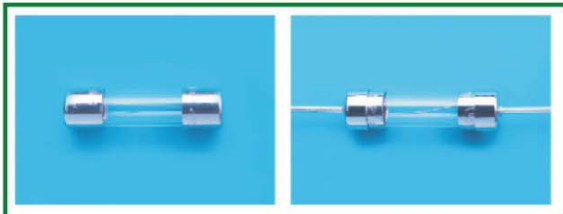


RoHS

**bel**

5TT May2013D

**Type 5TT / 5TTP**  
**Slow Blow Fuse Series**5 x 20mm Glass / Ceramic Tube  
RoHS 6 Compliant**HF** **Pb** 5TT / 5TTP Series, 5 x 20mm Slow Blow FusecUL<sup>us</sup> cUL<sup>us</sup> SP SP PS E CE**Description**

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

**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  |
| 200%            | 3 sec     | 30 sec  | 3.1A - 10A |

**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                                                   |
|-------------------|--------------------------------------------|-------------------------------------------------------------------------------------|
| cUL <sup>us</sup> | E20624                                     | 80mA -3A / 250V AC @100A<br>500mA - 8A / 125V AC @10,000A                           |
| SP                | LR39772                                    |                                                                                     |
| cUL <sup>us</sup> | E20624                                     | 10A / 125V AC @1,000A                                                               |
| SP                | LR39772                                    |                                                                                     |
| PS E              | JET 1037-31003-1010<br>JET 1037-31003-1011 | 1A - 5A / 125V AC @500A                                                             |
|                   | JET 1037-31003-1007                        | >5A - 15A / 125V AC @300A                                                           |
| CE                |                                            | 80mA -10A / 250V AC @100A<br>500mA - 8A / 125V AC @10,000A<br>10A / 125V AC @1,000A |

Specifications subject to change without notice

**Applications**

Provide individual protection for components or internal circuits.

- Power Supplies
- Battery charger
- Monitor
- Adapter

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

# Type 5TT / 5TTP Slow Blow Fuse Series

5 x 20mm Glass / Ceramic Tube

RoHS 6 Compliant



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5TT May2013D

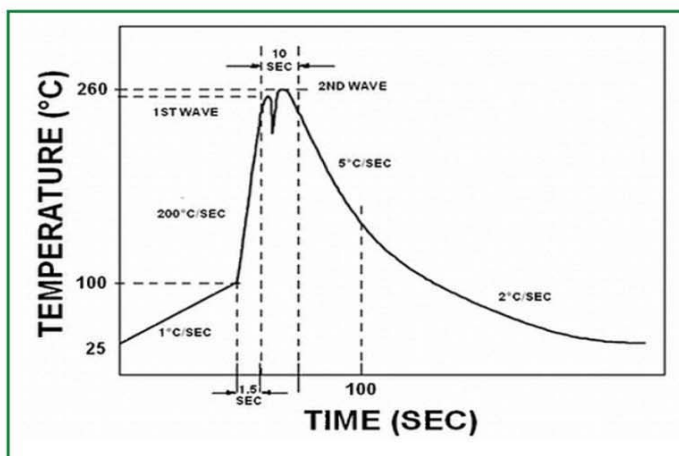
## Electrical Specifications

| Catalog Number | Ampere Rating | Typical Cold Resistance (ohm) | Volt-drop @100% In (Volt) Max. | Voltage Rating (V) | Interrupting Rating                               | Melting I2T <10 m Sec (A2 Sec) | Melting I2T @ 10 In (A2 Sec) | Maximum Power Dissipation (W) | Agency Approvals |     |    |    |     |    |
|----------------|---------------|-------------------------------|--------------------------------|--------------------|---------------------------------------------------|--------------------------------|------------------------------|-------------------------------|------------------|-----|----|----|-----|----|
|                |               |                               |                                |                    |                                                   |                                |                              |                               | UL               | CSA | SP | SP | PSE | CE |
| 5TT (P) 80-R   | 80mA          | 29                            | 3.10                           | 250                | 80mA-3A/250V AC @100A<br>80mA-8A/125V AC @10,000A | 0.091                          | 0.096                        | 0.42                          | Y                |     |    | Y  |     | Y  |
| 5TT (P) 100-R  | 100mA         | 18.8                          | 2.52                           | 250                |                                                   | 0.137                          | 0.146                        | 0.45                          | Y                |     |    | Y  |     | Y  |
| 5TT (P) 125-R  | 125mA         | 12.6                          | 2.22                           | 250                |                                                   | 0.208                          | 0.221                        | 0.48                          | Y                |     |    | Y  |     | Y  |
| 5TT (P) 160-R  | 160mA         | 7.6                           | 1.88                           | 250                |                                                   | 0.314                          | 0.337                        | 0.51                          | Y                |     |    | Y  |     | Y  |
| 5TT (P) 200-R  | 200mA         | 4.98                          | 1.45                           | 250                |                                                   | 0.476                          | 0.512                        | 0.55                          | Y                |     |    | Y  |     | Y  |
| 5TT (P) 250-R  | 250mA         | 3.39                          | 1.25                           | 250                |                                                   | 0.719                          | 0.778                        | 0.58                          | Y                |     |    | Y  |     | Y  |
| 5TT (P) 300-R  | 300mA         | 2.13                          | 0.97                           | 250                |                                                   | 0.885                          | 0.959                        | 0.60                          | Y                |     |    | Y  |     | Y  |
| 5TT (P) 400-R  | 400mA         | 1.33                          | 0.83                           | 250                |                                                   | 1.65                           | 1.80                         | 0.66                          | Y                |     |    | Y  |     | Y  |
| 5TT (P) 500-R  | 500mA         | 0.865                         | 0.67                           | 250                |                                                   | 2.5                            | 2.7                          | 0.70                          | Y                |     |    | Y  |     | Y  |
| 5TT (P) 600-R  | 600mA         | 0.679                         | 0.64                           | 250                |                                                   | 3.8                            | 4.2                          | 0.75                          | Y                |     |    | Y  |     | Y  |
| 5TT (P) 700-R  | 700mA         | 0.465                         | 0.49                           | 250                |                                                   | 4.6                            | 5.1                          | 0.78                          | Y                |     |    | Y  |     | Y  |
| 5TT (P) 750-R  | 750mA         | 0.438                         | 0.48                           | 250                |                                                   | 5.3                            | 5.8                          | 0.79                          | Y                |     |    | Y  |     | Y  |
| 5TT (P) 1-R    | 1A            | 0.258                         | 0.40                           | 250                |                                                   | 8.6                            | 9.6                          | 0.85                          | Y                |     |    | Y  | Y   | Y  |
| 5TT (P) 1.25-R | 1.25A         | 0.179                         | 0.34                           | 250                |                                                   | 13                             | 15                           | 0.91                          | Y                |     |    | Y  | Y   | Y  |
| 5TT (P) 1.5-R  | 1.5A          | 0.126                         | 0.30                           | 250                |                                                   | 18                             | 21                           | 0.96                          | Y                |     |    | Y  | Y   | Y  |
| 5TT (P) 1.6-R  | 1.6A          | 0.116                         | 0.30                           | 250                |                                                   | 20                             | 22                           | 0.97                          | Y                |     |    | Y  | Y   | Y  |
| 5TT (P) 2-R    | 2A            | 0.081                         | 0.27                           | 250                |                                                   | 30                             | 34                           | 1.03                          | Y                |     |    | Y  | Y   | Y  |
| 5TT (P) 2.5-R  | 2.5A          | 0.056                         | 0.23                           | 250                |                                                   | 45                             | 51                           | 1.10                          | Y                |     |    | Y  | Y   | Y  |
| 5TT (P) 3-R    | 3A            | 0.043                         | 0.21                           | 250                |                                                   | 56                             | 63                           | 1.13                          | Y                |     |    | Y  | Y   | Y  |
| 5TT (P) 3.15-R | 3.15A         | 0.040                         | 0.21                           | 125                |                                                   | 68                             | 78                           | 1.17                          |                  |     |    | Y  | Y   | Y  |
| 5TT (P) 4-R    | 4A            | 0.029                         | 0.19                           | 125                |                                                   | 103                            | 119                          | 1.25                          |                  |     |    | Y  | Y   | Y  |
| 5TT (P) 5-R    | 5A            | 0.020                         | 0.17                           | 125                |                                                   | 157                            | 180                          | 1.33                          |                  |     |    | Y  | Y   | Y  |
| 5TT (P) 6-R    | 6A            | 0.015                         | 0.15                           | 125                |                                                   | 218                            | 317                          | 1.23                          |                  |     |    | Y  | Y   | Y  |
| 5TT (P) 6.3-R  | 6.3A          | 0.014                         | 0.12                           | 125                |                                                   | 230                            | 345                          | 1.25                          |                  |     |    | Y  | Y   | Y  |
| 5TT (P) 7-R    | 7A            | 0.012                         | 0.13                           | 125                |                                                   | 295                            | 459                          | 1.37                          |                  |     |    | Y  | Y   | Y  |
| 5TT (P) 8-R    | 8A            | 0.011                         | 0.13                           | 125                |                                                   | 319                            | 472                          | 1.31                          |                  |     |    | Y  | Y   | Y  |
| 5TT (P) 10-R   | 10A           | 0.008                         | 0.13                           | 125                | 125V AC @10,000A                                  | 467                            | 703                          | 1.40                          |                  | Y   | 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<br>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.                             |



## Type 5TT / 5TTP Slow Blow Fuse Series

5 x 20mm Glass / Ceramic Tube

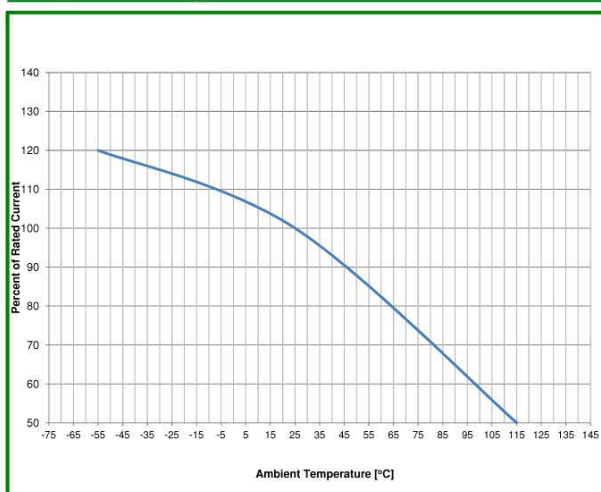
RoHS 6 Compliant



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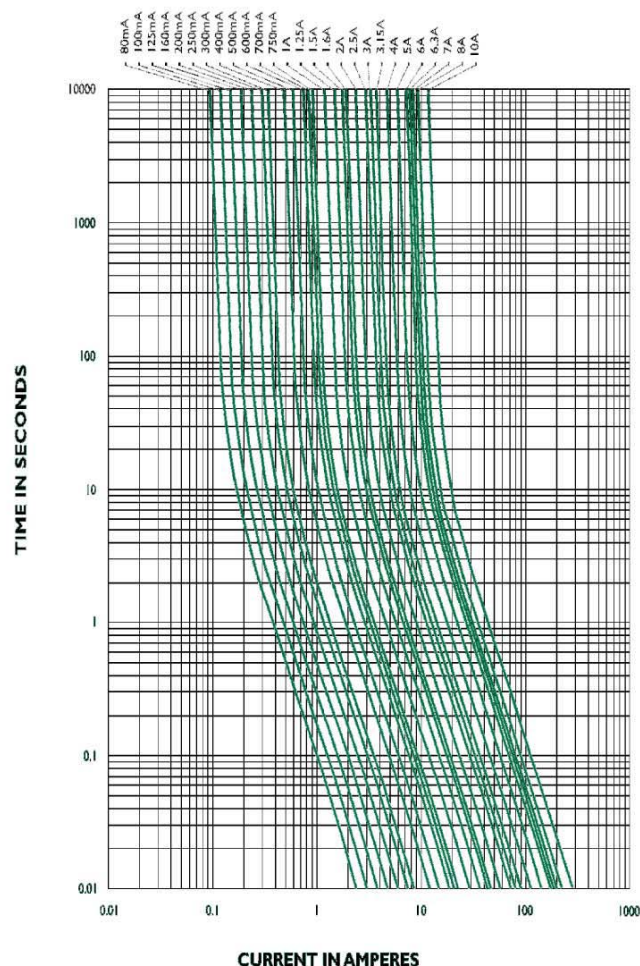
5TT May2013C

Temperature Derating Curve



Average Time Current Curve

### 5TT / 5TTP - TIME CURRENT CHARACTERISTIC 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                                                                                      |

# Type 5TT / 5TTP Slow Blow Fuse Series

5 x 20mm Glass / Ceramic Tube  
RoHS 6 Compliant



5TT May2013D

## 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 "M" "e" (China RoHS compliant). |

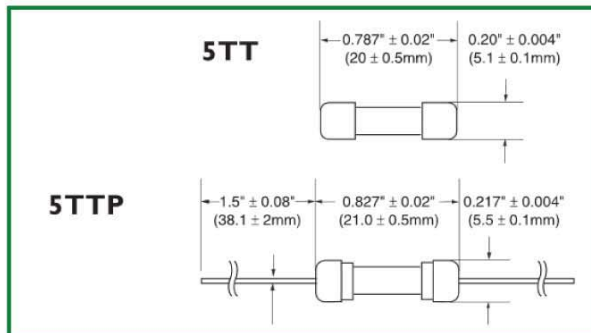
## Fuse FGNO Explanation

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           |

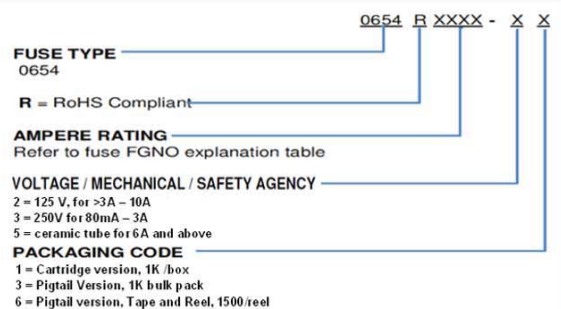
| Fraction | Decimal | Amps | Bel FGNO[XXXX] |
|----------|---------|------|----------------|
|          | 1.0     | 1    | 1000           |
| 1-1/4    | 1.25    | 1.25 | 1250           |
| 1-1/2    | 1.50    | 1.5  | 1500           |
|          | 1.60    | 1.6  | 1600           |
|          | 2.0     | 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



\* 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



Specifications subject to change without notice

## 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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