

### 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 I<sup>2</sup>t 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

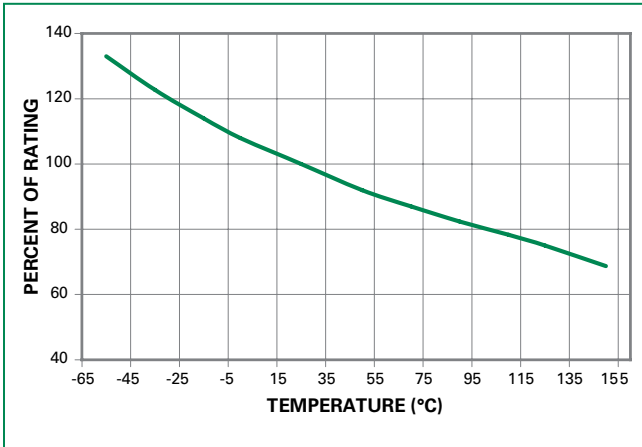
| Ampere Rating (A) | Amp Code | Max. Voltage Rating (V) | Interrupting Rating <sup>1</sup> | Nominal Resistance (Ohms) <sup>2</sup> | Nominal Melting I <sup>2</sup> t (A <sup>2</sup> Sec.) <sup>3</sup> | Nominal Voltage Drop At Rated Current (V) <sup>4</sup> | Nominal Power Dissipation At Rated Current (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<br>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 I<sup>2</sup>t 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



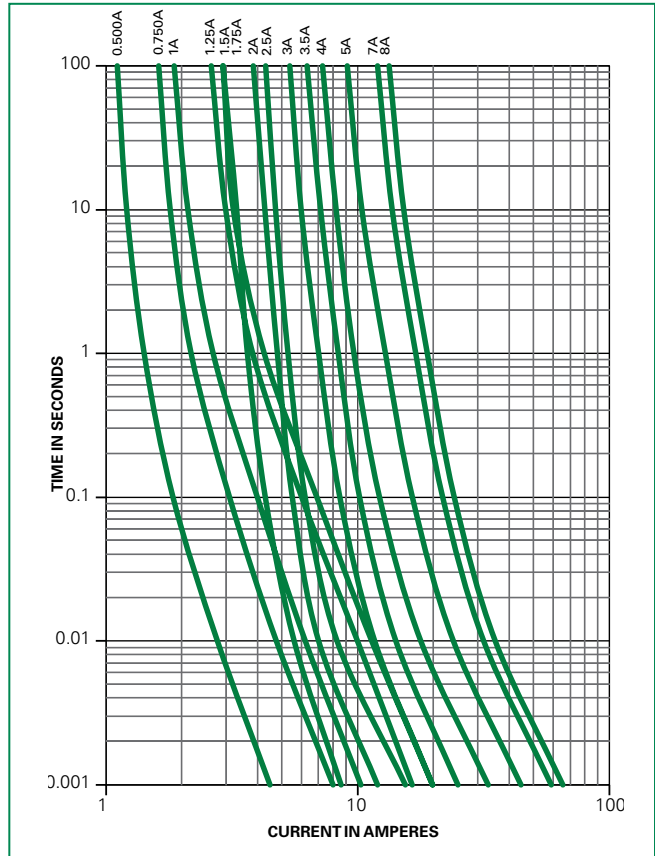
Note:

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

|  |                                    |                        |
|--|------------------------------------|------------------------|
| <b>Reflow Condition</b>  |                                    | Pb-free assembly       |
| <b>Pre Heat</b>  | - Temperature Min ( $T_{s(min)}$ ) | 150°C                  |
|  | - Temperature Max ( $T_{s(max)}$ ) | 200°C                  |
|  | - Time (Min to Max) ( $t_s$ )      | 60 – 180 seconds       |
| <b>Average Ramp-up Rate (Liquidus Temp (<math>T_L</math>) to peak)</b> |                                    | 5°C/second max.        |
| <b><math>T_{s(max)}</math> to <math>T_L</math> - Ramp-up Rate</b>      |                                    | 5°C/second max.        |
| <b>Reflow</b>  | - Temperature ( $T_L$ ) (Liquidus) | 217°C                  |
|  | - Temperature ( $t_L$ )            | 60 – 150 seconds       |
| <b>Peak Temperature (<math>T_p</math>)</b>                             |                                    | 260 $^{+0/-5}$ °C      |
| <b>Time within 5°C of actual peak Temperature (<math>t_p</math>)</b>   |                                    | 20 – 40 seconds        |
| <b>Ramp-down Rate</b>  |                                    | 5°C/second max.        |
| <b>Time 25°C to peak Temperature (<math>T_p</math>)</b>                |                                    | 8 minutes max.         |
| <b>Do not exceed</b>   |                                    | 260°C                  |
| <b>Wave Soldering</b>  |                                    | 260°C, 10 seconds max. |

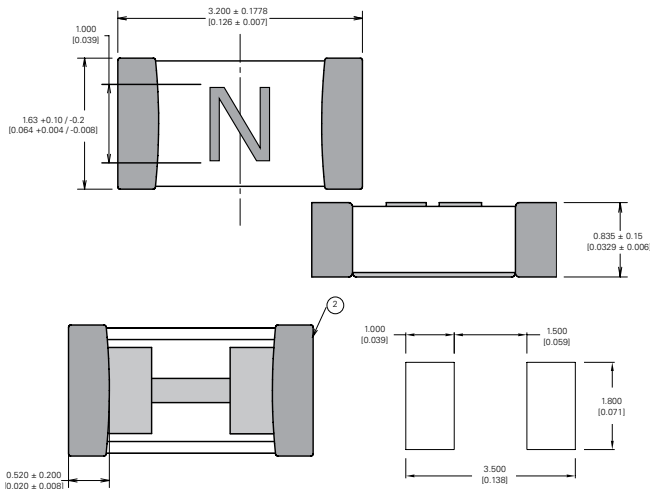


### Product Characteristics

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

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

### Dimensions



### Part Marking System

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

### Packaging

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

**Disclaimer Notice** - Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at [www.littelfuse.com/disclaimer-electronics](http://www.littelfuse.com/disclaimer-electronics).

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



Тел: +7 (812) 336 43 04 (многоканальный)

Email: [org@lifeelectronics.ru](mailto:org@lifeelectronics.ru)