

RoHS HF 157T Series - Standard Nano Fuse and Clip Assembly Series







Agency Approvals

| AGENCY | AGENCY FILE NUMBER | AMPERE RANGE |
|-----------------|--|---------------|
| c Al °us | E14721 | 0.375A ~ 5A |
| PS | NBK030205-E10480A NBK030205-E10480B | 1A 1.5A-5A |

Electrical Characteristics for Series

| % of Ampere Rating | % of Ampere Rating | Opening Time at 25°C | |
|-----------------------|-----------------------|---|--|
| 100% | 0.375A ~ 5A | 4 hours, Minimum | |
| 200% | 0.375A ~ 5A | 1 sec. Minimum, 60 secs. Maximum | |
| 300% | 0.375A ~ 5A | 0.20 secs. Minimum, 3.00 secs. Maximum | |
| 800% | 0.375A ~ 5A | 0.02 secs. Minimum, 0.10 secs. Maximum | |

Description

The 157T Series Fuse/Clip assembly is a small, square, Time-Lag, surface mount fuse that is assembled in surface mountable fuse clips. The unique time delay feature of this fuse design helps solve the problem of nuisance "opening" by accommodating inrush currents that normally cause a fast acting fuse to open.

The fuse clip and pre-installed fuse combination can be automatically placed in PC Board in one efficient manufacturing operation. It permits quick and easy replacement of fuses without performing desoldering process, even in the field and without exposing the PC Board to detrimental effects of rework solder heat.

Features

- Surface Mountable, Time-Lag Fuse.
- Fully compatible with RoHS/Pb-Free solder alloys and higher temperature profiles associated with leadfree assembly.
- Easily replaceable on PC Board (Field Replaceable)
- RoHS Compliant and Halogen-free
- Available in ratings of 0.375 ~ 5 Amperes.

Applications

- Instrumentations
- Base Stations
- **Telecommunications**

Electrical Specifications by Item

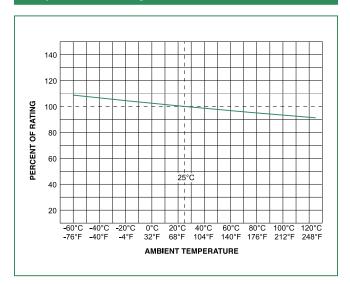
| Ampere Amp Max Voltage | | Interrupting | Fuse | Nominal Cold | Nominal | Agency Approvals | | |
|------------------------|------|--------------|------------------|--------------|----------------------|------------------------|------------------|---------|
| Rating (A) | Code | Rating (V) | Rating (A) | Furnished | Resistance (Ohms) | Melting I²t (A²sec) | c FL ° us | PS E |
| 0.375 | .375 | 125 | | 0454.375 | 1.2214 | 0.101 | X | |
| 0.500 | .500 | 125 | | 0454.500 | 0.7047 | 0.240 | X | |
| 0.750 | .750 | 125 | | 0454.750 | 0.3602 | 0.904 | X | |
| 1.00 | 001 | 125 | | 0454001. | 0.2245 | 1.98 | X | X |
| 1.50 | 01.5 | 125 | | 045401.5 | 0.0934 | 3.65 | X | X |
| 2.00 | 002 | 125 | 50A @ 125VAC/VDC | 0454002. | 0.0629 | 8.20 | X | X |
| 2.50 | 02.5 | 125 | | 045402.5 | 0.0452 | 15.0 | X | X |
| 3.00 | 003 | 125 | | 0454003. | 0.0342 | 20.16 | X | X |
| 3.50 | 03.5 | 125 | | 045403.5 | 0.0226 | 26.53 | X | X |
| 4.00 | 004 | 125 | | 0454004. | 0.0188 | 34.40 | X | X |
| 5.00 | 005 | 125 | | 0454005. | 0.0138 | 53.72 | X | Х |

- 1. Cold resistance measured at less than 10% of rated current at 23°C.
- 2. I2t values stated for 8ms opening time.
- 3. Agency Approval Table Key: X=Approved or Certified, P=Pending and Blank=Not Approved
- 4. Have special electrical characteristic needs? Contact Littelfuse to learn more about application specific options

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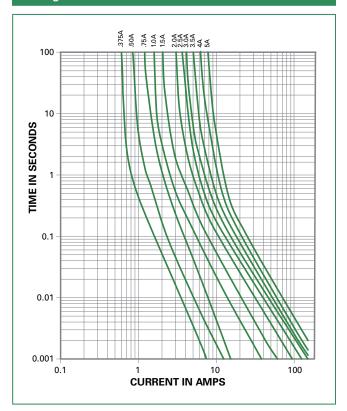
Temperature Rerating Curve



Note:

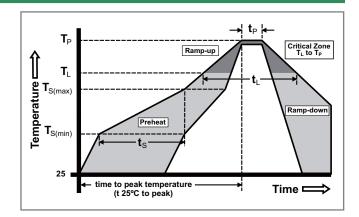
 Derating depicted in this curve is in addition to the standard derating of 25% for continuous operation.

Average Time Current Curves



Soldering Parameters

| Reflow Condition | | Pb – Free assembly | |
|---|---|-------------------------|--|
| | -Temperature Min (T _{s(min)}) | 150°C | |
| Pre Heat | -Temperature Max (T _{s(max)}) | 200°C | |
| | -Time (Min to Max) (t _s) | 60 – 120 secs | |
| Average ramp up rate (Liquidus Temp (T_L) to peak | | 5°C/second max | |
| T _{S(max)} to T _L - Ramp-up Rate | | 5°C/second max | |
| Doflare | -Temperature (T _L) (Liquidus) | 217°C | |
| Reflow | -Temperature (t _L) | 60 - 90 seconds | |
| PeakTemp | perature (T _P) | 250 ^{+0/-5} °C | |
| Time within 5°C of actual peak Temperature (t _p) | | 20 - 40 seconds | |
| Ramp-down Rate | | 5°C/second max | |
| Time 25°C to peakTemperature (T _p) | | 8 minutes Max. | |
| Do not exceed | | 260°C | |



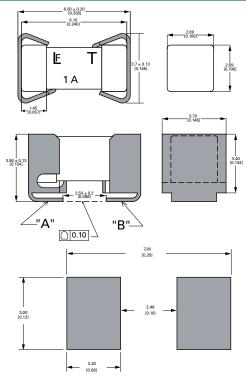


Product Characteristics

| Materials | Body: Ceramic Cap: For 0.375A ~ 5A – Silver plated Brass Clip Plating: Matte Tin | | |
|------------------------|--|--|--|
| Product Marking | Body: Brand Logo, Current Rating, "T" for Time-Lag | | |
| Clip Retention | Force applied at fuse center, perpendicular to the long axis (@0.75 lbs. MIN) | | |
| Solderability | MIL-STD-202, Method 208 / IPC/ EIA / JEDEC J-STD002B, Test Condition A | | |
| Humidity Test | MIL -STD-202, Method 103 @ 85°C / 85%RH, 1000 hours | | |
| Resistance to Solvents | MIL-STD-202, Method 215 (3 solvent types) | | |

| Operating Temperature | -55°C to 125°C with proper derating | |
|---------------------------|--|--|
| Thermal Shock | MIL-STD-202, Method 107, Test Condition B (5 cycles -65°C to +125°C) | |
| Vibration | MIL-STD-202, Method 201 (10-55 Hz) | |
| Moisture Resistance | MIL-STD-202, Method 106, 10 cycles | |
| Salt Spray/ Atmosphere | MIL-STD-202, Method 101, Test Condition B (48 hrs.), 5% NaCl in De-ionized Water | |
| Shock | MIL-STD-202, Method 213, Test Condition I (100 G's peak for 6 milliseconds) | |

Dimensions



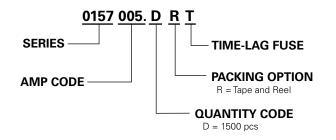
PCB Recommendation for Thermal Management

- 1. Minimum Copper Layer Thickness = 100um
- 2. Minimum Copper Trace Width = 10mm

Note:

Alternate methods of thermal management may be used. In such cases, under normal operations, the maximum temperature of the fuse body should not exceed 80°C in a 25°C ambient environment.

Part Numbering System



Packaging

| Packaging Option | Packaging Specification | Quantity | Quantity & Packaging Code |
|------------------|-------------------------|----------|------------------------------|
| Tape and Reel | Surface Mount | 1500 | DRT |

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