

RoHS **HF 251/253 Series, PICO® II, Very Fast-Acting Fuse**



### Description

The PICO® II Very Fast-Acting Fuse is designed to meet an extensive array of performance characteristics in a space-saving subminiature package.

### Features

- Very fast-acting
- Small size
- Wide current rating range (62mA- 15A)
- RoHS compliant
- Halogen-free available
- Wide operating temperature range
- Low temperature derating

### Applications

Secondary protection for space constrained applications

- Flat-panel display TV
- LCD monitor
- LCD backlight inverter
- Office machines
- Power supply
- Audio/Video system
- Lighting system
- Medical equipment

### Agency Approvals

| Agency  | Agency File Number             | Ampere Range                    |
|---|--------------------------------|---------------------------------|
|    | E10480                         | 62mA - 15A                      |
|    | LR 29862                       | 62mA - 15A                      |
|    | JET 1896-31007-1001            | 1A - 5A                         |
| <b>TUV</b>  | J50158379                      | 500mA - 10A                     |
| <b>QPL</b>  | FM10                           | 62mA - 15A                      |
|  | 2009010207366577 – 500mA to 5A | 500mA, 1A, 2A, 2.5A, 3A, 4A, 5A |

### Electrical Characteristics for Series

| % of Ampere Rating | Ampere Rating                            | Opening Time     |
|--------------------|--|------------------|
| 100%               | 62mA - 15A                               | 4 Hours, Min.    |
|                    | 62mA - 7A                                | 1 Second, Max.   |
| 200%               | 10A                                      | 3 Seconds, Max.  |
|                    | 12 - 15A                                 | 10 Seconds, Max. |
| 275%               | 500mA, 1A, 2A, 2.5A, 3A, 4A, 5A, 7A, 10A | 300 msec., Max.  |
| 400%               | 500mA, 1A, 2A, 2.5A, 3A, 4A, 5A, 7A, 10A | 30 msec., Max.   |
| 1000%              | 500mA, 1A, 2A, 2.5A, 3A, 4A, 5A, 7A, 10A | 4 msec., Max.    |

### Electrical Specifications by Item

| Ampere Rating (A) | Amp Code | Ordering Number (Std.) | Ordering Number (Mil.) | Max Voltage Rating (V) | Interrupting Rating                   | Nominal Cold Resistance (Ohms)      | Nominal Melting I <sup>2</sup> t (A <sup>2</sup> sec) | Nom Voltage Drop (V) | Agency Approvals  |   |   |     |     |   |   |
|-------------------|----------|------------------------|------------------------|------------------------|---------------------------------------|-------------------------------------|---|----------------------|---|---|---|-----|-----|---|---|
|                   |          |                        |                        |                        |                                       |                                     |   |                      |  |  |  | TUV | QPL |  |   |
| .062              | .062     | 251.062                | 253.062                | 125                    | 300 A @ rated voltage DC              | 7.000                               | 0.000113  | 1.4                  | x   | x   |   |     | x   |   |   |
| .125              | .125     | 251.125                | 253.125                | 125                    |                                       | 1.700                               | 0.00174   | 0.285                | x   | x   |   |     | x   |   |   |
| .250              | .250     | 251.250                | 253.250                | 125                    |                                       | 0.665                               | 0.0116  | 0.24                 | x   | x   |   |     | x   |   |   |
| .375              | .375     | 251.375                | 253.375                | 125                    |                                       | 0.395                               | 0.0296  | 0.215                | x   | x   |   |     | x   |   |   |
| .500              | .500     | 251.500                | 253.500                | 125                    |                                       | 0.280                               | 0.0598  | 0.2165               | x   | x   |   | x   | x   | x   |   |
| .630              | .630     | 251.630                |                        | 125                    |                                       | 0.205                               | 0.094   | 0.188                | x   | x   |   |     |     |   |   |
| .750              | .750     | 251.750                | 253.750                | 125                    |                                       | 0.175                               | 0.153   | 0.176                | x   | x   |   | x   | x   |   |   |
| 1.00              | 001.     | 251001.                | 253001.                | 125                    |                                       | 50 A @ rated voltage AC             | 0.128   | 0.256                | 0.194   | x   | x   | x   | x   | x   | x |
| 1.25              | 1.25     | 2511.25                |                        | 125                    |                                       |                                     | 0.100   | 0.390                | 0.2   | x   | x   | x   |     |   |   |
| 1.50              | 01.5     | 25101.5                | 25301.5                | 125                    |                                       | For CCC 7A: 70 A @ rated voltage AC | 0.0823  | 0.587                | 0.21  | x   | x   | x   | x   | x   |   |
| 2.00              | 002.     | 251002.                | 253002.                | 125                    | 0.0473                                |                                     | 0.405   | 0.141                | x   | x   | x   | x   | x   | x   |   |
| 2.50              | 02.5     | 25102.5                |                        | 125                    | For CCC 10A: 100 A @ rated voltage AC | 0.0360                              | 0.721   | 0.132                | x   | x   | x   | x   |     | x   |   |
| 3.00              | 003.     | 251003.                | 253003.                | 125                    |                                       | 0.0290                              | 1.19  | 0.131                | x   | x   | x   | x   | x   | x   |   |
| 3.50              | 03.5     | 25103.5                |                        | 125                    |                                       | 0.0240                              | 1.58  | 0.1205               | x   | x   | x   | x   |     |   |   |
| 4.00              | 004.     | 251004.                | 253004.                | 125                    |                                       | 0.0204                              | 2.45  | 0.114                | x   | x   | x   | x   | x   | x   |   |
| 5.00              | 005.     | 251005.                | 253005.                | 125                    |                                       | 0.0155                              | 4.14  | 0.11                 | x   | x   | x   | x   | x   | x   |   |
| 7.00              | 007.     | 251007.                | 253007.                | 125                    |                                       | 0.0105                              | 10.4  | 0.102                | x   | x   |   | x   | x   |   |   |
| 10.0              | 010.     | 251010.                | 253010.                | 125                    |                                       | 0.00705                             | 25.5  | 0.1                  | x   | x   |   | x   | x   |   |   |
| 12.0              | 012.     | 251012.                |                        | 32                     |                                       | 0.0055                              | 45.2  | 0.0878               | x   | x   |   |     |     |   |   |
| 15.0              | 015.     | 251015.                | 253015.                | 32                     |                                       | 0.00446                             | 68.8  | 0.071                | x   | x   |   |     |     | x   |   |

Note: Higher ampere ratings are available. Please contact Littelfuse Technical Support or your Littelfuse products representative for assistance.

### Temperature Derating Curve



Note:

1. Derating depicted in this curve is in addition to the standard rating of 25% for continuous operation.

### Soldering Parameters

#### 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 Soldering 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**

### Average Time Current Curves



### Product Characteristics

|                          |   |
|--------------------------|---|
| <b>Materials</b>         | Encapsulated, Epoxy-Coated<br><b>Body:</b> Pure Tin-coated Copper wire leads              |
| <b>Solderability</b>     | MIL-STD-202, Method 208   |
| <b>Lead Pull Force</b>   | MIL-STD-202, Method 211, Test Condition A (will withstand a 7lbs. axial pull test)        |
| <b>Fuses To MIL SPEC</b> | 251/253 Series is available in FM10 on QPL for MIL-PRF-23419. To order, change 251 to 253 |

|                                     |  |
|-------------------------------------|--|
| <b>Operating Temperature</b>        | -55°C to +125°C  |
| <b>Shock</b>                        | MIL-STD-202, Method 213, Test Condition I (100 G's peak for 6 msec.)                         |
| <b>Vibration</b>                    | MIL-STD-202, Method 201 (10–55 Hz); Method 204, Test Condition C (55–2000 Hz at 10 G's Peak) |
| <b>Moisture Resistance</b>          | MIL-STD-202, Method 106  |
| <b>Resistance to Soldering Heat</b> | Withstands 60 seconds above 200°C and up to 260°C, maximum                                   |
| <b>Flammability Rating</b>          | UL 94V-0   |

### Dimensions



### Part Numbering System



### Packaging

| Packaging Option                   | Packaging Specification | Quantity & Packaging Code   |
|------------------------------------|-------------------------|---|
| *T1: 52.4mm (2.062") Tape and Reel | EIA 296                 | Please refer to available quantities above in "Part Numbering System" |
| **T3: 73mm (2.874") Tape and Reel  | EIA 296                 |   |

The default lead length for both ammo pack and loose pack is T1 for 251 and is T3 for 253.

Notes: \* T1 dimension is defined as the length of the component between the two tapes. The full component length is 62.7mm (2.468"). **T1 length is for 251 series only.**  
\*\* T3 dimension is defined as the length of the component between the two tapes. The full component length is 83.37mm (3.28"). **T3 length is for 253 series only.**

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