

# Type 5VT / 5VTP

## Time-lag Fuse Series (High Surge-proof, Low Breaking Capacity)

HF (Pb) 5VT/5VTP Series, 5x20mm Glass Tube Time-lag Fuse

RoHS 6 Compliant

### Description

5x20mm Time lag fuse, high surge-proof, low breaking capacity, glass tube body cartridge fuse designed, approved and complied with IEC 60127-2, standard sheet 3.

### Features

- Meet IEC standard 60127-2, Sheet 3
- Wide operating temperature range
- Bulk and Tape & Reel packing available
- RoHS 6 compliant
- Halogen Free
- Leadfree

### Applications

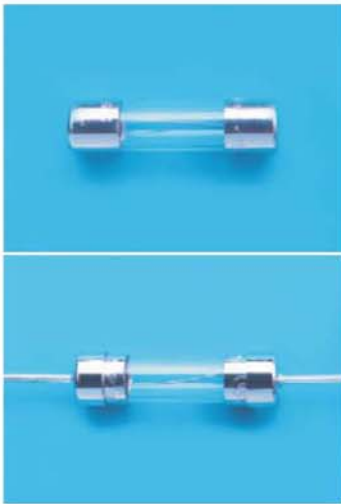
Provide individual protection for components or internal circuits.

- Power supplies
- Battery charger
- Monitor
- Adapter

LEAD FREE = (Pb)  
HALOGEN FREE = (HF)

### Physical Specifications

|           |                                                                                                                                                        |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Materials | Body : Glass                                                                                                                                           |
|           | Cap : Nickel Plated Brass Caps                                                                                                                         |
|           | Leads : Matte Tin Plated Copper                                                                                                                        |
| Marking   | On Fuse :                                                                                                                                              |
|           | "bel", "T", "Current Rating", "L", "250V",                                                                                                             |
|           | "Appropriate Safety Logos", "✓" (RoHS 6 compliant)                                                                                                     |
|           | On Label :                                                                                                                                             |
|           | "bel", "5VT" or "5VTP", "Current Rating", "Voltage Rating", "Interrupting Rating",<br>" Appropriate Safety Logos" and "M", "C" (China RoHS compliant). |



### Electrical Characteristics (IEC-127-2 STANDARD SHEET 3)

| Rated Current | 1.5 In |        | 2.1 In |        | 2.75 In |       | 4 In  |        | 10 In |     |
|---------------|--------|--------|--------|--------|---------|-------|-------|--------|-------|-----|
|               | MIN    | MAX    | MIN    | MAX    | MIN     | MAX   | MIN   | MAX    | MIN   | MAX |
| 1A to 6.3A    | 1 hr.  | 2 min. | 600 ms | 10 sec | 150 ms  | 3 sec | 20 ms | 300 ms |       |     |

In clause 9.2, the test voltage for 5VTP ratings from 1A to 6.3A is 63VDC.

### Safety Agency Approvals

| SAFETY AGENCY | SAFETY AGENCY CERTIFICATE NUMBER | AMPERE RANGE / VOLT @ I.R. ABILITY                      |
|---------------|----------------------------------|---------------------------------------------------------|
| (S)           | 800915                           | 1A - 6.3A / 250V AC @ 35A or 10 In whichever is greater |
| (D'E)         | 40007745                         |                                                         |
| (UL)          | E20624                           |                                                         |
| (SP)          | LR39772                          |                                                         |
| (CCC)         | 2003010207030341                 |                                                         |

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 B (After Opening) 100, 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 Rating (V) | Interrupting Rating                                    | 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 US            | SP | CCC | S | D'E |
| 5VT (P) 1-R    | 1A            | 0.111                         | 0.15                           | 250                | 1A - 6.3A / 250V AC @35A or 10 In whichever is greater | 28                                                     | 29                                                   | 0.42                          | Y                | Y  | Y   | Y | Y   |
| 5VT (P) 1.25-R | 1.25A         | 0.073                         | 0.13                           | 250                |                                                        | 42                                                     | 43                                                   | 0.42                          | Y                | Y  | Y   | Y | Y   |
| 5VT (P) 1.6-R  | 1.6A          | 0.058                         | 0.13                           | 250                |                                                        | 62                                                     | 64                                                   | 0.51                          | Y                | Y  | Y   | Y | Y   |
| 5VT (P) 2-R    | 2A            | 0.039                         | 0.12                           | 250                |                                                        | 92                                                     | 95                                                   | 0.61                          | Y                | Y  | Y   | Y | Y   |
| 5VT (P) 2.5-R  | 2.5A          | 0.031                         | 0.12                           | 250                |                                                        | 137                                                    | 142                                                  | 0.74                          | Y                | Y  | Y   | Y | Y   |
| 5VT (P) 3.15-R | 3.15A         | 0.023                         | 0.10                           | 250                |                                                        | 203                                                    | 211                                                  | 0.90                          | Y                | Y  | Y   | Y | Y   |
| 5VT (P) 4-R    | 4A            | 0.017                         | 0.10                           | 250                |                                                        | 300                                                    | 313                                                  | 1.08                          | Y                | Y  | Y   | Y | Y   |
| 5VT (P) 5-R    | 5A            | 0.012                         | 0.09                           | 250                |                                                        | 444                                                    | 465                                                  | 1.31                          | Y                | Y  | Y   | Y | Y   |
| 5VT (P) 6.3-R  | 6.3A          | 0.010                         | 0.09                           | 250                |                                                        | 658                                                    | 691                                                  | 1.58                          | Y                | Y  | Y   | Y | Y   |

Consult manufacturer for other ratings

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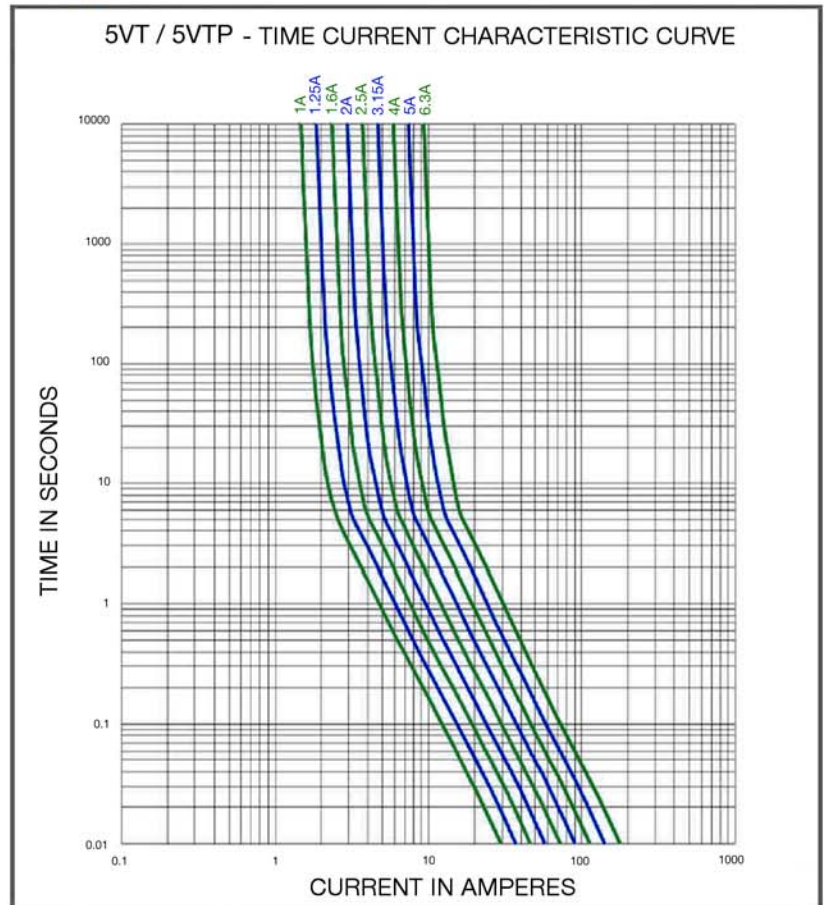
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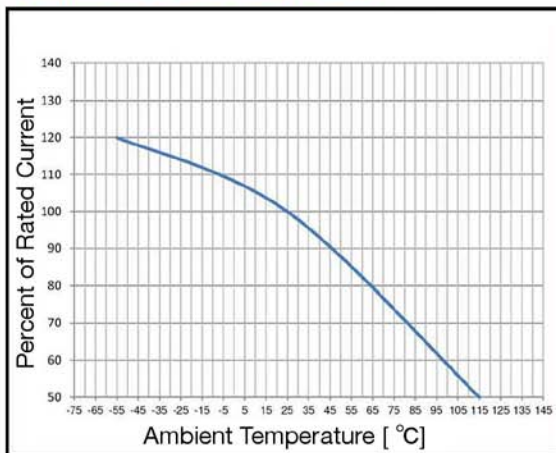
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RoHS 6 Compliant

### Average Time Current Curve

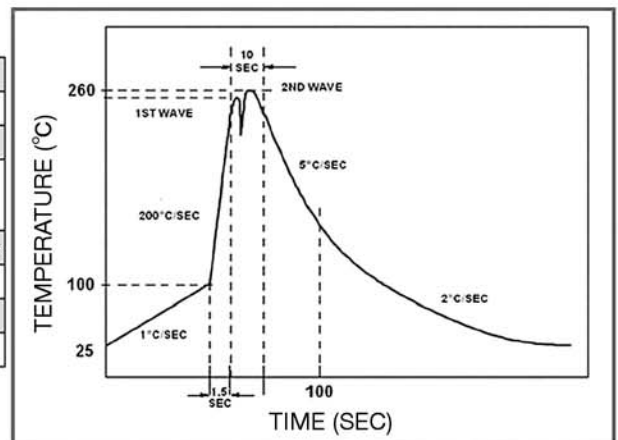


### Temperature Derating Curve



### 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<br>Max 4°C/ second |
| Final preheat temperature                        | within 125°C of soldering temperature      |
| Peak temperature $T_p$                           | 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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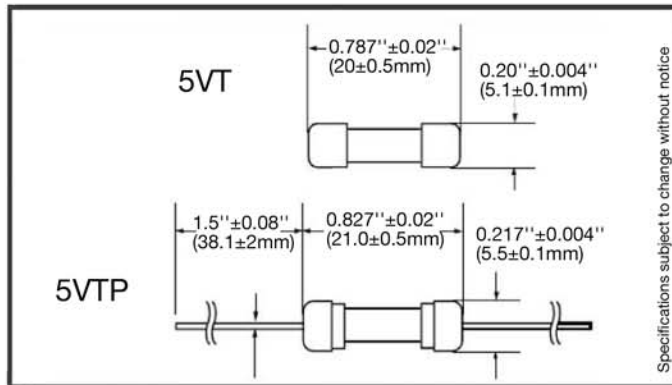
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### Fuse FGNO Explanation 06XX X [XXXX] X XX, [XXXX]=Ampere Rating

| 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



\*Ratings 6.3A and less have 0.032" diameter lead.

### Ordering Information

|                      |                                                                                                                         |   |      |   |   |   |
|----------------------|-------------------------------------------------------------------------------------------------------------------------|---|------|---|---|---|
| FUSE TYPE            | 0654                                                                                                                    | R | XXXX | - | X | X |
| R = RoHS Compliant   |                                                                                                                         |   |      |   |   |   |
| AMPERE RATING        | Refer to fuse FGNO explanation table                                                                                    |   |      |   |   |   |
| SAFETY STANDARD CODE | 1 = IEC, 250V, 1A - 6.3A                                                                                                |   |      |   |   |   |
| PACKAGING CODE       | 1 = Cartridge version, 1K / box<br>3 = Pigtail version, 1K bulk pack<br>6 = Pigtail version, Tape and Reel, 1500 / reel |   |      |   |   |   |

### Packaging

| Packaging Option         | Packaging Specification | Quantity | Packaging Code | Inside Tape Spacing |
|--------------------------|-------------------------|----------|----------------|---------------------|
| Bulk                     | N/A                     | 1000     | 11             | N/A                 |
| Bulk ( Pigtail Type )    | N/A                     | 1000     | 13             | N/A                 |
| Tape & Reel, 10 mm Pitch | EIA-296-F               | 1500     | 16             | 63                  |

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