

# Type 5ET / 5ETP

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

HF  5ET/5ETP Series, 5x20mm Glass Tube Time-lag Fuse

RoHS 2 Compliant

### Description

5x20mm Time-lag fuse, high surge-proof, enhanced breaking capacity, glass tube body cartridge fuse designed, approved and complied with IEC 60127-2, standard sheet 6.

### Features

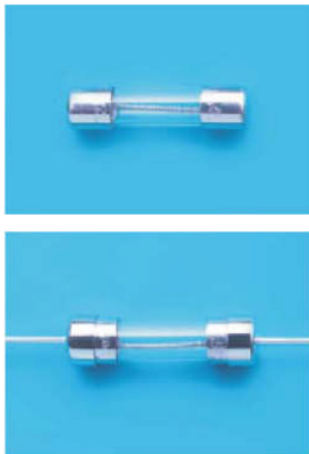
- Meet IEC standard 60127-2, sheet 6
- Wide operating temperature range
- Bulk and Tape & Reel packing available
- RoHS 2 compliant
- Halogen Free
- Lead Free

### Applications

Provide individual protection for components or internal circuits.

- Power supplies
- Battery charger
- Monitor
- Adapter

LEAD FREE =   
HALOGEN FREE = 



### Physical Specifications

|           |                                                                                                                                                               |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Materials | Body : Glass                                                                                                                                                  |
|           | Cap : Nickel Plated Brass Caps                                                                                                                                |
|           | Leads : Matte Tin Plated Copper                                                                                                                               |
| Marking   | On Fuse :                                                                                                                                                     |
|           | "bel", "T", "Current Rating", "E", "250V",                                                                                                                    |
|           | "Appropriate Safety Logos", "✓" (RoHS 2 compliant)                                                                                                            |
|           | On Label :                                                                                                                                                    |
|           | "bel", "5ET" or "5ETP", "Current Rating", "Voltage Rating", "Interrupting Rating",<br>"Appropriate Safety Logos" and "✓", "RoHS", "G" (China RoHS compliant). |

### Electrical Characteristics (IEC-127-2 STANDARD SHEET 6)

| 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 12A     | 1 hr.  | 2 min. | 600 ms | 10 sec | 150 ms  | 3 sec | 20 ms | 300 ms |       |     |

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

### Safety Agency Approvals

| Safety Agency                                                                       | Safety Agency Certificate | Voltage Rating (V)  | Ampere Range / Volt @ I.R. ability*         |
|-------------------------------------------------------------------------------------|---------------------------|---------------------|---------------------------------------------|
|  | 1720086<br>1400794        | 1A-12A /<br>250V AC | 1A-6.3A/250V AC@150A<br>8A-12A/250C AV@150A |
|  | 40007746                  |                     | 1A–6.3A / 250V AC@150A                      |
|  | E20624                    |                     |                                             |
|  | LR39772                   |                     |                                             |
|  | 2003010207030342          |                     |                                             |
| *I.R.= Interrupting Rating = Short Circuit Rating(Amps)                             |                           |                     |                                             |

## Environmental Specifications

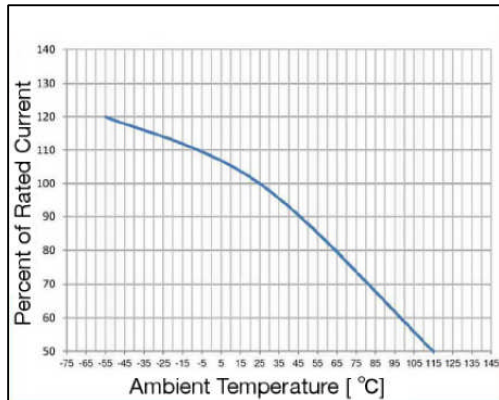
|                           |                                                                                                  |
|---------------------------|--------------------------------------------------------------------------------------------------|
| Shock Resistance          | MIL-STD-202G, 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

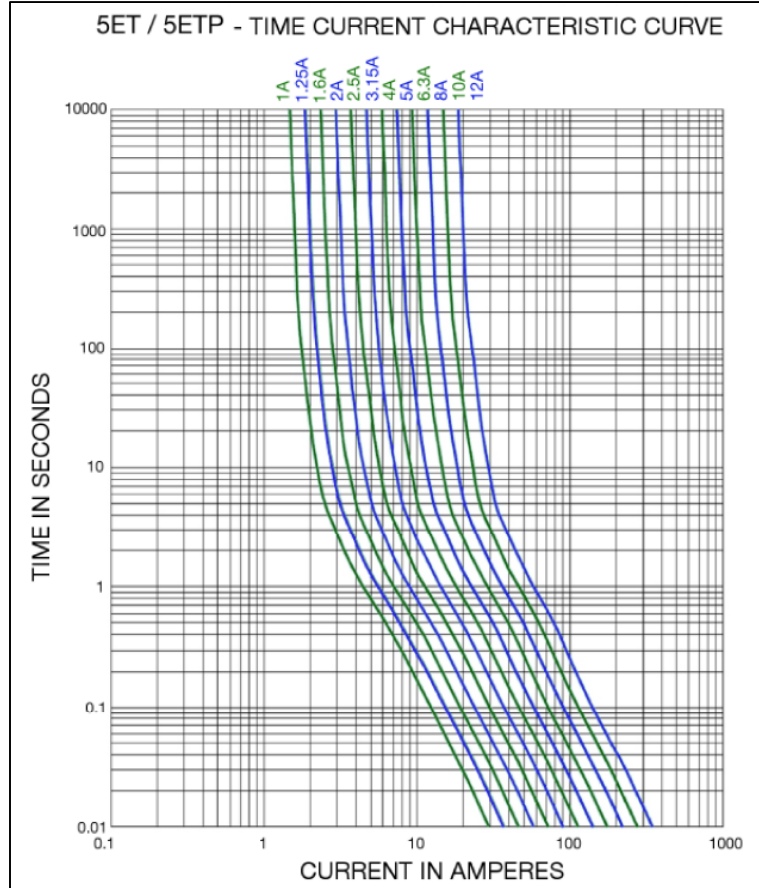
| Catalog Number | Ampere Rating | Typical Cold Resistance (ohms) | Volt-drop @100%In (Volt) max. | Voltage and Interrupting Ratings                                                        | Melting I <sup>2</sup> T <10 mSec (A <sup>2</sup> Sec) | Melting I <sup>2</sup> T @10 In (A <sup>2</sup> Sec) | Maximum Power Dissipation (W) | Agency Approvals                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|----------------|---------------|--------------------------------|-------------------------------|-----------------------------------------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                |               |                                |                               |                                                                                         |                                                        |                                                      |                               |  |  |  |  |  |
| 5ET(P) 1-R     | 1A            | 0.111                          | 0.15                          | See Table of Safety Approvals on Page 1 for Voltage and associated Interrupting Ratings | 28                                                     | 29                                                   | 0.42                          | Y                                                                                   | Y                                                                                   | Y                                                                                   | Y                                                                                   | Y                                                                                   |
| 5ET(P) 1.25-R  | 1.25A         | 0.073                          | 0.13                          |                                                                                         | 42                                                     | 43                                                   | 0.42                          | Y                                                                                   | Y                                                                                   | Y                                                                                   | Y                                                                                   | Y                                                                                   |
| 5ET(P) 1.6-R   | 1.6A          | 0.058                          | 0.13                          |                                                                                         | 62                                                     | 64                                                   | 0.51                          | Y                                                                                   | Y                                                                                   | Y                                                                                   | Y                                                                                   | Y                                                                                   |
| 5ET(P) 2-R     | 2A            | 0.039                          | 0.12                          |                                                                                         | 92                                                     | 95                                                   | 0.61                          | Y                                                                                   | Y                                                                                   | Y                                                                                   | Y                                                                                   | Y                                                                                   |
| 5ET(P) 2.5-R   | 2.5A          | 0.031                          | 0.12                          |                                                                                         | 137                                                    | 142                                                  | 0.74                          | Y                                                                                   | Y                                                                                   | Y                                                                                   | Y                                                                                   | Y                                                                                   |
| 5ET(P) 3.15-R  | 3.15A         | 0.023                          | 0.10                          |                                                                                         | 203                                                    | 211                                                  | 0.90                          | Y                                                                                   | Y                                                                                   | Y                                                                                   | Y                                                                                   | Y                                                                                   |
| 5ET(P) 4-R     | 4A            | 0.017                          | 0.10                          |                                                                                         | 300                                                    | 313                                                  | 1.08                          | Y                                                                                   | Y                                                                                   | Y                                                                                   | Y                                                                                   | Y                                                                                   |
| 5ET(P) 5-R     | 5A            | 0.012                          | 0.09                          |                                                                                         | 444                                                    | 465                                                  | 1.31                          | Y                                                                                   | Y                                                                                   | Y                                                                                   | Y                                                                                   | Y                                                                                   |
| 5ET(P) 6.3-R   | 6.3A          | 0.010                          | 0.09                          |                                                                                         | 658                                                    | 691                                                  | 1.58                          | Y                                                                                   | Y                                                                                   | Y                                                                                   | Y                                                                                   | Y                                                                                   |
| 5ET(P) 8-R     | 8A            | 0.007                          | 0.09                          |                                                                                         | 252                                                    | 277                                                  | 3.11                          |                                                                                     |                                                                                     |                                                                                     | Y                                                                                   |                                                                                     |
| 5ET(P) 10-R    | 10A           | 0.006                          | 0.08                          |                                                                                         | 400                                                    | 440                                                  | 3.68                          |                                                                                     |                                                                                     |                                                                                     | Y                                                                                   |                                                                                     |
| 5ET(P) 12-R    | 12A           | 0.005                          | 0.08                          |                                                                                         | 635                                                    | 699                                                  | 4.36                          |                                                                                     |                                                                                     |                                                                                     | Y                                                                                   |                                                                                     |

Consult manufacturer for other ratings

## Temperature Derating Curve

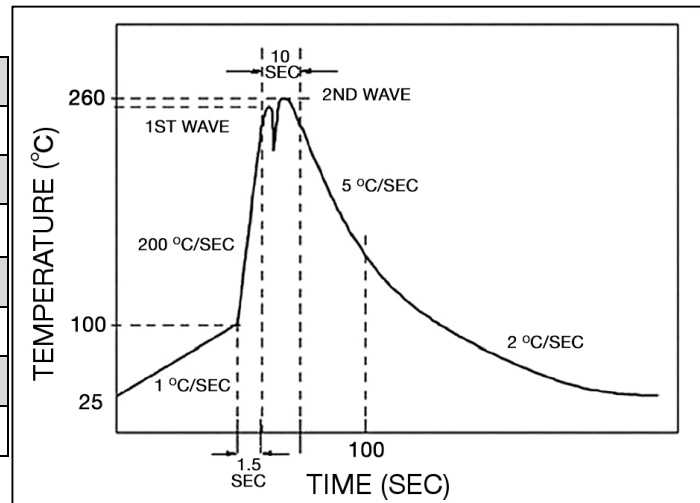


## Average Time Current Curve



## 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 <sub>p</sub>                    | 260°C                                        |
| Time within +0°C / -5°C of actual peak temperature | 10 seconds                                   |
| Ramp-down rate                                     | 5°C / second max.                            |



# Type 5ET / 5ETP

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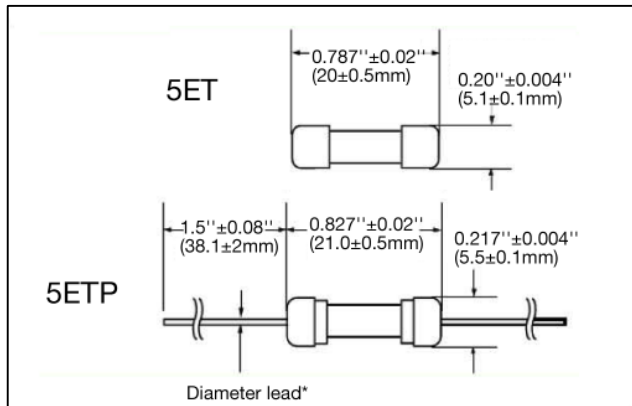
## Fuse FGNO Explanation

0655 R [XXXX] -XX

0655R=5ET/5ETP; [XXXX]=Ampere Rating; XX=See Ordering Information as below

| Fraction | Decimal | Amps | Bel FGNO[XXXX] |
|----------|---------|------|----------------|
|          | 1.0     | 1    | 1000           |
| 1-1/4    | 1.25    | 1.25 | 1250           |
|          | 1.60    | 1.6  | 1600           |
|          | 2.0     | 2    | 2000           |
| 2-1/2    | 2.5     | 2.5  | 2500           |
|          | 3.15    | 3.15 | 3150           |
|          | 4.0     | 4    | 4000           |
|          | 5.0     | 5    | 5000           |
|          | 6.3     | 6.3  | 6300           |
|          | 8.0     | 8    | 8000           |
|          |         | 10   | 9100           |
|          |         | 12   | 9120           |

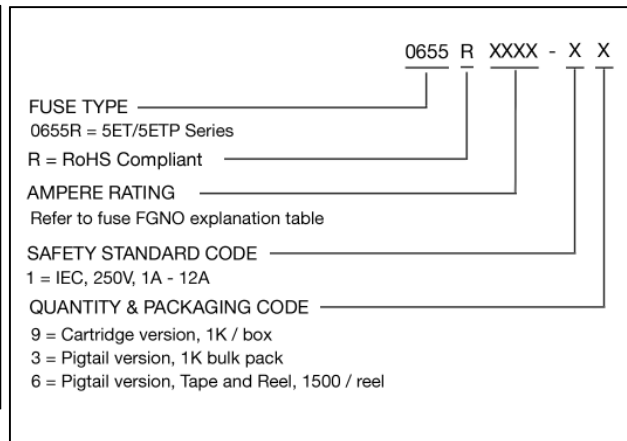
## Mechanical Dimensions



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

\*Ratings 8A and above have 0.040" diameter lead.

## Ordering Information



## Packaging

| Packaging Option        | Packaging Specification | Quantity | Packaging Code | Inside Tape Spacing |
|-------------------------|-------------------------|----------|----------------|---------------------|
| Bulk                    | N/A                     | 1000     | 19             | N/A                 |
| Bulk (Pigtail Type)     | N/A                     | 1000     | 13             | N/A                 |
| Tape & Reel, 10mm Pitch | EIA-296-F               | 1500     | 16             | 63                  |



Specifications subject to change without notice

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