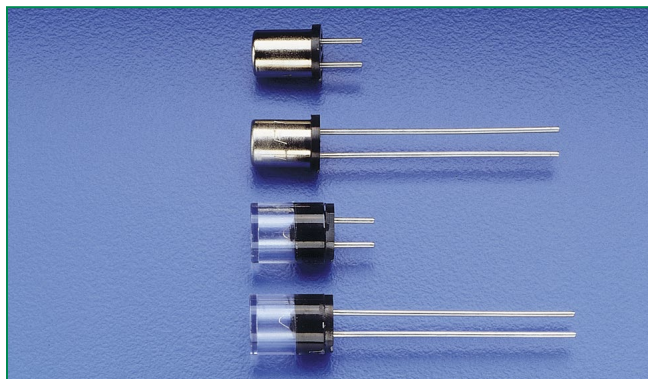


### 272/273/274/278/279 Series, MICRO™ Very Fast-Acting Fuse



#### Description

Developed originally for the U.S. Space Program, MICRO™ fuse provides reliability in a compact design. The MICRO™ fuse is available in plug-in or radial lead styles and a complete range of ampere ratings from 0.002A to 5A to suit a wide variety of design needs.

#### Features

- Military grade available
- High breaking capacity
- Clear cover option to view fuse element status
- Available from very low ampere of 0.002A to 5A
- Plug-in with short or long leads option
- Recognized to UL/CSA/NMX 248-1 and UL/CSA/NMX 248-14

#### Agency Approvals

| Agency                                                                              | Agency File Number | Ampere Range |
|-------------------------------------------------------------------------------------|--------------------|--------------|
|    | E10480             | 0.002A - 5A  |
|  | 29862              | 0.002A - 5A  |
| <b>QPL</b>                                                                          | QPL-23419          | 0.002A - 5A  |

#### Applications

- Printed circuit boards and similar equipment
- Electronic components

#### Electrical Characteristics

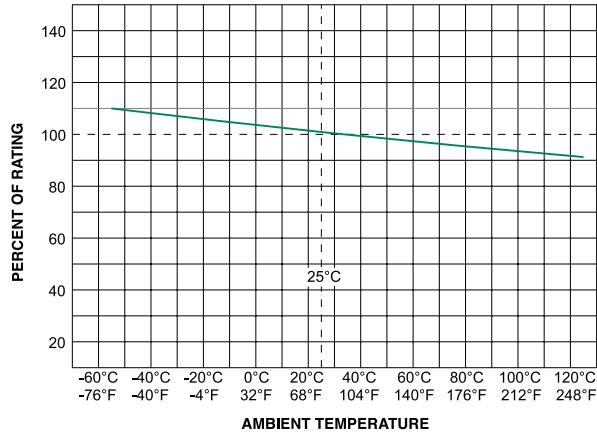
| % of Ampere Rating | Ampere Rating | Opening Time           |
|--------------------|---------------|------------------------|
| 100%               | 0.002 – 5     | 4 Hours, <b>Min.</b>   |
| 200%               | 0.002 – 0.3   | 5 Seconds, <b>Max.</b> |
|                    | 0.4 - 5       | 2 Seconds, <b>Max.</b> |

#### Electrical Characteristics

| Ampere Rating (A) | Amp Code (for all above series) | Max Voltage Rating (V) | Interrupting Rating | Nominal Cold Resistance (Ohms) | Nominal Melting I <sup>2</sup> t (A <sup>2</sup> sec) | Agency Approvals                                                                      |                                                                                       |            |
|-------------------|---------------------------------|------------------------|---------------------|--------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------|
|                   |                                 |                        |                     |                                |                                                       |  |  | <b>QPL</b> |
| 0.002             | 0.002                           | 125                    | 10,000A@125VAC/VDC  | 2200                           | 0.00000000845                                         | X                                                                                     | X                                                                                     | X          |
| 0.005             | 0.005                           | 125                    |                     | 280                            | 0.0000000766                                          | X                                                                                     | X                                                                                     | X          |
| 0.010             | 0.010                           | 125                    |                     | 80.0                           | 0.000000462                                           | X                                                                                     | X                                                                                     | X          |
| 0.015             | 0.015                           | 125                    |                     | 44.0                           | 0.00000123                                            | X                                                                                     | X                                                                                     | X          |
| 0.031             | 0.031                           | 125                    |                     | 16.0                           | 0.00000810                                            | X                                                                                     | X                                                                                     | X          |
| 0.050             | 0.050                           | 125                    |                     | 3.52                           | 0.0000666                                             | X                                                                                     | X                                                                                     | X          |
| 0.062             | 0.062                           | 125                    |                     | 2.55                           | 0.000115                                              | X                                                                                     | X                                                                                     | X          |
| 0.100             | 0.100                           | 125                    |                     | 1.38                           | 0.000385                                              | X                                                                                     | X                                                                                     | X          |
| 0.125             | 0.125                           | 125                    |                     | 1.0                            | 0.000691                                              | X                                                                                     | X                                                                                     | X          |
| 0.200             | 0.200                           | 125                    |                     | 2.30                           | 0.00409                                               | X                                                                                     | X                                                                                     | X          |
| 0.250             | 0.250                           | 125                    |                     | 1.75                           | 0.00640                                               | X                                                                                     | X                                                                                     | X          |
| 0.300             | 0.300                           | 125                    |                     | 1.25                           | 0.00945                                               | X                                                                                     | X                                                                                     | X          |
| 0.400             | 0.400                           | 125                    |                     | 0.227                          | 0.0251                                                | X                                                                                     | X                                                                                     | X          |
| 0.500             | 0.500                           | 125                    |                     | 0.167                          | 0.0716                                                | X                                                                                     | X                                                                                     | X          |
| 0.600             | 0.600                           | 125                    |                     | 0.430                          | 0.0411                                                | X                                                                                     | X                                                                                     | X          |
| 0.700             | 0.700                           | 125                    |                     | 0.324                          | 0.0710                                                | X                                                                                     | X                                                                                     | X          |
| 0.750             | 0.750                           | 125                    |                     | 0.293                          | 0.0563                                                | X                                                                                     | X                                                                                     | X          |
| 0.800             | 0.800                           | 125                    |                     | 0.271                          | 0.113                                                 | X                                                                                     | X                                                                                     | X          |
| 1.00              | 001.0                           | 125                    |                     | 0.0880                         | 0.0648                                                | X                                                                                     | X                                                                                     | X          |
| 01.5              | 01.5                            | 125                    |                     | 0.0578                         | 0.160                                                 | X                                                                                     | X                                                                                     | X          |
| 2.00              | 002.0                           | 125                    |                     | 0.0425                         | 0.300                                                 | X                                                                                     | X                                                                                     | X          |
| 3.00              | 003.0                           | 125                    |                     | 0.0275                         | 0.759                                                 | X                                                                                     | X                                                                                     | X          |
| *4.00             | 004.0                           | 125                    |                     | 0.0202                         | 1.38                                                  | X                                                                                     | X                                                                                     | X          |
| *5.00             | 005.0                           | 125                    |                     | 0.0156                         | 2.21                                                  | X                                                                                     | X                                                                                     | X          |

\* The fuses of 4A and 5A for 272 and 278 Series are obsolete.

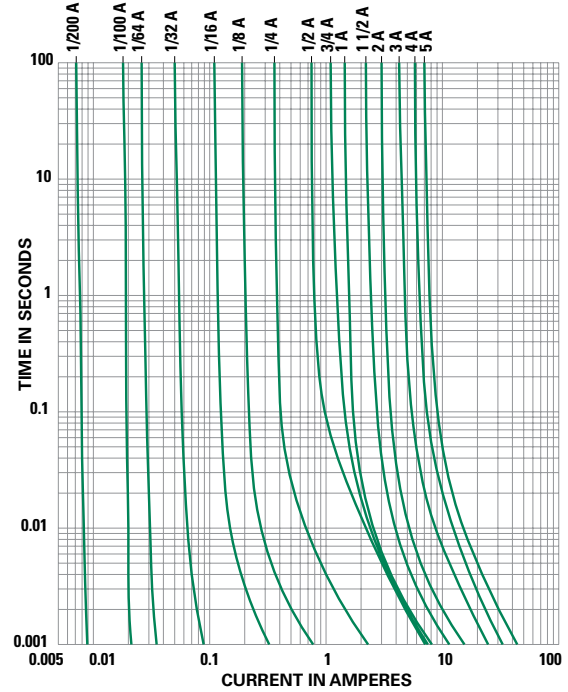
### Temperature Re-rating Curve



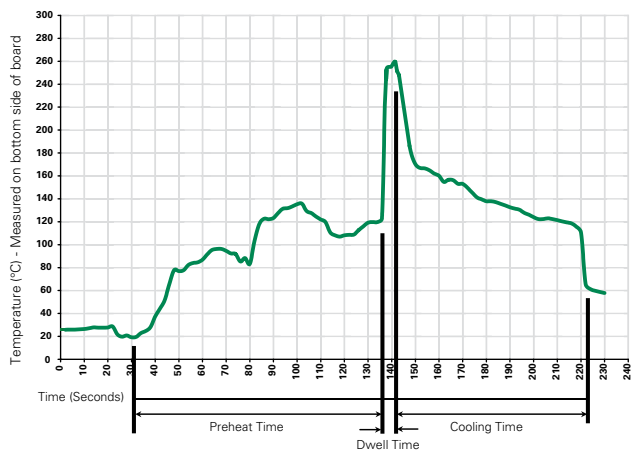
**Note:**

1. 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          |
|-------------------------------------------------------------|-----------------------------------|
| <b>Preheat:</b><br>(Depends on Flux Activation Temperature) | (Typical Industry Recommendation) |
| Temperature Minimum:                                        | 100° C                            |
| Temperature Maximum:                                        | 150° C                            |
| Preheat Time:                                               | 60-180 seconds                    |
| <b>Solder Pot Temperature:</b>                              | 260° C Maximum                    |
| <b>Solder Dwell Time:</b>                                   | 2-5 seconds                       |

**Recommended Hand-Solder Parameters:**

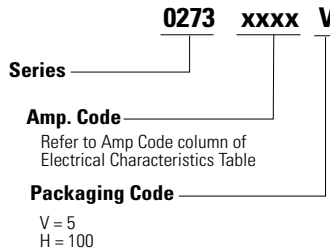
Solder Iron Temperature: 350° C +/- 5° C  
Heating Time: 5 seconds max.

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

### Product Characteristics

|                               |                                                                                                                                                                           |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Operating Temperature:</b> | 273 and 279: -55°C to +85°C;<br>272 and 278: -55°C to +125°C                                                                                                              |
| <b>Fuses to MIL SPEC</b>      | Military QPL type (FM02).<br>To order, change 273 to 274.                                                                                                                 |
| <b>Materials</b>              | 272 and 278 series cap:<br>Nickel Plated Brass<br><br>273, 274 and 279 series cap:<br>Mirror polished Polycarbonate<br><br>Base: R-4 Ryton<br><br>Pins: Tin Plated Copper |
| <b>Product Marking</b>        | Current and voltage ratings stamped on cap                                                                                                                                |

### Part Numbering System



### Additional Information



**Datasheet  
272 Series**



**Datasheet  
273 Series**



**Datasheet  
274 Series**



**Datasheet  
278 Series**



**Datasheet  
279 Series**



**Resources  
272 Series**



**Resources  
273 Series**



**Resources  
274 Series**



**Resources  
278 Series**



**Resources  
279 Series**



**Samples  
272 Series**



**Samples  
273 Series**



**Samples  
274 Series**



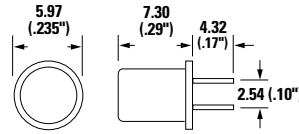
**Samples  
278 Series**



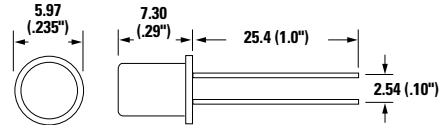
**Samples  
279 Series**

### Dimensions

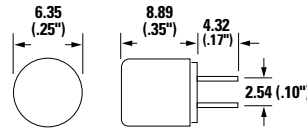
**272 000 Series**  
(Short Lead, Metal Cap)



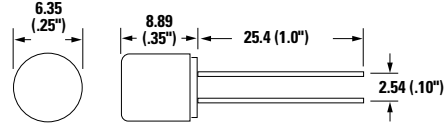
**278 000 Series**  
(Long Lead, Metal Cap)



**273 000 and 274 000 Series**  
(Short Lead, Clear Plastic Cap)



**279 000 Series**  
(Long Lead, Clear Plastic Cap)



**NOTE:** Amperage and voltage rating stamped on cap.  
Leads are tin plated copper; .025" diameter.

### Packaging

| Packaging Option | Packaging Specification | Quantity | Quantity & Packaging Code |
|------------------|-------------------------|----------|---------------------------|
| Bulk             | N / A                   | 5        | V                         |
| Bulk             | N / A                   | 100      | H                         |

\*Only V-pack version for low current rating from 0.002 - 0.062 (A) and for 274, 278, 279 Series