

# 303 Series

## TR3, Fast-Acting Fuse



### Description

The 303 Series are TR3, fast-acting type, 125V rated fuses designed in accordance to UL 248-14.

### Features & Benefits

- Reduced PCB space requirements
- Direct solderable or plug-in versions
- Internationally approved
- Low internal resistance
- Shock safe casing
- Vibration resistant
- RoHS compliant, Lead-Free and Halogen-Free
- Available from 0.050A to 5A

### Additional Information



Resources



Accessories



Samples

### Electrical Characteristics

| % of Ampere Rating | Opening Time        |
|--------------------|---------------------|
| 200                | 60 Seconds, Maximum |

### Applications

- Battery chargers
- Consumer electronics
- Power supplies
- Industrial controllers

### Agency Approvals

| Agency | Agency File Number | Ampere Range |
|--------|--------------------|--------------|
| UL     | E67006             | 0.050A - 5A  |
| CSA    | 051378             | 0.050A - 5A  |
| UKCA   | NA                 | 0.050A - 5A  |

### Electrical Characteristics

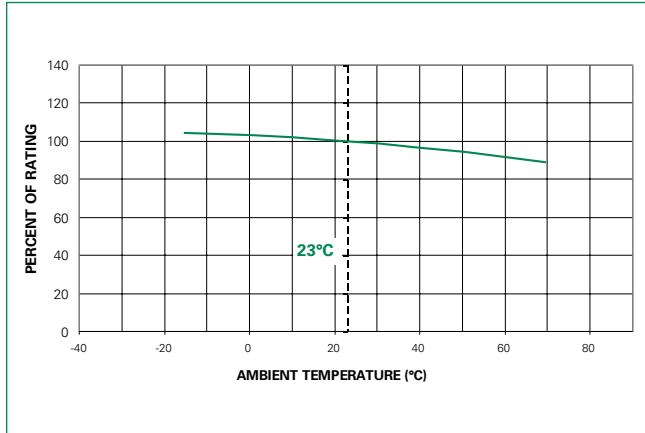
| Amp Code | Rated Current | Voltage Rating | Breaking Capacity           | Nominal Cold Resistance (Ohms) | Voltage Drop 1.0xI <sub>N</sub> max. (mV) | Power Dissipation 1.0xI <sub>N</sub> max. (mW) | Melting Integral 10xI <sub>N</sub> max. (A <sup>2</sup> s) | Approvals |      |     |
|----------|---------------|----------------|-----------------------------|--------------------------------|-------------------------------------------|------------------------------------------------|------------------------------------------------------------|-----------|------|-----|
|          |               |                |                             |                                |                                           |                                                |                                                            | UL        | UKCA | CSA |
| 0050     | 50mA          | 125V           | 50A @ 125VAC<br>50A @ 63VDC | 2.9203                         | 800                                       | 40                                             | 0.00007                                                    | X         | X    | X   |
| 0063     | 63mA          | 125V           |                             | 2.7400                         | 780                                       | 50                                             | 0.00013                                                    | X         | X    | X   |
| 0080     | 80mA          | 125V           |                             | 2.2300                         | 730                                       | 60                                             | 0.0002                                                     | X         | X    | X   |
| 0100     | 100mA         | 125V           |                             | 4.3800                         | 700                                       | 70                                             | 0.0004                                                     | X         | X    | X   |
| 0125     | 125mA         | 125V           |                             | 3.4605                         | 650                                       | 85                                             | 0.0022                                                     | X         | X    | X   |
| 0160     | 160mA         | 125V           |                             | 2.1687                         | 600                                       | 100                                            | 0.0029                                                     | X         | X    | X   |
| 0200     | 200mA         | 125V           |                             | 1.3500                         | 550                                       | 110                                            | 0.0042                                                     | X         | X    | X   |
| 0250     | 250mA         | 125V           |                             | 1.1500                         | 500                                       | 125                                            | 0.0082                                                     | X         | X    | X   |
| 0315     | 315mA         | 125V           |                             | 0.9645                         | 450                                       | 145                                            | 0.015                                                      | X         | X    | X   |
| 0400     | 400mA         | 125V           |                             | 0.8050                         | 400                                       | 160                                            | 0.025                                                      | X         | X    | X   |
| 0500     | 500mA         | 125V           |                             | 0.5320                         | 380                                       | 190                                            | 0.042                                                      | X         | X    | X   |
| 0630     | 630mA         | 125V           |                             | 0.1448                         | 160                                       | 100                                            | 0.015                                                      | X         | X    | X   |
| 0800     | 800mA         | 125V           |                             | 0.1023                         | 155                                       | 125                                            | 0.025                                                      | X         | X    | X   |
| 1100     | 1.00A         | 125V           |                             | 0.0830                         | 150                                       | 155                                            | 0.039                                                      | X         | X    | X   |
| 1125     | 1.25A         | 125V           |                             | 0.0644                         | 145                                       | 185                                            | 0.059                                                      | X         | X    | X   |
| 1160     | 1.60A         | 125V           |                             | 0.0520                         | 140                                       | 225                                            | 0.11                                                       | X         | X    | X   |
| 1200     | 2.00A         | 125V           |                             | 0.0400                         | 130                                       | 260                                            | 0.17                                                       | X         | X    | X   |
| 1250     | 2.50A         | 125V           |                             | 0.0307                         | 125                                       | 315                                            | 0.23                                                       | X         | X    | X   |
| 1315     | 3.15A         | 125V           |                             | 0.0262                         | 120                                       | 380                                            | 0.45                                                       | X         | X    | X   |
| 1400     | 4.00A         | 125V           |                             | 0.0178                         | 110                                       | 440                                            | 1.0                                                        | X         | X    | X   |
| 1500     | 5.00A         | 125V           |                             | 0.0131                         | 105                                       | 525                                            | 1.5                                                        | X         | X    | X   |

Note: 1.00 means the number one with two decimal places. 1,000 means the number one thousand.

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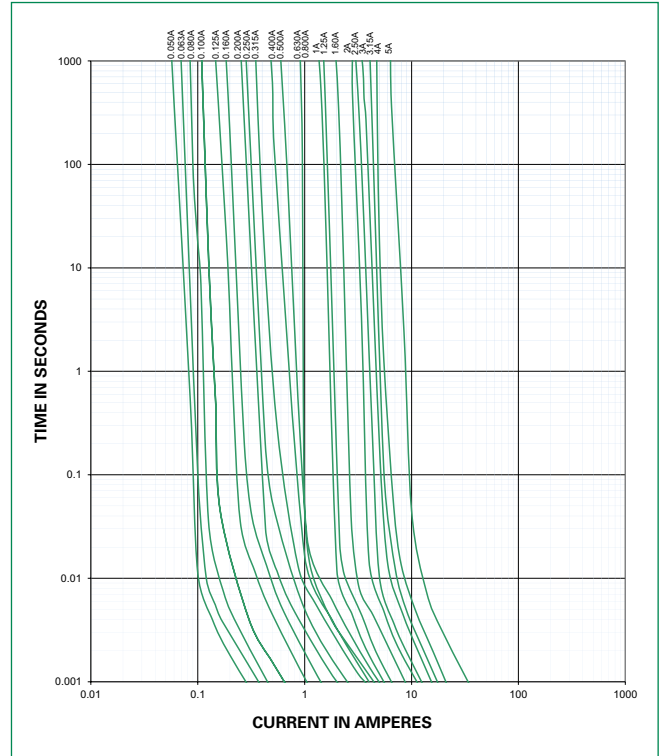
## TR3, Fast-Acting Fuse

### Temperature Re-rating Curve

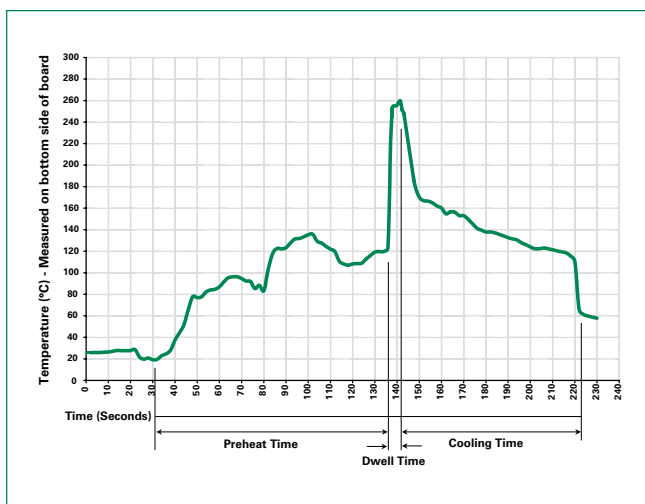


**Note:** Derating depicted in this curve is in addition to the standard derating of 25% for continuous operation.

### Average Time Current Curves



### Soldering Parameters - Wave Soldering



### Recommended Process Parameters:

| Wave Parameter                                       | Lead-Free Recommendation          |
|------------------------------------------------------|-----------------------------------|
| Preheat:<br>(Depends on Flux Activation Temperature) | (Typical Industry Recommendation) |
| Temperature Minimum:                                 | 100°C                             |
| Temperature Maximum:                                 | 150°C                             |
| Preheat Time:                                        | 60-180 seconds                    |
| Solder Pot Temperature:                              | 260°C Maximum                     |
| Solder Dwell Time:                                   | 2-5 seconds                       |

### Recommended Hand-Solder Parameters:

Solder Iron Temperature: 350°C +/- 5°C  
Heating Time: 5 seconds max.

**Note:** These devices are not recommended for IR or Convection Reflow process.

# 303 Series

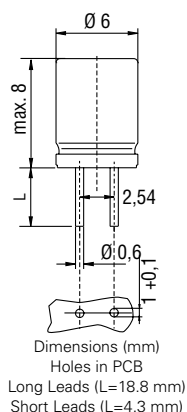
## TR3, Fast-Acting Fuse

### Product Characteristics

|                                  |                                                                                                                                      |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <b>Materials</b>                 | Base/Cap: Black Thermoplastic Base<br>Polyamide PA 6.6, UL 94V-0<br>Brass, Nickel-plated Cap<br>Round Pins: Copper alloy, Tin-plated |
| <b>Lead Pull Strength</b>        | 10 N (IEC 60068-2-21)                                                                                                                |
| <b>Solderability</b>             | 260°C, ≤ 3s. (Wave)<br>350°C, ≤ 1s. (Soldering Iron)                                                                                 |
| <b>Soldering Heat Resistance</b> | 260°C, 10s. (IEC 60068-2-20)<br>350°C, 3s. (Soldering Iron)                                                                          |

|                              |                                                                                                      |
|------------------------------|------------------------------------------------------------------------------------------------------|
| <b>Operating Temperature</b> | -25°C to +70°C (consider de-rating)                                                                  |
| <b>Climatic Category</b>     | -25°C/+70°C/21 days<br>(IEC 60068-1-3)                                                               |
| <b>Stock Conditions</b>      | +10°C to +60°C RH,<br>≤75% yearly average, without dew<br>24 cycles at 15 min. each<br>(IEC 60068-6) |
| <b>Vibration Resistance</b>  | 10 - 60 Hz at 0.75 mm amplitude<br>60 - 2000 Hz at 10 g acceleration                                 |

### Dimensions



### Part Numbering System

|                       |                                                                                                            |             |             |
|-----------------------|------------------------------------------------------------------------------------------------------------|-------------|-------------|
|                       | <b>303</b>                                                                                                 | <b>xxxx</b> | <b>0001</b> |
| <b>Series</b>         |                                                                                                            |             |             |
| <b>Amp. Code</b>      |                                                                                                            |             |             |
|                       | Refer to Amp Code column of<br>Electrical Characteristic Table                                             |             |             |
| <b>Packaging Code</b> |                                                                                                            |             |             |
|                       | 0001 Tape/Ammopack (1,500 pcs.)<br>0131 Long Leads - Bulk (200 pcs.)<br>0421 Short Leads - Bulk (300 pcs.) |             |             |

### Packaging

| Packaging Option  | Packaging Specification | Quantity | Quantity & Packaging Code | Reel Size |
|-------------------|-------------------------|----------|---------------------------|-----------|
| <b>303 Series</b> |                         |          |                           |           |
| Tape & Ammopack   | N/A                     | 1,500    | 0001                      | N/A       |
| Long Leads        | N/A                     | 200      | 0131                      | N/A       |
| Short Leads       | N/A                     | 300      | 0421                      | N/A       |

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