

RoHS

**bel**

MJS Apr2013D

**Type MJS**  
**Lightning Surge Withstand Fuse**

5 x 15mm Glass Tube  
RoHS 6 Compliant

HF **Pb** MJS Series, 5 x 15mm Lightning Surge Withstand Fuse

UL US SF PS E CE



**Description**

MJS fuses have been used for Tip and Ring protection in telecommunication circuits. And they continue to be used in legacy designs. However, with advent of new issues of IEC/UL 60950 and Telcordia GR-1089 (Issue 3), MJS fuses may no longer meet all test requirements, depending on the end product circuit design. It is recommended that Types RJS and SMP be evaluated for all new telecommunication applications.

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

Testing current	Blow Time	
	Minimum	Maximum
100%	4 hrs.	N/A
135%	N/A	1 hr
200%	3 sec	20 sec
500%	100 msec	1.5 sec
1000%	30 msec	300 msec

**Features**

- Meet UL and CSA standard 248-14
- Wide operating temperature range
- Bulk and Tape & Reel packing available
- RoHS6 compliant
- Halogen Free
- Leadfree

**Safety Agency Approvals**

SAFETY AGENCY	SAFETY AGENCY CERTIFICATE NUMBER	AMPERE RANGE / VOLT @ I.R.ABILITY
c UL US	E20624	100mA - 7A / 125V AC @10,000A
SF	LR39772	100mA - 7A / 250V AC @200A
PS E	JET 1037-31003-1011	1A - 5A / 125V AC @500A
CE		100mA - 7A / 125V AC @10,000A 100mA - 7A / 250V AC @200A

**Applications**

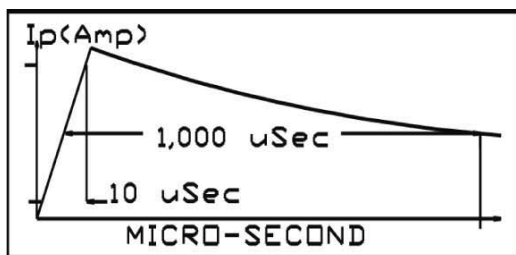
Provide individual protection for components or internal circuits.

- Power Supplies
- Battery Charger
- Monitor
- Adapter
- Telecom Protection

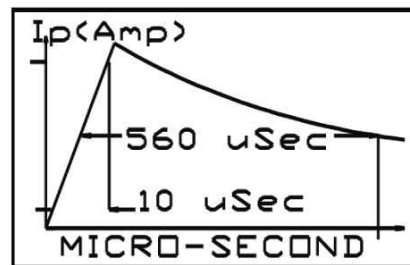
LEAD FREE = **Pb**

HALOGEN FREE = **HF**

Specifications subject to change without notice



**FIG A**



**FIG B**

# Type MJS Lightning Surge Withstand Fuse

5 x 15 mm Glass Tube  
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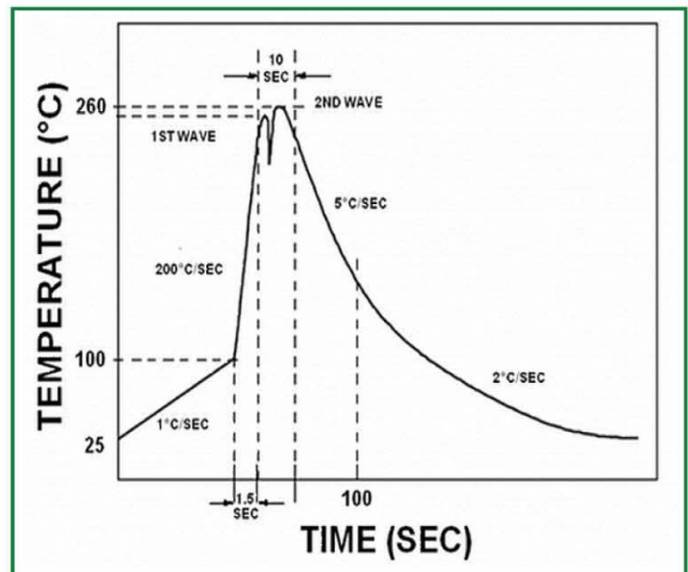
## Electrical Specifications

Catalog Number	Ampere Rating	Typical Cold Resistance (ohm)	Volt-drop @100% In (Volt) Max.	Voltage Rating (V)	Interrupting Rating	Melting I <sup>2</sup> T <10 m Sec (A <sup>2</sup> Sec)	Melting I <sup>2</sup> T @ 10 In (A <sup>2</sup> Sec)	Peak Surge Current (Amp)		Maximum Power Dissipation (W)	Agency Approvals			
								(Fig A) 25 Pulses 10uS x 1000uS	(Fig B) 50 Pulses 10uS x 560uS		UL US	SP	PS E	CE
MJS 100-R	100mA	12.5	1.88	125	100mA - 7A / 125V AC @10,000A 100mA - 7A / 250V AC @200A	0.068	0.088	4.5	6.0	0.22	Y	Y		Y
MJS 125-R	125mA	7.8	1.44	125		0.107	0.138	5.6	7.5	0.24	Y	Y		Y
MJS 150-R	150mA	5.3	1.17	125		0.167	0.216	6.8	9	0.27	Y	Y		Y
MJS 200-R	200mA	3.7	1.02	125		0.26	0.34	9	12	0.30	Y	Y		Y
MJS 250-R	250mA	2.27	0.89	125		0.41	0.53	12	16	0.34	Y	Y		Y
MJS 300-R	300mA	1.57	0.78	125		0.60	0.83	15	17	0.36	Y	Y		Y
MJS 350-R	350mA	1.10	0.72	125		0.8	1.0	18	24	0.40	Y	Y		Y
MJS 400-R	400mA	0.875	0.67	125		1.0	1.3	20	27	0.42	Y	Y		Y
MJS 500-R	500mA	0.630	0.59	125		1.6	2.0	26	35	0.47	Y	Y		Y
MJS 600-R	600mA	0.440	0.53	125		2.2	2.3	29	33	0.49	Y	Y		Y
MJS 700-R	700mA	0.341	0.49	125		3.0	4.0	38	50	0.54	Y	Y		Y
MJS 750-R	750mA	0.326	0.48	125		3.0	4.0	38	50	0.55	Y	Y		Y
MJS 800-R	800mA	0.250	0.42	125		5.0	7.0	50	66	0.60	Y	Y		Y
MJS 1-R	1A	0.195	0.39	125		5.9	7.8	56	75	0.64	Y	Y	Y	Y
MJS 1.25-R	1.25A	0.130	0.34	125		9.3	12	75	100	0.71	Y	Y	Y	Y
MJS 1.5-R	1.5A	0.100	0.29	125		15	19	94	125	0.80	Y	Y	Y	Y
MJS 2-R	2A	0.061	0.26	125		23	30	120	160	0.89	Y	Y	Y	Y
MJS 2.5-R	2.5A	0.046	0.22	125		35	47	150	200	0.99	Y	Y	Y	Y
MJS 3-R	3A	0.037	0.19	125		55	73	195	260	1.10	Y	Y	Y	Y
MJS 3.5-R	3.5A	0.029	0.18	125		69	91	225	300	1.16	Y	Y	Y	Y
MJS 4-R	4A	0.024	0.17	125		86	114	255	340	1.22	Y	Y	Y	Y
MJS 5-R	5A	0.019	0.15	125		135	179	330	440	1.36	Y	Y	Y	Y
MJS 6-R	6A	0.015	0.13	125		211	279	428	570	1.51	Y	Y		Y
MJS 7-R	7A	0.012	0.12	125		263	350	488	650	1.60	Y	Y		Y

Consult manufacturer for other ratings

## Soldering Parameters

Lead-free Wave Soldering Profile	
Wave Soldering Parameter	
Average ramp-up rate	200°C / second
Heating rate during preheat	typical 1 - 2 °C / second Max. 4°C/ second
Final preheat temperature	within 125°C of soldering temperature
Peak temperature T <sub>p</sub>	260°C
Time within +0 °C / -5°C of actual peak temperature	10 seconds
Ramp-down rate	5 °C / second max.



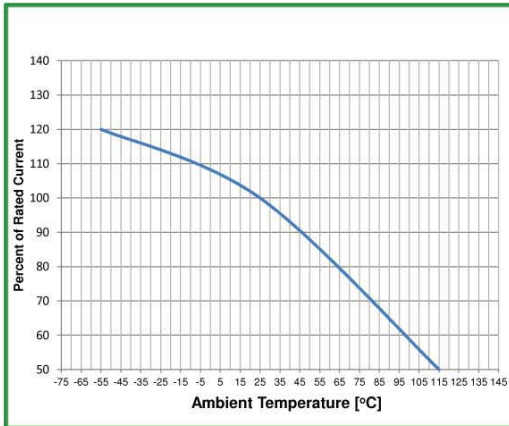
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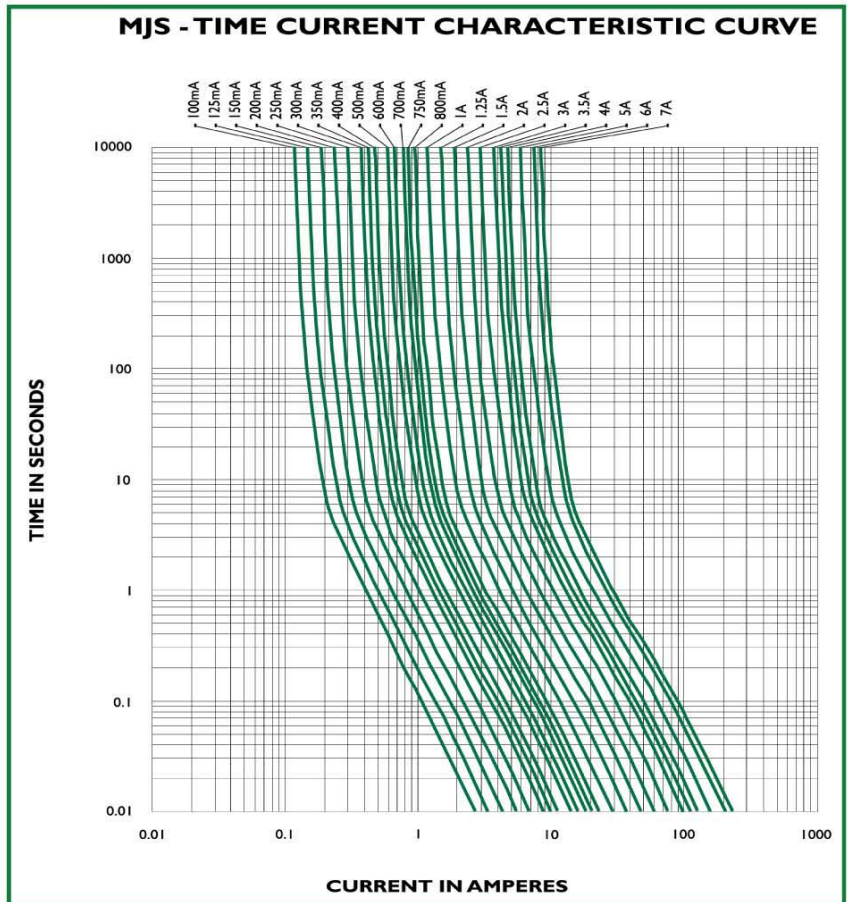


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## Temperature Derating Curve



## Average Time Current Curve



## Environmental Specifications

<b>Shock Resistance</b>	MIL-STD-202G, Method 213B, Test Condition I (100 G's peak for 6 milliseconds; Sawtooth Waveform)
<b>Vibration Resistance</b>	MIL-STD-202G, Method 201A (10-55 Hz, 0.06 inch, total excursion).
<b>Salt Spray Resistance</b>	MIL-STD-202G, Method 101E, Test condition B (48 hrs).
<b>Insulation Resistance</b>	MIL-STD-202G, Method 302, Test Condition A (After Opening) 10,000 ohms minimum.
<b>Solderability</b>	MIL-STD-202G, Method 208H
<b>Resistance to solder Heat</b>	MIL-STD-202G Method 210F, Test Condition B. (260+/-5 °C, 10+/-1 sec)
<b>Thermal Shock</b>	MIL-STD-202G, Method 107G, Test Condition B (-65°C to +125°C).
<b>Operating Temperature</b>	-55°C to +125°C
<b>Terminal Strength</b>	IEC-68-2-21

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## Physical Specifications

<b>Materials</b>	Body : Glass
	Cap : Nickel Plated Brass Caps
	Leads: Matte Tin Plated Copper, Diameter 0.032"
<b>Marking</b>	On Fuse:
	"bel", "MJS", "Current Rating", "Voltage Rating",
	"Appropriate Safety Logos", "✓" (RoHS 6 compliant)
	On label:
	"bel", "MJS", "Current Rating", "Voltage Rating", "Interrupting Rating", "Appropriate Safety Logos" and "M", "e" (China RoHS compliant).

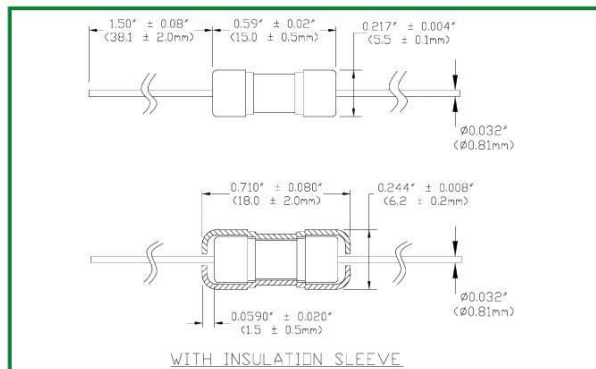
## Fuse FGNO Explanation

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

Fraction	Decimal	Milliamps	Bel FGNO[XXXX]
1/32	.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

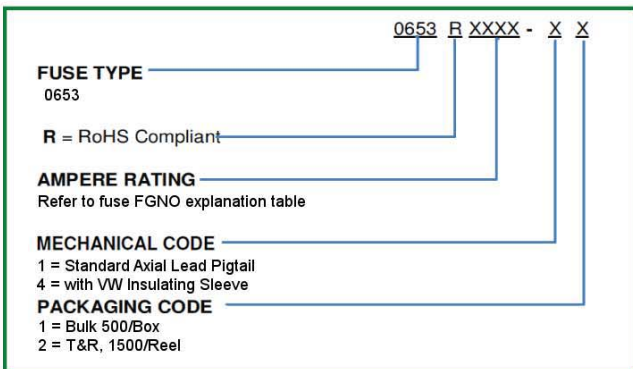
Fraction	Decimal	Amps	Bel FGNO[XXXX]
	1.0	1	1000
1-1/4	1.25	1.25	1250
1-1/2	1.50	1.5	1500
	1.60	1.6	1600
	2.0	2	2000
2-1/4	2.25	2.25	2250
2-1/2	2.5	2.5	2500
	3.0	3	3000
	3.15	3.15	3150
3-1/2	3.5	3.5	3500
	4.0	4	4000
	5.0	5	5000
	6.0	6	6000
	6.3	6.3	6300
	7.0	7	7000
7-1/2	7.5	7.5	7500
	8.0	8	8000
		10	9100
		12	9120
		15	9150
		20	9200
		25	9250
		30	9300

## Mechanical Dimensions



\* Diameter lead 0.032" for all ratings

## Ordering Information



Specifications subject to change without notice

## Packaging

Packaging Option	Packaging Specification	Quantity	Packaging Code	Inside Tape Spacing
Bulk (Pigtail Type)	N/A	500	11	N/A
Bulk (Pigtail Type) with Insulation Sleeve	N/A	500	41	N/A
Tape & Reel, 10 mm Pitch	EIA-296-F	1500	12	53
Tape & Reel with Insulation Sleeve, 10 mm Pitch	EIA-296-F	1500	42	53

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