

### 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)
- Halogen-free available
- Wide operating temperature range
- Low temperature re-rating

#### 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

#### Electrical Characteristics for Series

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

#### Agency Approvals

| Agency | Agency File Number             | Ampere Range                    |
|--------|--------------------------------|---------------------------------|
|        | E10480                         | 62mA - 15A                      |
|        | LR 29862                       | 62mA - 15A                      |
|        | JET1896-31007-1004             | 1A - 5A                         |
|        | J50158379                      | 500mA - 10A                     |
|        | FM10                           | 62mA - 15A                      |
|        | 2009010207366577 - 500mA to 5A | 500mA, 1A, 2A, 2.5A, 3A, 4A, 5A |

#### Additional Information



**Datasheet  
251 Series**



**Datasheet  
253 Series**



**Resources  
251 Series**



**Resources  
253 Series**



**Samples  
251 Series**



**Samples  
253 Series**

### 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   |                                                                                     |
| .200              | .200     | 251.200                | 253.200                | 125                    |                                       | 1.011                          | 0.0048                                                | 0.345                | 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                    | 50 A @ rated voltage AC               | 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                    |                                       | 0.128                          | 0.256                                                 | 0.194                | x                                                                                   | x                                                                                   | x                                                                                   | x   | x   | x                                                                                   |
| 1.25              | 1.25     | 2511.25                |                        | 125                    | For CCC 7A: 70 A @ rated voltage AC   | 0.100                          | 0.390                                                 | 0.2                  | x                                                                                   | x                                                                                   | x                                                                                   |     |     |                                                                                     |
| 1.50              | 01.5     | 25101.5                | 25301.5                | 125                    |                                       | 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 Re-rating Curve



Note:

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

### Soldering Parameters

#### Recommended Process Parameters:

| Wave Parameter                                              | Lead-Free Recommendation for 251 Series only |
|-------------------------------------------------------------|----------------------------------------------|
| <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                                  |

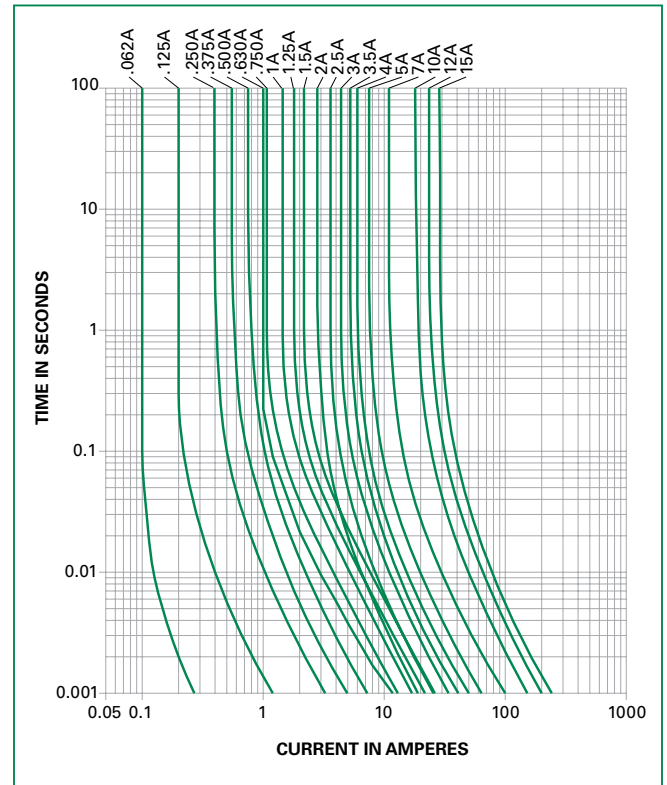
#### Recommended Hand Soldering Parameters:

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

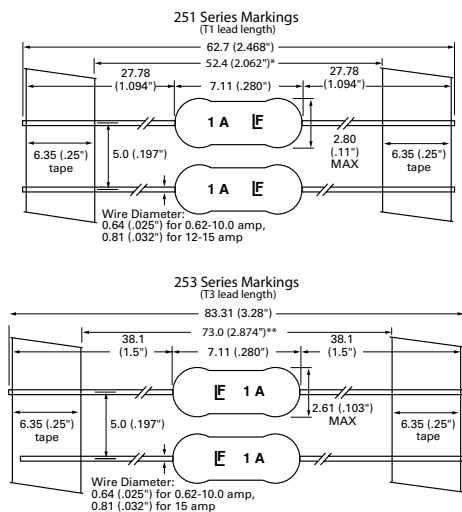


### Product Characteristics

|                              |                                                                                           |
|------------------------------|-------------------------------------------------------------------------------------------|
| <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>Vibration</b>                              | MIL-STD-202, Method 201 (10–55 Hz); Method 204, Test Condition C (55–2000 Hz at 10 G's Peak) |
| <b>Shock</b>                                  | MIL-STD-202, Method 213, Test Condition I (100 G's peak for 6 msec.)                         |
| <b>Insulation Resistance (After Opening):</b> | MIL-STD-202, Method 302, Test Condition A (10,000 ohms minimum at 100 volts)                 |
| <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

|                                                                                                                                                                                                                                                               |             |             |          |          |           |          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|----------|----------|-----------|----------|
| <b>Series</b>                                                                                                                                                                                                                                                 | <b>0251</b> | <b>xxxx</b> | <b>N</b> | <b>R</b> | <b>T1</b> | <b>L</b> |
| <b>251</b> = Standard type<br><b>253</b> = Military type                                                                                                                                                                                                      |             |             |          |          |           |          |
| <b>Current Rating</b>                                                                                                                                                                                                                                         |             |             |          |          |           |          |
| Refer to Amp Code column of Electrical Specifications Table                                                                                                                                                                                                   |             |             |          |          |           |          |
| <b>Quantity</b>                                                                                                                                                                                                                                               |             |             |          |          |           |          |
| <b>N</b> = 5000<br><b>P</b> = 2000<br><b>M</b> = 1000<br><b>H</b> = 100                                                                                                                                                                                       |             |             |          |          |           |          |
| <b>Type of Packaging</b>                                                                                                                                                                                                                                      |             |             |          |          |           |          |
| <b>R</b> = Reel<br><b>A</b> = Ammo Pack<br><b>X</b> = Loose Pack                                                                                                                                                                                              |             |             |          |          |           |          |
| <b>Lead Length</b>                                                                                                                                                                                                                                            |             |             |          |          |           |          |
| The default lead length for Ammo pack and Loose pack is now T1 for 251 series, and remains T3 for 253 series, therefore:<br><b>T1</b> = 52.4mm (2.062"), 251 series only*<br><b>Blank</b> = 52.4mm (2.062") for 251 series* or 73mm (2.874") for 253 series** |             |             |          |          |           |          |
| <b>Option Codes</b>                                                                                                                                                                                                                                           |             |             |          |          |           |          |
| <b>L</b> = RoHS + HF<br>(Only applies to 251 Series)                                                                                                                                                                                                          |             |             |          |          |           |          |

### 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.**