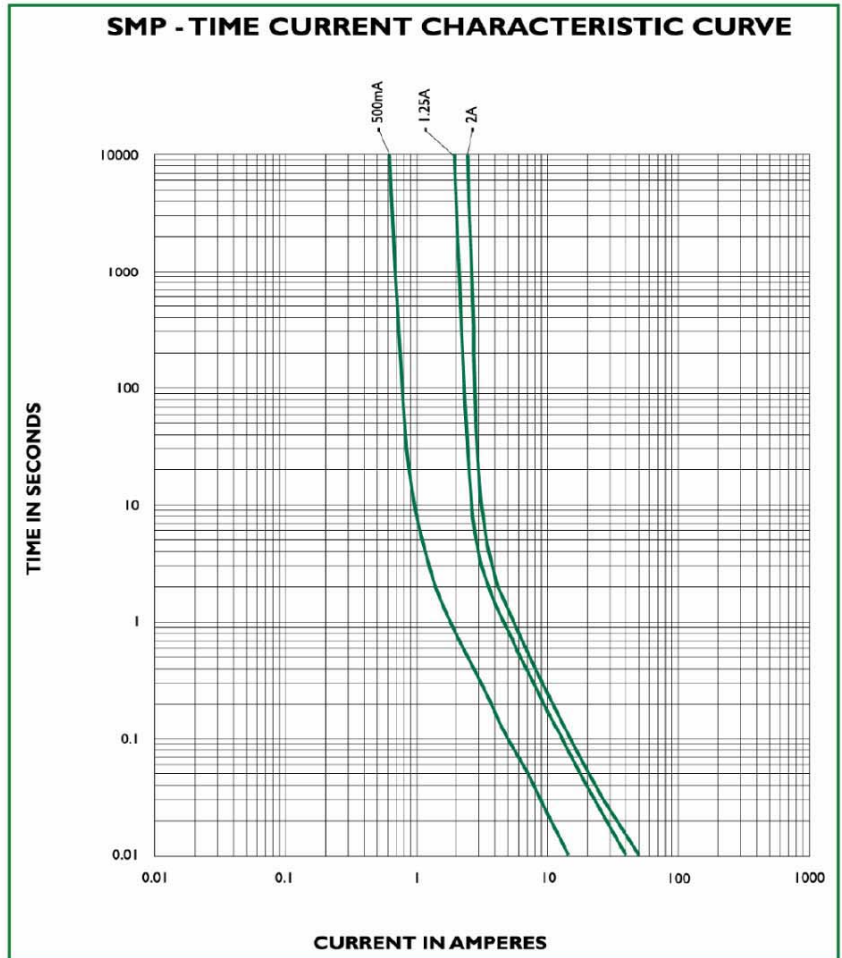
Electrical Specifications

Catalog Number	Ampere Rating (A)	Typical Cold Resistance (ohm)	Volt-drop @100% In (volt) Max.	Max. Voltage Rating (V)	Interrupting Rating	Melting I ² T <10 m Sec (A ² Sec)	Melting I ² T @ 10 In (A ² Sec)	Maximum Power Dissipation (W)	Agency Approvals	
SMP 500	500mA	0.320	0.25	600	600V @ 60A AC and 125V @100ADC	2.0	2.3	0.20	Y	Y
SMP 1.25	1.25A	0.079	0.16	600		14.0	17.0	0.40	Y	Y
SMP 2	2A	0.063	0.22	600		33.0	37.0	0.52	Y	Y

Temperature Derating Curve



Average Time Current Curve



Lightning Surge Withstand Capabilities

Max. Rise / Min. Decay (us)	Repetitions		Minimum Peak Voltage (V)	Minimum Withstand Peak Current (A)		
	Total	Each Polarity		SMP 500	SMP 1.25	SMP 2
10/1000	50	25	600	25	115	120
10/360	50	25	1000	30	125	150
10/1000	50	25	1000	25	110	120
2/10	20	10	2500	120	500	600
10/360	10	5	1000	30	125	150
2/10	2	1	5000	120	500	600
8/20	2	1	5000	75	300	350

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AC Power fault Tests

GR-1089 1st Level Test	Voltage (Vrms)	Short Circuit Current (A)	Applications	Durations	Time For Fuse To Open		
					SMP 500	SMP 1.25	SMP 2
1	50	0.33	1	15 minutes	Will not open	Will not open	Will not open
2	100	0.17	1	15 minutes	Will not open	Will not open	Will not open
3	200,400,600	1	60	1 Sec	Will not open	Will not open	Will not open
4	1000	1	60	1 Sec	Will not open	Will not open	Will not open
5	Diagram	N/A For Fuses	60	5 Sec	N/A	N/A	N/A
6	600	0.5	1	30 Sec	Will not open	Will not open	Will not open
7	440	2.2	5	2 Sec	Will open	Will not open	Will not open
8	600	3	5	1.1 Sec	Will open	Will not open	Will not open
9	1000	5	5	0.4 Sec	Will open	Will not open	Will not open

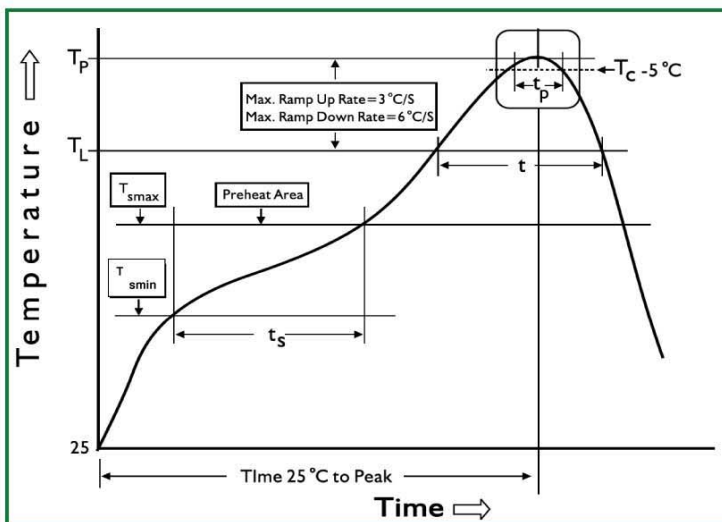
AC Current Limiting Protector Tests / Fusing Coordination Tests

Voltage (Vac)	Current (A)	Duration	Time For Fuse To Open		
			SMP 500	SMP 1.25	SMP 2
600V	2.2	Up to 15 minutes	1.0 Sec Max.	900 Sec Max.	Will not open
600V	2.6		0.8 Sec Max.	50 Sec Max.	2000 Sec Max.
600V	3		0.5 Sec Max.	10 Sec Max.	100 Sec Max.
600V	3.75		0.3 Sec Max.	5 Sec Max.	10 Sec Max.
600V	5		0.2 Sec Max.	2 Sec Max.	3 Sec Max.
600V	7		0.08 Sec Max.	1 Sec Max.	2 Sec Max.
600V	10		0.04 Sec Max.	0.5 Sec Max.	0.7 Sec Max.
600V	12.5		0.01 Sec Max.	0.2 Sec Max.	0.3 Sec Max.
600V	20		0.005 Sec Max.	0.07 Sec Max.	0.1 Sec Max.
600V	25		0.004 Sec Max.	0.04 Sec Max.	0.07 Sec Max.
600V	30		0.003 Sec Max.	0.02 Sec Max.	0.05 Sec Max.

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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 5σ of Peak TP	20 - 30 seconds
Ramp-down rate	6°C / second max.



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, Test Condition J.(235 °C, 30 sec)
Thermal Shock	MIL-STD-202G, Method 107G, Test Condition B (-65 °C to +125 °C).
Operating Temperature	-55 °C to +125 °C

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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", "SMP", "Current Rating", "Voltage Rating", "Interrupting Rating", "Appropriate Safety Logos" and "  ", "  " (China RoHS compliant).

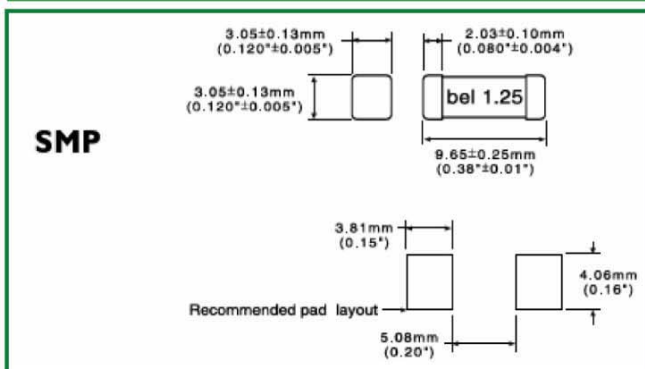
Fuse FGNO Explanation

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

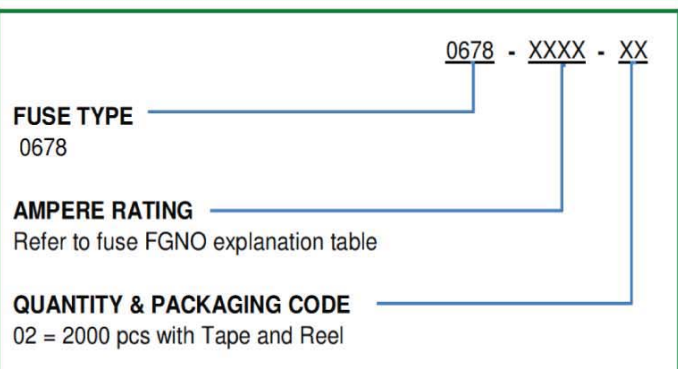
Fraction	Decimal	Milliamps	Bel FGNO[XXXX]
1/32	0.032	32	0032
1/25	.040	40	0040
1/20	.050	50	0050
1/16	.063	63	0063
8/100	.080	80	0080
1/10	.100	100	0100
1/8	.125	125	0125
15/100	.150	150	0150
	.160	160	0160
2/10	.200	200	0200
1/4	.250	250	0250
3/10	.300	300	0300
	.315	315	0315
3/8	.375	375	0375
4/10	.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



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-02

Specifications Subject to change without notice.

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