



437A Series – 1206 Fast-Acting Ceramic Fuse



Agency Approvals

| Agency | Agency File Number | Ampere Range |
|---|--------------------|--------------|
|  | E10480 | 0.500A – 8A |
|  | 29862 | 0.500A – 8A |

Electrical Characteristics for Series

| % of Ampere Rating | Ampere Rating | Opening Time at 25°C |
|--------------------|---------------|----------------------|
| 100% | 0.500A – 8A | 4 hours, Minimum |
| 250% | 0.750A – 8A | 5 seconds, Maximum |
| 350% | 0.750A – 8A | 1 second, Maximum |
| | 0.500A | 5 seconds, Maximum |

Description

The 437A Series AECQ-Compliant fuses are specifically tested to cater to secondary circuit protection needs of compact auto-electronics applications.

The general design ensures excellent temperature stability and performance reliability. In addition to this, the high I²t values typical of the Littelfuse Ceramic Fuse family ensure high inrush current withstand capability.

Features

- Operating Temperature from -55°C to +150°C
- 100% Lead-free, Halogen-Free and RoHS compliant
- Meets Littelfuse's automotive qualifications*
- Fast response to faulty current to ensure over-current protection for sensitive electronic components

* - Largely based on Littelfuse internal AEC-Q200 test plan.

Applications

- Li-ion Battery
- LED Lighting
- Automotive Navigation System
- TFT Display
- Battery Management System (BMS)
- Clusters

Additional Information



Datasheet





Resources



Samples

Electrical Specifications by Item

| Ampere Rating (A) | Amp Code | Max. Voltage Rating (V) | Interrupting Rating ¹ | Nominal Resistance (Ohms) ² | Nominal Melting I ² t (A ² Sec.) ³ | Nominal Voltage Drop At Rated Current (V) ⁴ | Nominal Power Dissipation At Rated Current (W) | Agency Approvals | |
|-------------------|----------|-------------------------|----------------------------------|--|---|--|--|---|---|
| | | | | | | | |  |  |
| 0.500 | .500 | 63 | 50A @ 63VAC/DC | 0.908 | 0.018 | 0.52 | 0.260 | x | x |
| 0.750 | .750 | 63 | 50A @ 63VAC/DC 100A @ 63VDC | 0.600 | 0.064 | 0.45 | 0.338 | x | x |
| 1.00 | 001. | 63 | 50A @ 63VAC/DC | 0.420 | 0.100 | 0.41 | 0.410 | x | x |
| 1.25 | 1.25 | 63 | | 0.318 | 0.256 | 0.40 | 0.500 | x | x |
| 1.50 | 01.5 | 63 | | 0.209 | 0.324 | 0.39 | 0.585 | x | x |
| 1.75 | 1.75 | 63 | | 0.071 | 0.075 | 0.27 | 0.473 | x | x |
| 2.00 | 002. | 63 | | 0.062 | 0.144 | 0.20 | 0.400 | x | x |
| 2.50 | 02.5 | 32 | | 50A @ 32VAC/35VDC | 0.043 | 0.441 | 0.15 | 0.375 | x |
| 3.00 | 003. | 32 | 0.035 | | 0.506 | 0.14 | 0.420 | x | x |
| 3.50 | 03.5 | 32 | 0.027 | | 0.777 | 0.13 | 0.455 | x | x |
| 4.00 | 004. | 32 | 0.022 | | 1.024 | 0.13 | 0.520 | x | x |
| 5.00 | 005. | 32 | 0.0159 | | 2.30 | 0.13 | 0.650 | x | x |
| 7.00 | 007. | 32 | 0.0100 | | 5.02 | 0.13 | 0.910 | x | x |
| 8.00 | 008. | 32 | 0.008 | | 7.23 | 0.13 | 1.040 | x | x |

Notes:

1. AC Interrupting Rating tested at rated voltage with unity power factor. DC Interrupting Rating tested at rated voltage with time constant < 0.8 msec.
2. Nominal Resistance measured with < 10% rated current.
3. Nominal Melting I²t measured at 1 msec. opening time.
4. Nominal Voltage Drop measured at rated current after temperature has stabilized.

Devices designed to carry rated current for 4 hours minimum. It is recommended that devices be operated continuously at no more than 80% rated current. See "Temperature Re-rating Curve" for additional re-rating information. Devices designed to be mounted with marking code facing up.

Temperature Re-rating Curve



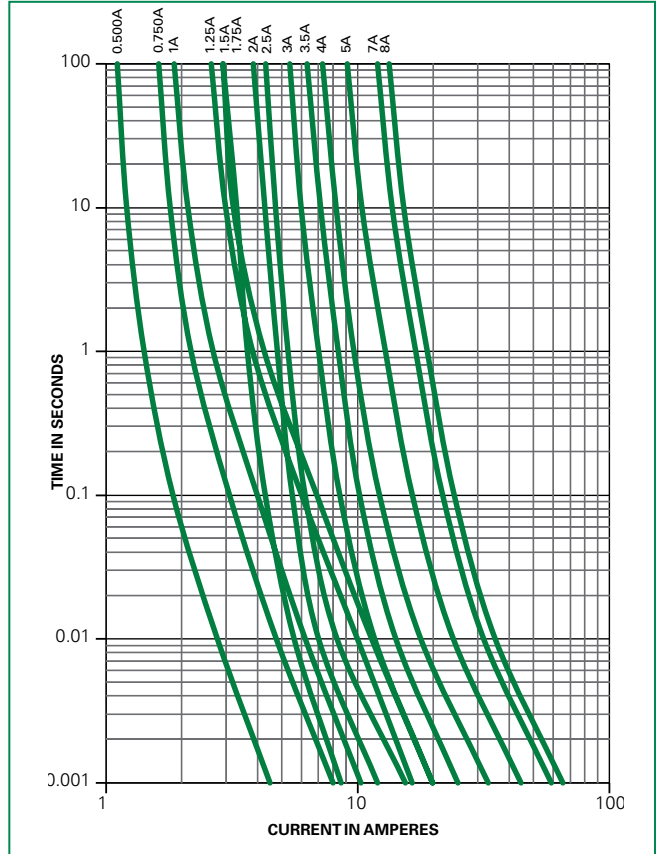
Note:

1. Re-rating depicted in this curve is in addition to the standard re-rating of 20% for continuous operation.
Example:
For continuous operation at 75 degrees celsius, the fuse should be rerated as follows:
 $I = (0.80)(0.85)I_{RAT} = (0.68)I_{RAT}$

Part Numbering System

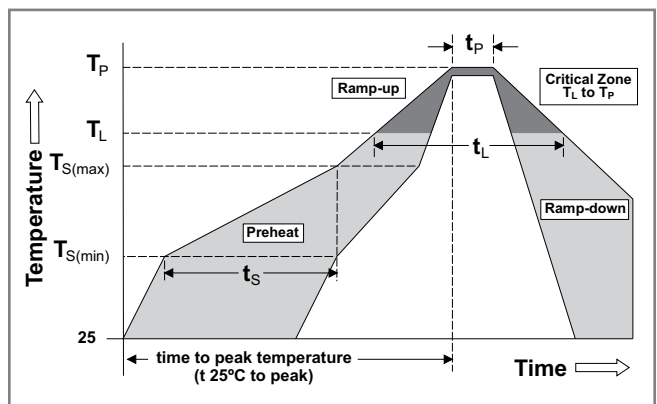


Average Time Current Curves



Soldering Parameters

| | | |
|--|------------------------------------|------------------|
| Reflow Condition | Pb-free assembly | |
| Pre Heat | - Temperature Min ($T_{s(min)}$) | 150°C |
| | - Temperature Max ($T_{s(max)}$) | 200°C |
| | - Time (Min to Max) (t_s) | 60 – 180 seconds |
| 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. | |
| Reflow | - Temperature (T_L) (Liquidus) | 217°C |
| | - Temperature (t_L) | 60 – 150 seconds |
| Peak Temperature (T_p) | 260 $^{+0/-5}$ °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 peak Temperature (T_p) | 8 minutes max. | |
| Do not exceed | 260°C | |
| Wave Soldering | 260°C, 10 seconds max. | |

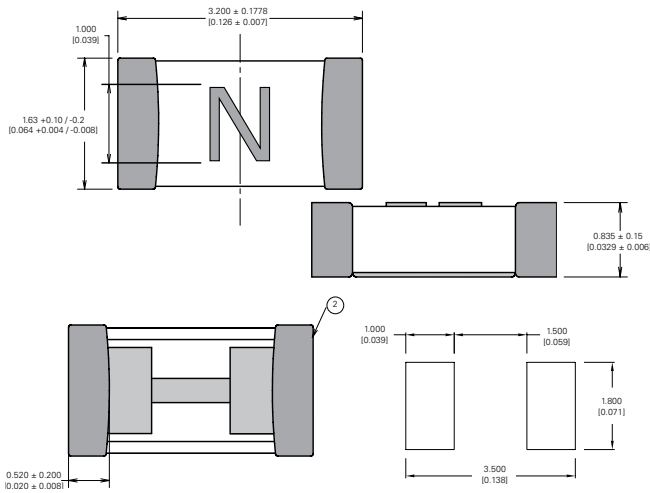


Product Characteristics

| | |
|-------------------------------------|--|
| Materials | Body: Advanced Ceramic Terminations: Ag/Ni/Sn (100% Lead-free) Element Cover Coating: Lead-free Glass |
| Moisture Sensitivity Level | IPC/JEDEC J-STD-020, Level 1 |
| Solderability | IPC/EIC/JEDEC J-STD-002, Condition B |
| Humidity Test | MIL-STD-202, Method 103, Conditions D |
| Resistance to Solder Heat | MIL-STD-202, Method 210, Condition B |
| Moisture Resistance | MIL-STD-202, Method 106 |
| Thermal Shock | MIL-STD-202, Method 107, Condition B |
| Mechanical Shock | MIL-STD-202, Method 213, Condition A |
| Vibration | MIL-STD-202, Method 201 |
| Vibration, High Frequency | MIL-STD-202, Method 204, Condition D |
| Dissolution of Metallization | IPC/EIC/JEDEC J-STD-002, Condition D |
| Terminal Strength | IEC 60127-4 |

| | |
|-------------------------------------|---|
| High Temperature Storage | MIL-STD-202 Method 108 with exemptions |
| Thermal Shock Test | JESD22 Method JA-104, Test Conditions B and N |
| Biased Humidity | MIL-STD-202 Method 103, 85°C/85% RH with 10% operating power for 1000 hrs |
| Operational Life | MIL-STD-202 Method 108, Test Condition D |
| Resistance To Solvents | MIL-STD-202 Method 215 |
| Mechanical Shock | MIL-STD-202 Method 213, Test Condition C |
| High Frequency Vibration | MIL-STD-202, Method 204 |
| Resistance To Soldering Heat | MIL-STD-202 Method 210, Test Condition B |
| Solderability | JESD22-B102E Method 1 |
| Terminal Strength For SMD | AEC Q200-006 |
| Board Flex | AEC Q200-005 |
| Electrical Characterization | 3 Temperature Electrical Characterization |

Dimensions



Part Marking System

| Amp Code | Marking Code |
|----------|--------------|
| .500 | F |
| .750 | G |
| 001. | H |
| 1.25 | J |
| 01.5 | K |
| 1.75 | L |
| 002. | N |
| 02.5 | Q |
| 003. | P |
| 3.500 | R |
| 004. | S |
| 005. | T |
| 007. | W |
| 008. | X |

Packaging

| Packaging Option | Packaging Specification | Quantity | Quantity and Packaging Code |
|-------------------|----------------------------|----------|-----------------------------|
| 8mm Tape and Reel | EIA-481, IEC 60286, Part 3 | 3000 | WRA |

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- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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