

# Time-Lag SMD Fuses

## 0603

**multicomp**PRO

**RoHS  
Compliant**



### Description

The SMD fuses stand out due to their ultra-small size and excellent electrical performance, reliability and quality. The solder-free design provides outstanding on-off and temperature cycling characteristics during operation and also makes our SMD fuses more heat and shock tolerant than typical subminiature fuses.

### Applications

Industrial Products such as cellphones, DVD players, battery packs, hard disk drives and digital cameras

### Features

- High inrush current withstanding capability
- Compatible with reflow and wave solder
- Ceramic and glass construction
- Excellent environmental integrity
- One time positive disconnect
- Lead-free and Halogen-free
- Designed compliant to UL 248-14

### Specifications

|                       |                                                                                             |
|-----------------------|---------------------------------------------------------------------------------------------|
| Operating Temperature | : -55°C to +125°C                                                                           |
| Storage Conditions    | : +10°C to +60°C                                                                            |
| Relative Humidity     | : ≤ 75% yearly average without dew, maximum 30 days at 95%                                  |
| Vibration Resistance  | : 24 cycles at 15 min. each<br>10-60Hz at 0.75mm amplitude<br>60-2000Hz at 10g acceleration |

### Electrical Characteristics

#### Time vs Current Characteristics Table

(measured with constant current power supply)

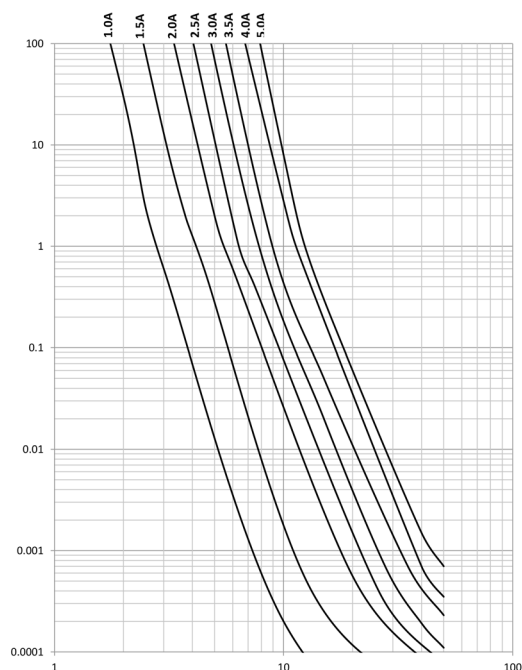
| Time vs Current Characteristics |      |        |      |
|---------------------------------|------|--------|------|
| Rated current                   | 100% | 200%   | 250% |
| 1A to 5A                        | >4h  | 1s~60s | <5s  |

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### Average Time Current (I-T) Curves



### Electrical Characteristics

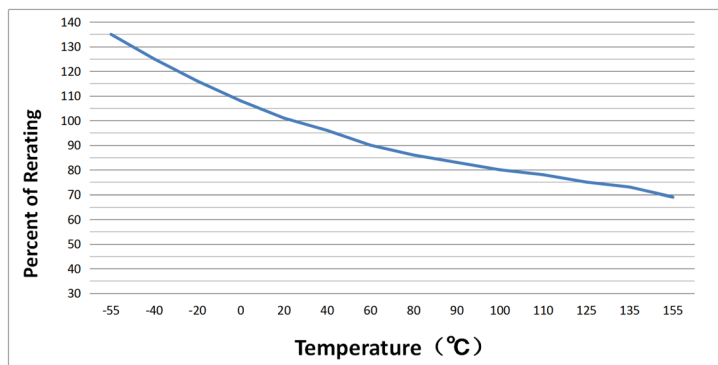
| Amp Code | Rated Current | Rated Voltage DC | Typical Voltage Drop (mV) | Breaking Capacity | Typical Melting I <sup>2</sup> T (A <sup>2</sup> s) | Typ. Resistance (mΩ) | Alpha Mark |
|----------|---------------|------------------|---------------------------|-------------------|-----------------------------------------------------|----------------------|------------|
| 1100     | 1A            | 32V DC           | 325                       | 50A @ 32V DC      | 0.015                                               | 216~280              | H          |
| 1150     | 1.5A          |                  | 255                       |                   | 0.05                                                | 110~180              | K          |
| 1200     | 2A            |                  | 150                       |                   | 0.125                                               | 60~88                | N          |
| 1250     | 2.5A          |                  | 135                       |                   | 0.14                                                | 47~61                | O          |
| 1300     | 3A            |                  | 120                       |                   | 0.35                                                | 26~44                | P          |
| 1350     | 3.5A          |                  | 125                       |                   | 0.62                                                | 20~35                | R          |
| 1400     | 4A            |                  | 110                       |                   | 0.81                                                | 17~24                | S          |
| 1500     | 5A            |                  | 103                       |                   | 2                                                   | 10.5~15              | T          |

1. DC Interrupting Rating (Measured at rated voltage, time constant of less than 50 microseconds, battery source)
2. DC Cold Resistance are measured at <10% of rated current in ambient temperature of 25degrees
3. Typical Pre-arcing I<sup>2</sup>t are measured at 10In Current

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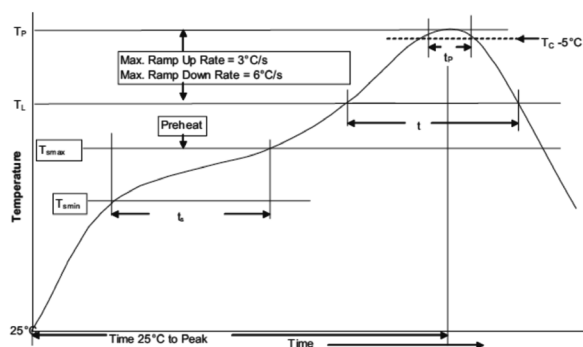
## Temperature Re-rating Curve



Normal ambient temperature :  $23 \pm 3^{\circ}\text{C}$

Operating temperature :  $-55^{\circ}\text{C} \sim +150^{\circ}\text{C}$ , with proper correction factor applied

## Soldering Parameters



| Profile Feature                                                       |                          | Pb-Free Assembly |
|-----------------------------------------------------------------------|--------------------------|------------------|
| Average Ramp-UP Rate(Tsmax to Tp)                                     |                          | 3°C/s Max.       |
| Preheat                                                               | Temperature Min (Ts min) | 150°C            |
|                                                                       | Temperature Max (Ts max) | 200°C            |
|                                                                       | Time (Tsmin to Ts max)   | 60sec to 120sec  |
| Liquidous temperature(TL)                                             |                          | 217°C            |
| Time at liquidous(tL)                                                 |                          | 60 to 150S       |
| Peak package body temperature (Tp)                                    |                          | 260°C            |
| Time (tp) within 5°C of the specified classification temperature (Tc) |                          | 30S              |
| Average ramp-down rate (Tp to Tsmax)                                  |                          | 6°C/s Max.       |
| Time (25°C to Peak Temperature)                                       |                          | 8 Minutes Max.   |

### 1. Infrared Reflow:

Temperature:  $260^{\circ}\text{C}$

Time: 30S

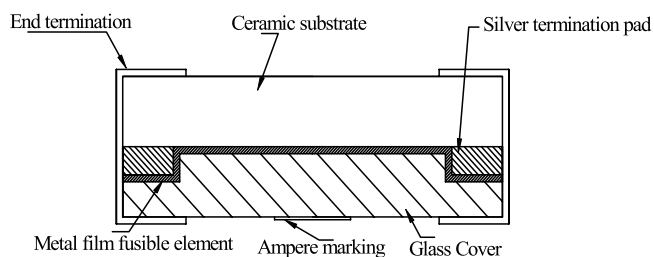
Recommend reflow profile

### 2. Wave Soldering:

Reservoir Temperature:  $260^{\circ}\text{C}$

Time in Reservoir: 10sec Max.

## Mechanical Specifications



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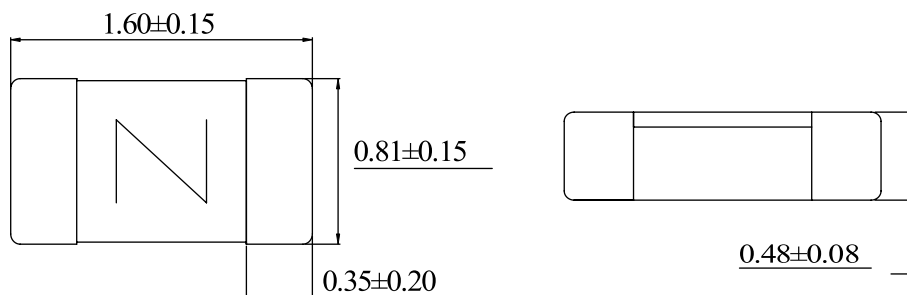
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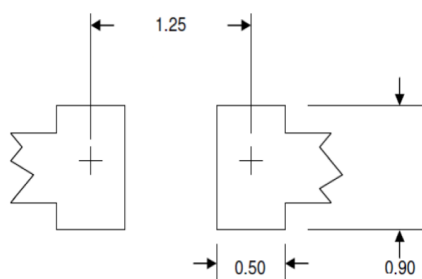
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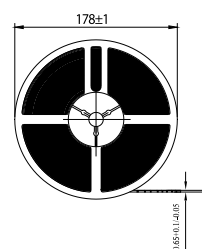
### Diagram



### Recommended land pattern



### Packing Information



### Part Number Table

| Description                            | Part Number      |
|----------------------------------------|------------------|
| SMD Fuse, Time-Lag, 1A, 32V DC, 0603   | MCCFB0603TTT/1   |
| SMD Fuse, Time-Lag, 1.5A, 32V DC, 0603 | MCCFB0603TTT/1.5 |
| SMD Fuse, Time-Lag, 2.5A, 32V DC, 0603 | MCCFB0603TTT/2.5 |
| SMD Fuse, Time-Lag, 3A, 32V DC, 0603   | MCCFB0603TTT/3   |
| SMD Fuse, Time-Lag, 3A, 32V DC, 0603   | MP001603         |
| SMD Fuse, Time-Lag, 4A, 32V DC, 0603   | MCCFB0603TTT/4   |
| SMD Fuse, Time-Lag, 5A, 32V DC, 0603   | MCCFB0603TTT/5   |
| SMD Fuse, Time-Lag, 5A, 32V DC, 0603   | MP001604         |

Dimensions : Millimetres

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