

# Type MJS

## Lightning Surge Withstand Fuse

**HF** **Pb** MJS Series, 5x15mm Glass Tube Lightning Surge Withstand Fuse **RoHS 6 Compliant**

### 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.

### Features

- Meet UL and CSA standard 248-14
- Wide operating temperature range
- Bulk and Tape & Reel packing available
- RoHS 6 compliant
- Halogen Free
- Leadfree

### Applications

Provide individual protection for components or internal circuits.

- Power supplies
- Battery charger
- Monitor
- Adapter
- Telecom protection

LEAD FREE = **Pb**  
HALOGEN FREE = **HF**



### Physical Specifications

Materials	Body : Glass
	Cap : Nickel Plated Brass Caps
	Leads : Matte Tin Plated Copper, Diameter 0.032"
Marking	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).

### 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

### Safety Agency Approvals

SAFETY AGENCY	SAFETY AGENCY CERTIFICATE NUMBER	VOLTAGE RATING (V)	AMPERE RANGE / VOLT @ I.R. ABILITY*
	E20624	100mA - 7A / 250V AC	100mA - 7A / 125V AC @ 10,000A
	LR39772		100mA - 7A / 250V AC @ 200A
	JET 1037-31003-1011		1A - 5A / 125V AC @ 500A

\* I.R. = INTERRUPTING RATING = SHORT CIRCUIT RATING (AMPS)

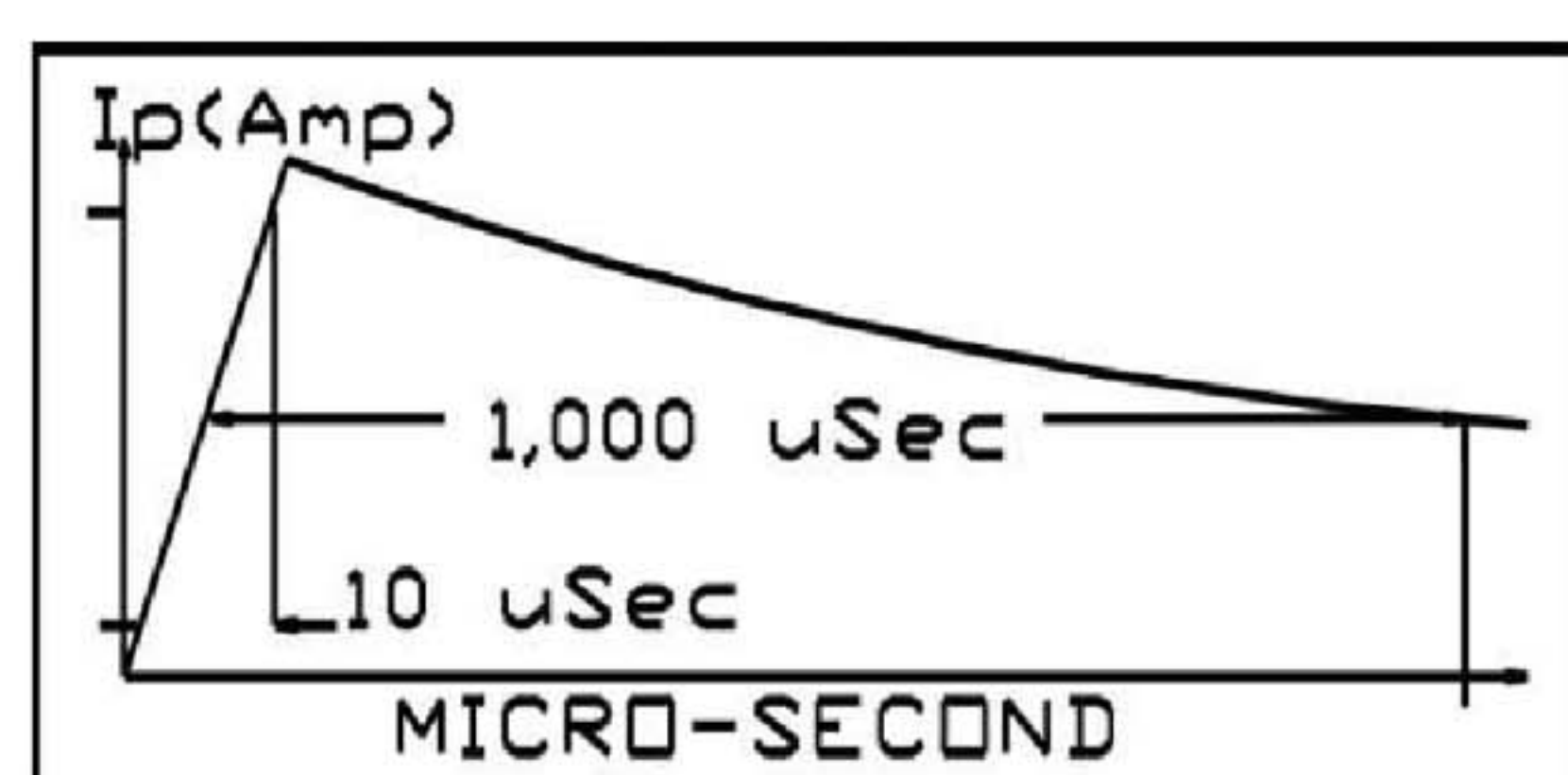


FIG A

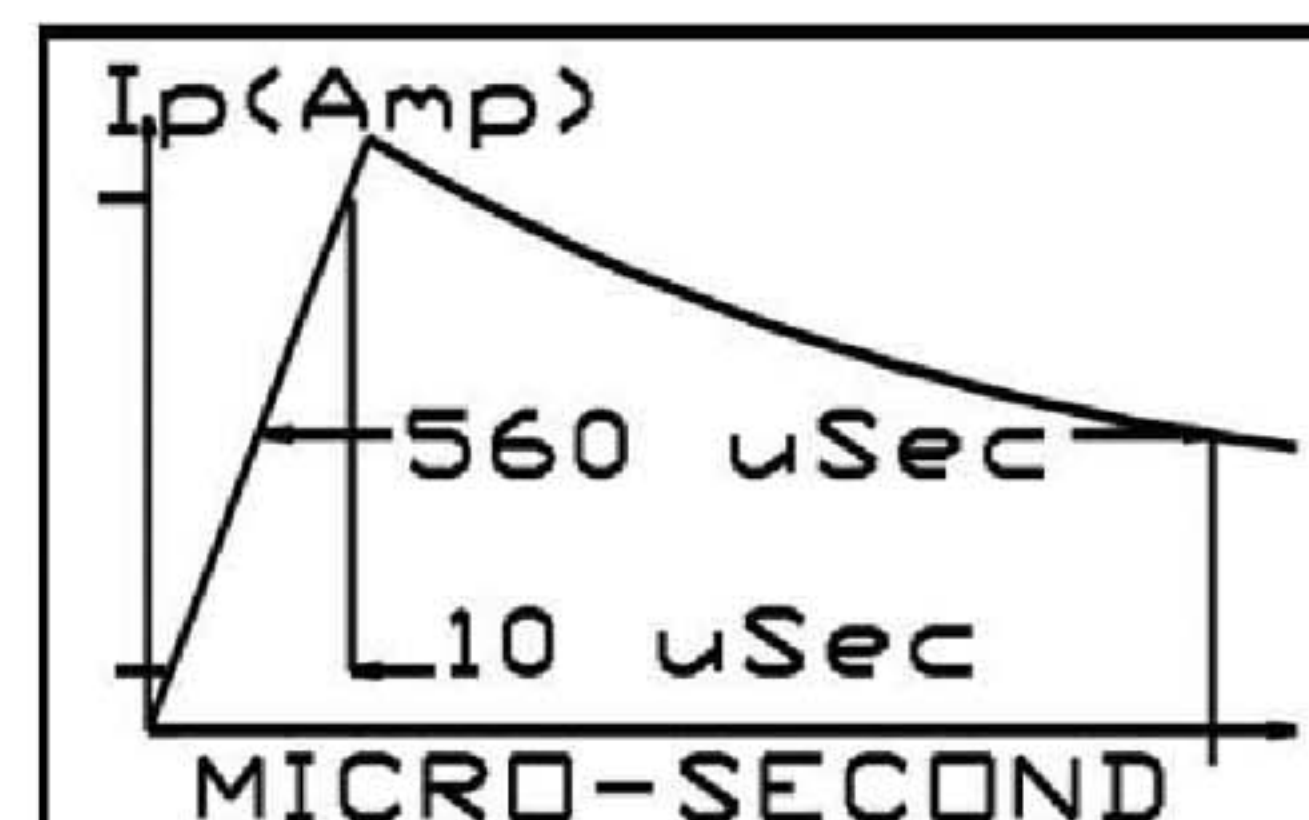


FIG B

Specifications subject to change without notice



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### 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).
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 B.(260+/-5 °C,10+/-1 sec)
Thermal Shock	MIL-STD-202G, Method 107G, Test Condition B (-65 °C to +125 °C)
Operating Temperature	-55 °C to +125 °C
Terminal Strength	IEC-68-2-21

### Electrical Specifications

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

Consult manufacturer for other ratings

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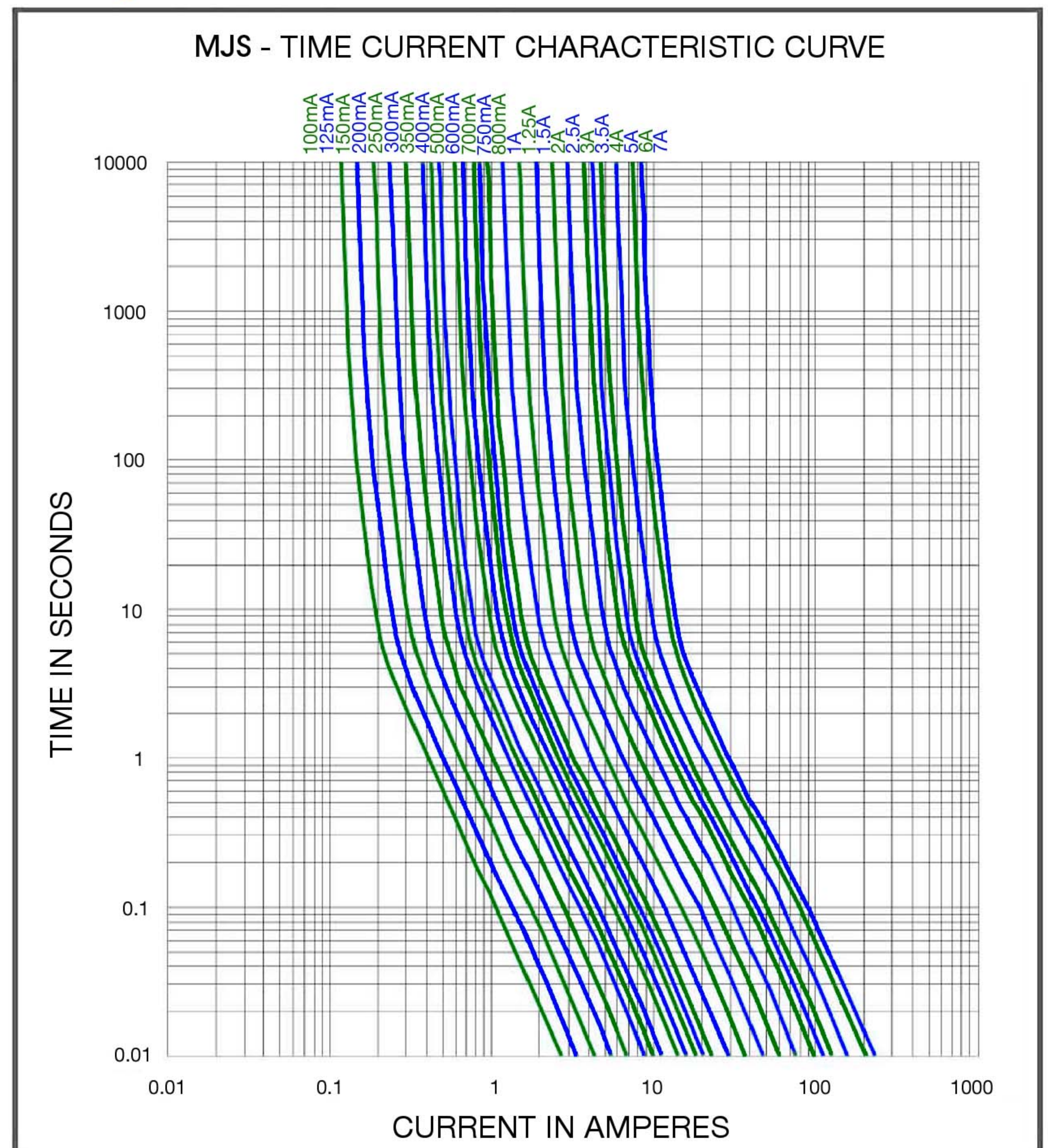
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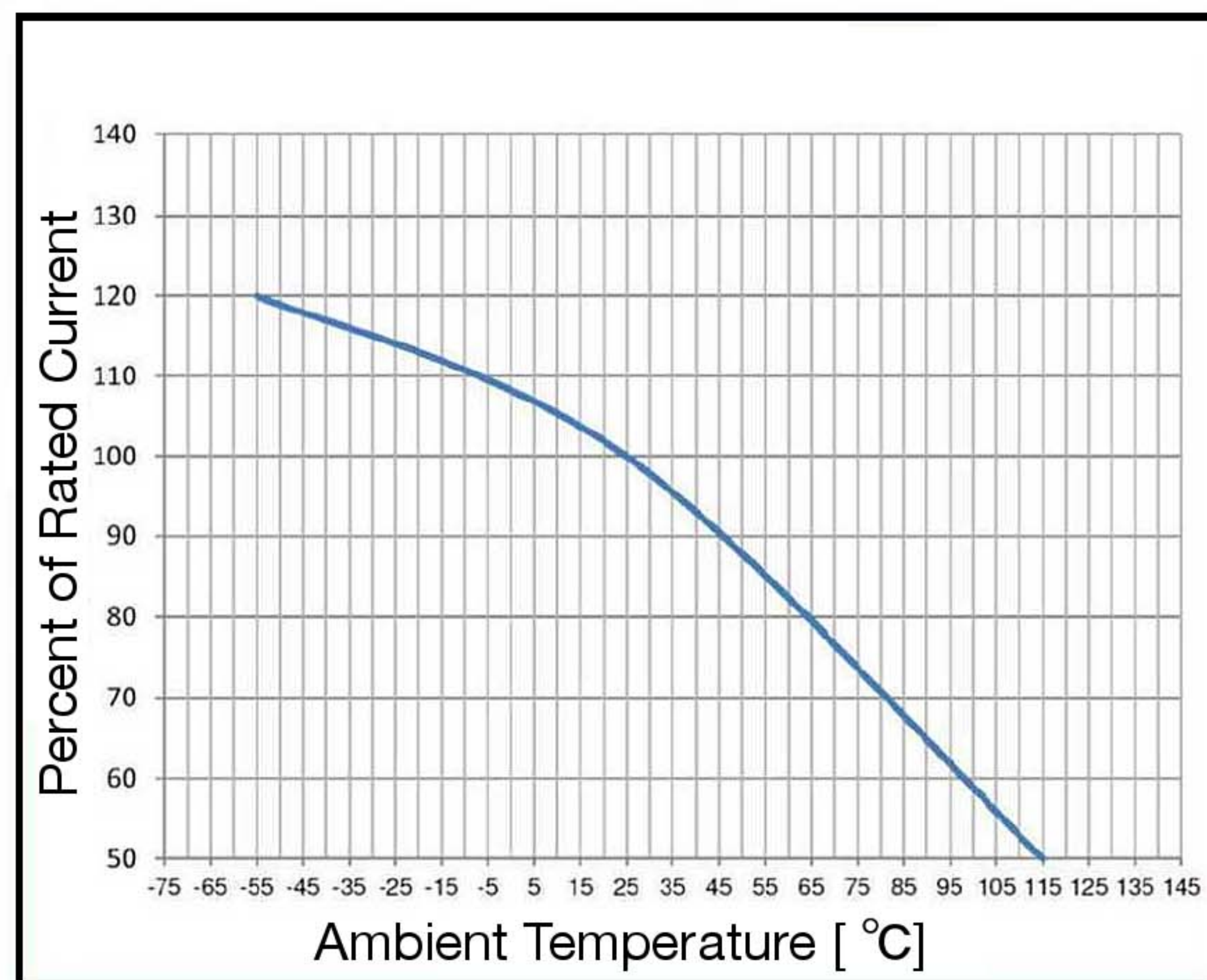
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### Average Time Current Curve

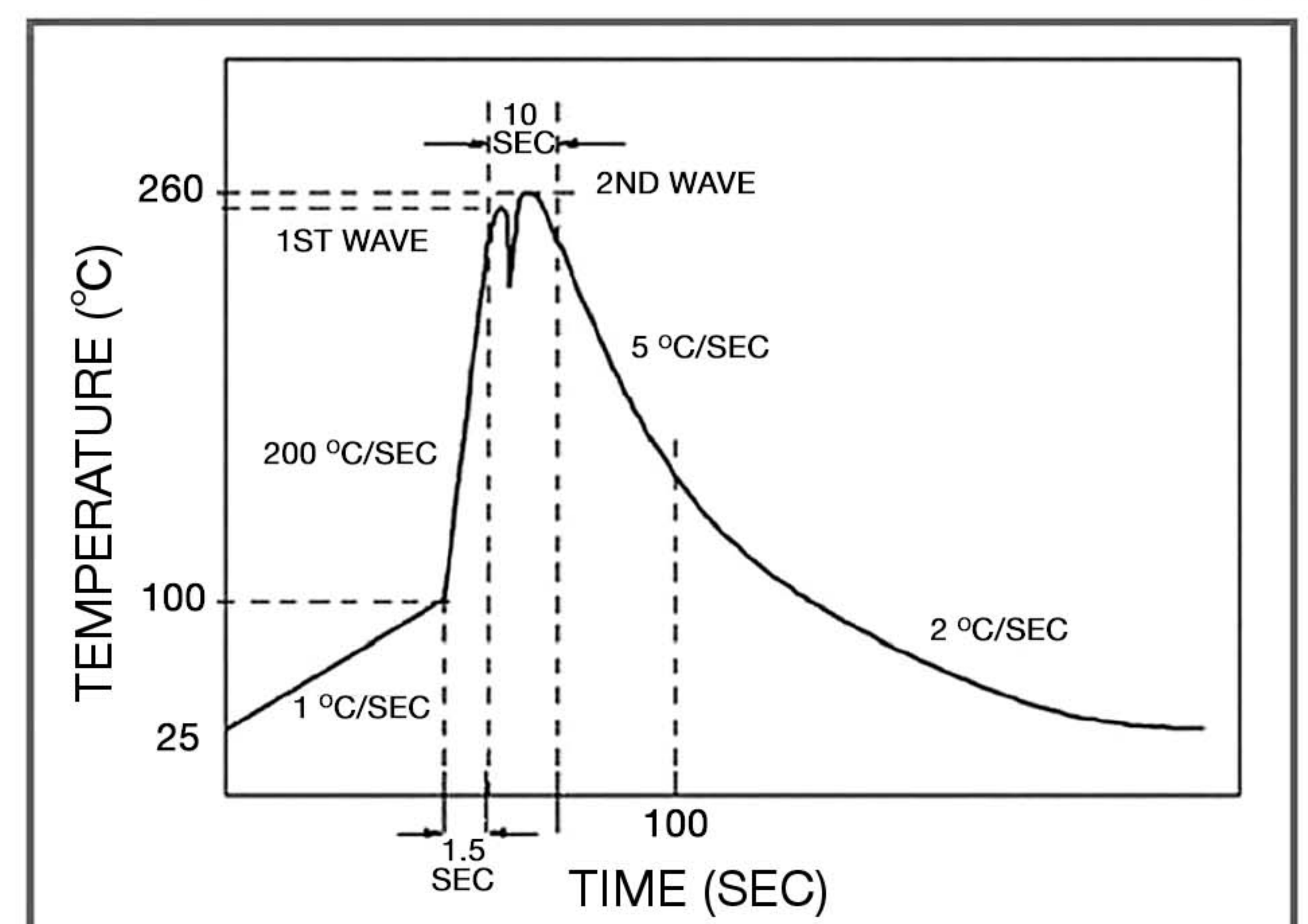


### Temperature Derating Curve



### 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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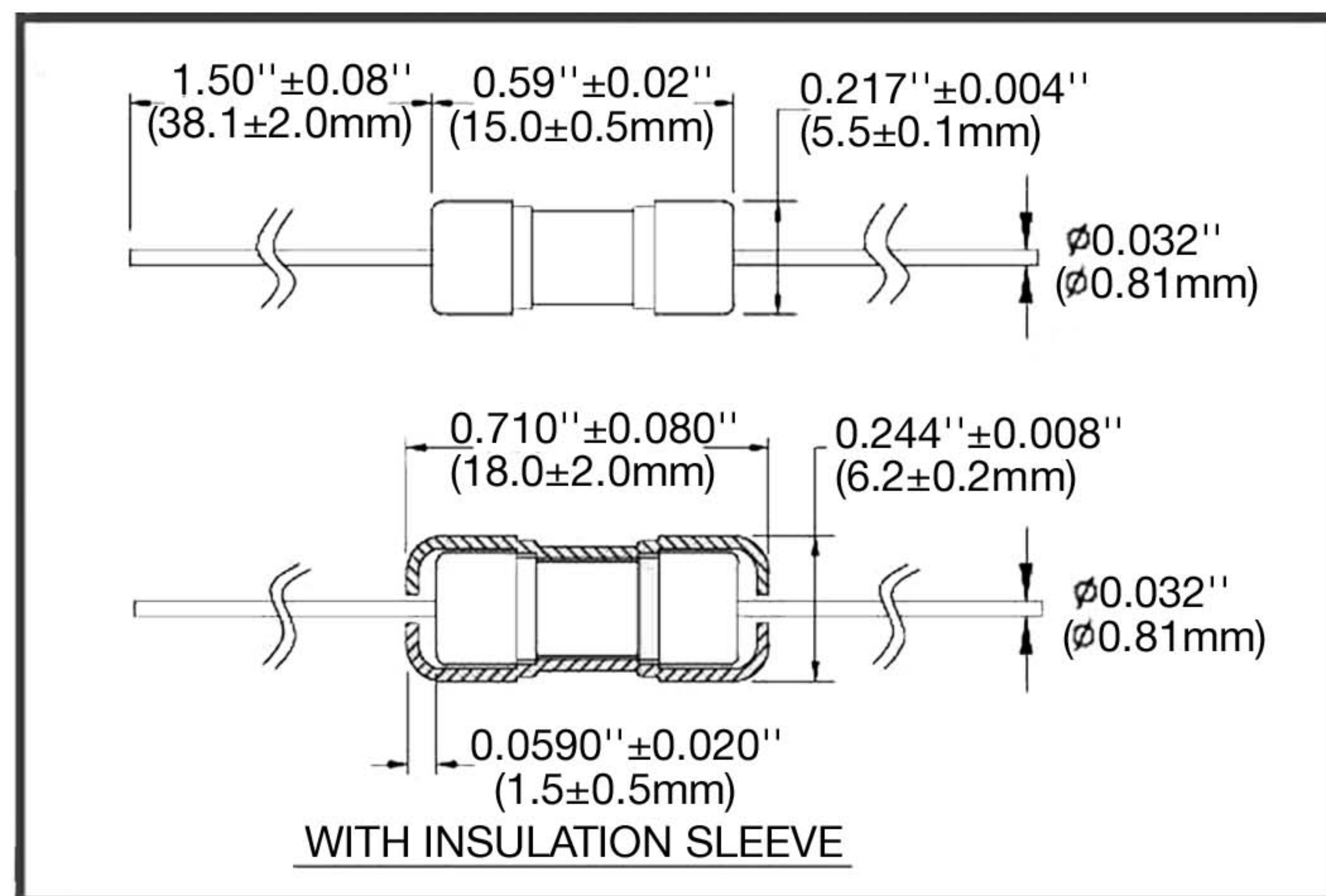
## Lightning Surge Withstand Fuse

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### Fuse FGNO Explanation 06XX X [XXXX] X XX, [XXXX]=Ampere Rating

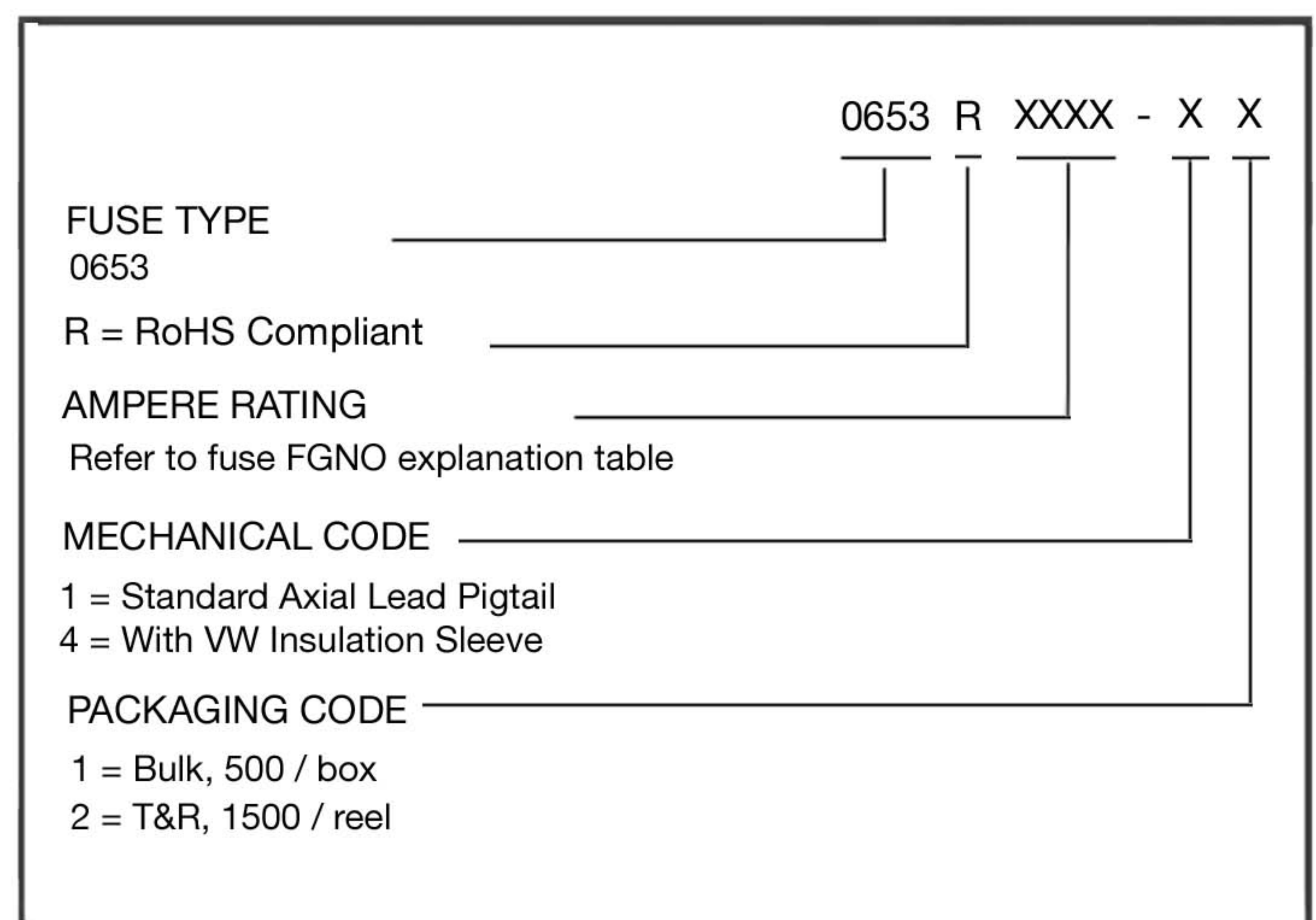
Fraction	Decimal	Milliamps	Bel FGNO[XXXX]	Fraction	Decimal	Amps	Bel FGNO[XXXX]
1/32	0.032	32	0032		1.0	1	1000
1/25	.040	40	0040	1-1/4	1.25	1.25	1250
1/20	.050	50	0050	1-1/2	1.50	1.5	1500
1/16	.063	63	0063		1.60	1.6	1600
8/100	.080	80	0080		2.0	2	2000
1/10	.100	100	0100	2-1/4	2.25	2.25	2250
1/8	.125	125	0125	2-1/2	2.5	2.5	2500
15/100	.150	150	0150		3.0	3	3000
	.160	160	0160		3.15	3.15	3150
2/10	.200	200	0200	3-1/2	3.5	3.5	3500
1/4	.250	250	0250		4.0	4	4000
3/10	.300	300	0300		5.0	5	5000
	.315	315	0315		6.0	6	6000
3/8	.375	375	0375		6.3	6.3	6300
4/10	.400	400	0400		7.0	7	7000
1/2	.500	500	0500	7-1/2	7.5	7.5	7500
6/10	.600	600	0600		8.0	8	8000
	.630	630	0630			10	9100
7/10	.700	700	0700			12	9120
3/4	.750	750	0750			15	9150
8/10	.800	800	0800			20	9200
						25	9250
						30	9300

### Mechanical Dimensions



\*Diameter lead 0.032" for all ratings

### Ordering Information



### 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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