

# Type 5TT / 5TTP

## Slow Blow Fuse Series

HF <sup>Ⓟ</sup> 5TT/5TTP Series, 5x20mm Glass/Ceramic Tube Slow Blow Fuse

RoHS 6 Compliant

### Description

5x20mm Slow Blow, glass / ceramic tube body cartridge fuse designed, approved and complied with UL and CSA standard 248-14.

### Features

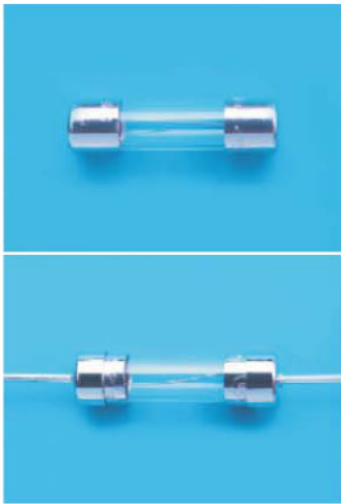
- Meet UL and CSA standard 248-14
- Wide operating temperature range
- Bulk and Tape & Reel packing available
- RoHS 6 compliant
- Halogen Free
- Leadfree

### Applications

Provide individual protection for components or internal circuits.

- Power supplies
- Battery charger
- Monitor
- Adapter

LEAD FREE = <sup>Ⓟ</sup>  
HALOGEN FREE = <sup>HF</sup>



### Physical Specifications

Materials	Body : Glass or Ceramic ( see info below)
	Cap : Nickel Plated Brass Caps
	Leads : Matte Tin Plated Copper
Marking	On Fuse :
	"bel", "5TT", "Current Rating", "Voltage Rating"
	"Appropriate Safety Logos", "✓" (RoHS 6 compliant)
	On Label :
	"bel", "5TT" or "5TTP", "Current Rating", "Voltage Rating", "Interrupting Rating", "Appropriate Safety Logos" and "Ⓟ", "Ⓢ" (China RoHS compliant).

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

Testing Current	Blow Time		Amp Range
	Minimum	Maximum	
100%	4 hrs.	N/A	80mA - 10A
135%	N/A	1 Hr	80mA - 10A
200%	5 sec	30 sec	80mA - 3A
	3 sec	30 sec	3.1A - 10A

### Safety Agency Approvals

SAFETY AGENCY	SAFETY AGENCY CERTIFICATE NUMBER	VOLTAGE RATING (V)	AMPERE RANGE / VOLT @ I.R. ABILITY*	
<sup>UL</sup>	E20624	80mA - 3A / 250V AC 3.15A - 10A / 125V AC	80mA - 3A / 250V AC @100A 80mA - 8A / 125V AC @10,000A	
<sup>CSA</sup>	LR39772			
<sup>UL</sup>	E20624			
<sup>CSA</sup>	LR39772			
<sup>Ⓢ</sup>	JET 1037-31003-1010 JET 1037-31003-1011			1A - 5A / 125V AC @500A
<sup>Ⓢ</sup>	JET 1037-31003-1007			>5A - 15A / 125V AC @300A

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

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 <10 mSec (A <sup>2</sup> Sec)	Melting I <sup>2</sup> T @10 In (A <sup>2</sup> Sec)	Maximum Power Dissipation (W)	Agency Approvals				
								UL	CSA	SP	SE	Other
5TT(P) 80-R	80mA	29	3.10	See Table of Safety Approvals on Page 1 for Voltage and associated Interrupting Ratings	0.091	0.096	0.42	Y			Y	
5TT(P) 100-R	100mA	18.8	2.52		0.137	0.146	0.45	Y			Y	
5TT(P) 125-R	125mA	12.6	2.22		0.208	0.221	0.48	Y			Y	
5TT(P) 160-R	160mA	7.6	1.88		0.314	0.337	0.51	Y			Y	
5TT(P) 200-R	200mA	4.98	1.45		0.476	0.512	0.55	Y			Y	
5TT(P) 250-R	250mA	3.39	1.25		0.719	0.778	0.58	Y			Y	
5TT(P) 300-R	300mA	2.13	0.97		0.885	0.959	0.60	Y			Y	
5TT(P) 400-R	400mA	1.33	0.83		1.65	1.80	0.66	Y			Y	
5TT(P) 500-R	500mA	0.865	0.67		2.5	2.7	0.70	Y			Y	
5TT(P) 600-R	600mA	0.679	0.64		3.8	4.2	0.75	Y			Y	
5TT(P) 700-R	700mA	0.465	0.49		4.6	5.1	0.78	Y			Y	
5TT(P) 750-R	750mA	0.438	0.48		5.3	5.8	0.79	Y			Y	
5TT(P) 1-R	1A	0.258	0.40		8.6	9.6	0.85	Y			Y	Y
5TT(P) 1.25-R	1.25A	0.179	0.34		13	15	0.91	Y			Y	Y
5TT(P) 1.5-R	1.5A	0.126	0.30		18	21	0.96	Y			Y	Y
5TT(P) 1.6-R	1.6A	0.116	0.30		20	22	0.97	Y			Y	Y
5TT(P) 2-R	2A	0.081	0.27		30	34	1.03	Y			Y	Y
5TT(P) 2.5-R	2.5A	0.056	0.23		45	51	1.10	Y			Y	Y
5TT(P) 3-R	3A	0.043	0.21		56	63	1.13	Y			Y	Y
5TT(P) 3.15-R	3.15A	0.040	0.21		68	78	1.17				Y	Y
5TT(P) 4-R	4A	0.029	0.19		103	119	1.25				Y	Y
5TT(P) 5-R	5A	0.020	0.17		157	180	1.33				Y	Y
5TT(P) 6-R	6A	0.015	0.15		218	317	1.23				Y	Y
5TT(P) 6.3-R	6.3A	0.014	0.12		230	345	1.25				Y	Y
5TT(P) 7-R	7A	0.012	0.13		295	459	1.37				Y	Y
5TT(P) 8-R	8A	0.011	0.13		319	472	1.31				Y	Y
5TT(P) 10-R	10A	0.008	0.13		467	703	1.40		Y	Y	Y	Y

Consult manufacturer for other ratings

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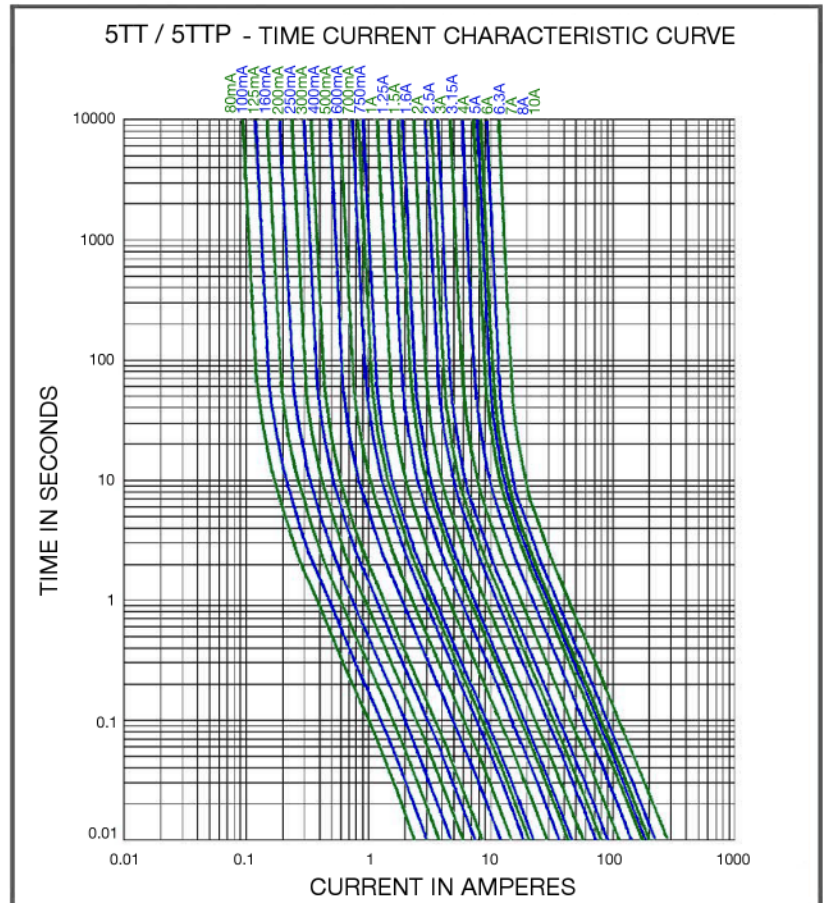
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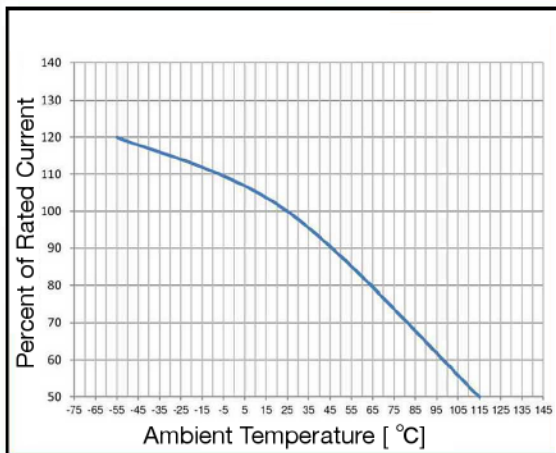
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### Average Time Current Curve

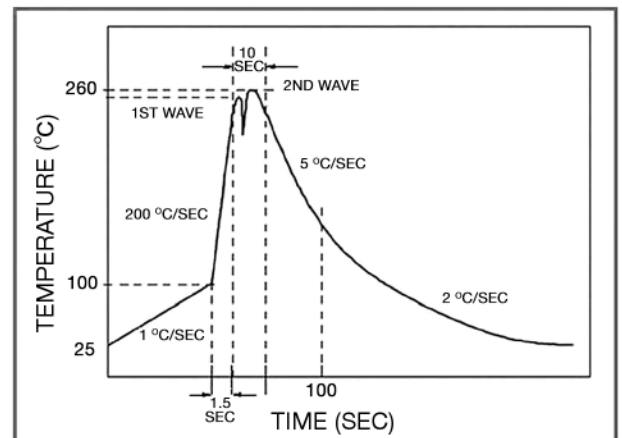


### Temperature Derating Curve



### 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 Tp	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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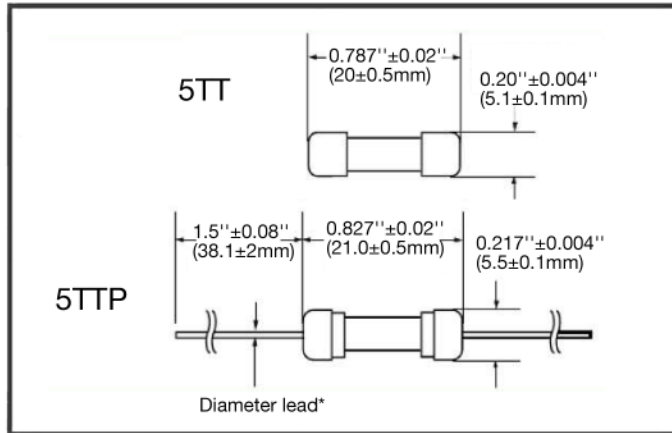
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### Fuse FGNO Explanation 0654 R [XXXX] - XX

[XXXX]=Ampere Rating; XX=See Ordering Information as below

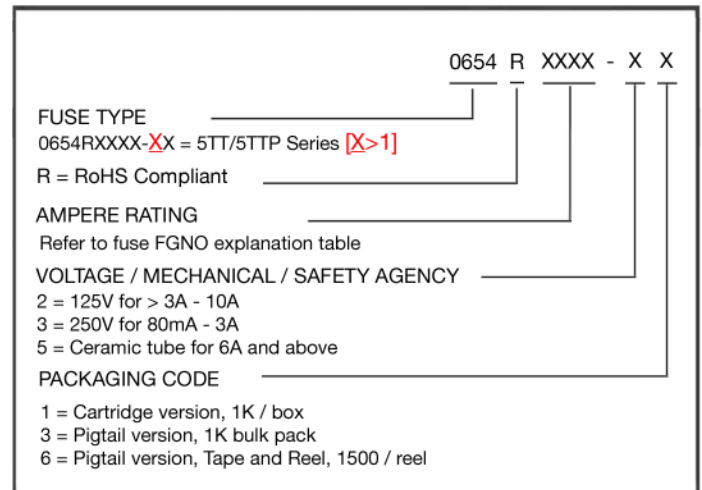
Fraction	Decimal	Milliamps	Bel FGNO[XXXX]	Fraction	Decimal	Amps	Bel FGNO[XXXX]
8/100	0.080	80	0080		1.0	1	1000
1/10	.100	100	0100	1-1/4	1.25	1.25	1250
1/8	.125	125	0125	1-1/2	1.50	1.5	1500
	.160	160	0160		1.60	1.6	1600
2/10	.200	200	0200		2.0	2	2000
1/4	.250	250	0250	2-1/2	2.5	2.5	2500
3/10	.300	300	0300		3.0	3	3000
4/10	.400	400	0400		3.15	3.15	3150
1/2	.500	500	0500		4.0	4	4000
6/10	.600	600	0600		5.0	5	5000
7/10	.700	700	0700		6.0	6	6000
3/4	.750	750	0750		6.3	6.3	6300
					7.0	7	7000
					8.0	8	8000
						10	9100

### Mechanical Dimensions



\*Ratings 5A and less have 0.032" diameter lead with glass tube  
\*Ratings 6A and above have 0.040" diameter lead with ceramic tube

### Ordering Information



### Packaging

Packaging Option	Packaging Specification	Quantity	Packaging Code	Inside Tape Spacing
Bulk	N/A	1000	33 / 21 / 51	N/A
Bulk ( Pigtail Type )	N/A	1000	33 / 23 / 53	N/A
Tape & Reel, 10 mm Pitch	EIA-296-F	1500	36 / 26 / 56	63

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