

# Axial Lead and Cartridge Fuses

## Subminiature Glass Body

### 2AG Slo-Blo® Fuse 229/230 Series



The 2AG Slo-Blo® fuses are available in cartridge form or with axial leads. Axial leaded fuses are board washable. 2AG fuses provide the same performance characteristics as their 3AG counterpart, while occupying one-third the space. Sleeved fuses are available.

#### ELECTRICAL CHARACTERISTICS:

| % of Ampere Rating | Opening Time               |
|--------------------|----------------------------|
| 110%               | 4 hours, <b>Minimum</b>    |
| 135%               | 1 hour, <b>Maximum</b>     |
| 200%               | 3 seconds, <b>Minimum</b>  |
|                    | 20 seconds, <b>Maximum</b> |

**AGENCY APPROVALS:** Listed by Underwriters Laboratories and Certified by CSA through 3.5 amperes. Recognized under the Components Program of Underwriters Laboratories from 4 through 7 amperes. 1 through 7 amperes approved by METI.

**AGENCY FILE NUMBERS:** UL E10480, CSA LR 29862.

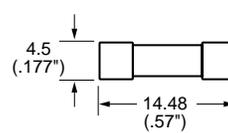
#### INTERRUPTING RATINGS:

|           |                          |
|-----------|--------------------------|
| 0.25–3.5A | 10,000 amperes at 125VAC |
| 4–7A      | 400 amperes at 125VAC    |
| 0.25–1A   | 35 amperes at 250VAC     |
| 1.25–3.5A | 100 amperes at 250VAC    |

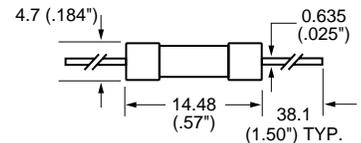
**PACKAGING OPTIONS:** 230 Series available on Tape and Reel per EIA-296. For 1500 pieces per reel, add packaging suffix DRT1W. See page 8 for pitch dimensions. 229 and 230 series available in bulk packaging. For 1000 pieces bulk, add packaging suffix M.



#### 229 000 Series



#### 230 000 Series

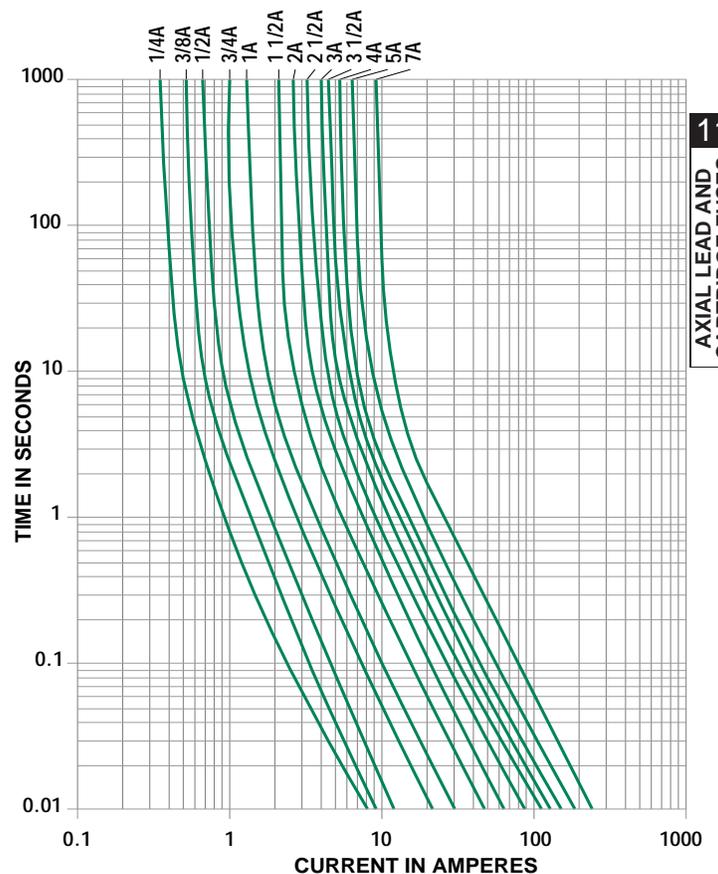


Axial Lead Material: Solder coated copper.

#### ORDERING INFORMATION:

| Cartridge Catalog Number | Axial Lead Catalog Number | Ampere Rating | Voltage Rating | Nominal Resistance Cold Ohms | Nominal Melting I <sup>2</sup> t A <sup>2</sup> Sec. |
|--------------------------|---------------------------|---------------|----------------|------------------------------|--|
| 229.250                  | 230.250                   | 1/4           | 250            | 2.41                         | 0.216  |
| 229.350                  | 230.350                   | .350          | 250            | 1.30                         | 0.490  |
| 229.375                  | 230.375                   | 3/8           | 250            |                              | 0.580  |
| 229.500                  | 230.500                   | 1/2           | 250            | 0.688                        | 1.16   |
| 229.600                  | 230.600                   | 6/10          | 250            | 0.477                        | 1.75   |
| 229.750                  | 230.750                   | 3/4           | 250            | 0.340                        | 2.95   |
| 229.800                  | 230.800                   | 8/10          | 250            | 0.304                        | 3.45   |
| 229 001                  | 230 001                   | 1             | 250            |                              | 5.64   |
| 229 1.25                 | 230 1.25                  | 1 1/4         | 250            | 0.145                        | 9.80   |
| 229 01.5                 | 230 01.5                  | 1 1/2         | 250            | 0.107                        | 15.0   |
| 229 002                  | 230 002                   | 2             | 250            | 0.0692                       | 30.0   |
| 229 2.25                 | 230 2.25                  | 2 1/4         | 250            | 0.0562                       | 39.0   |
| 229 02.5                 | 230 02.5                  | 2 1/2         | 250            | 0.0498                       | 50.0   |
| 229 003                  | 230 003                   | 3             | 250            | 0.0380                       | 77.0   |
| 229 03.5                 | 230 03.5                  | 3 1/2         | 250            | 0.0310                       | 110.0  |
| 229 004                  | 230 004                   | 4             | 125            | 0.0256                       | 148.0  |
| 229 005                  | 230 005                   | 5             | 125            | 0.0185                       | 267.0  |
| 229 006                  | 230 006                   | 6             | 125            | 0.0140                       | 380.0  |
| 229 007                  | 230 007                   | 7             | 125            | 0.0115                       | 464.0  |

#### Average Time Current Curves



11  
AXIAL LEAD AND  
CARTRIDGE FUSES

# Axial Lead and Cartridge Fuses

## Subminiature Glass Body

### 2AG Slo-Blo® Fuse 229/230 Series

## SURGE WITHSTAND SPECIFICATIONS

Our standard 229 and 230 Series Slo-Blo® fuses meet the demanding requirements of the Telecom industry. These Fuses combine conventional overcurrent protection with the ability to withstand high current, short duration pulses. These fuses comply with the short circuit requirements of UL 1459 for telephone equipment. Insulating Sleeve Option available. We have characterized these fuses for the Telecom industry requirements as shown below.

#### ELECTRICAL CHARACTERISTICS:

##### Short Circuit Capabilities:

|                              |       |        |
|------------------------------|-------|--------|
| UL 60950 (UL 1459 Included): | 60A,  | 600VAC |
|                              | 40A,  | 600VAC |
|                              | 7A,   | 600VAC |
|                              | 2.2A, | 600VAC |

- Meets UL 497 Specifications

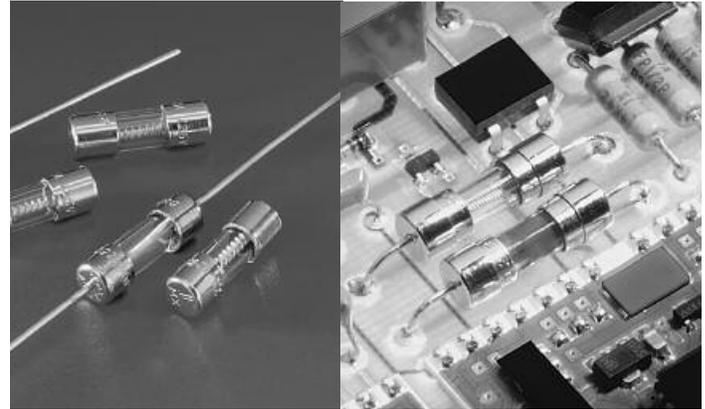
**PEAK WITHSTAND CURRENT (I<sub>p</sub>):** These fuses will withstand 50 repetitions of a double exponential impulse wave having peak currents (I<sub>p</sub>) and peak voltages as listed.

| Cartridge Catalog Number | Axial Lead Catalog Number | Ampere Rating      | 10 x 160 microsec. 1500V | 10 x 560 microsec. 800V | 10 x 1000 microsec. 1000V |
|--------------------------|---------------------------|--------------------|--------------------------|-------------------------|---------------------------|
| 229.250                  | 230.250                   | 1/4                | 23.0A                    | 16.6A                   | 12.4A                     |
| 229.350                  | 230.350                   | .350               | 34.0A                    | 25.8A                   | 19.3A                     |
| 229.375                  | 230.375                   | 3/8                | 40.0A                    | 25.4A                   | 19.0A                     |
| 229.500                  | 230.500                   | 1/2                | 60.0A                    | 37.7A                   | 28.2A                     |
| 229.600                  | 230.600                   | 6/10               | 71.0A                    | 47.2A                   | 35.3A                     |
| 229.750                  | 230.750                   | 3/4                | 91.0A                    | 65.5A                   | 49.0A                     |
| 229.800                  | 230.800                   | 8/10               | 104.0A                   | 68.9A                   | 51.6A                     |
| 229.001                  | 230.001                   | 1                  | 130.0A                   | 88.6A                   | 66.3A                     |
| 229.1.25                 | 230.1.25                  | 1 1/4 <sup>1</sup> | 162.0A                   | 118.1A                  | 100.0A                    |

<sup>1</sup>500A peak, 2500V, 2 x 10 microseconds, 20 repetitions.

## INDICATING SLO-BLO® FUSE

The 2AG Indicating Slo-Blo® fuse instantly identifies itself upon opening by showing a discoloration of its glass body. Guesswork and time consuming circuit testing are eliminated. This unique design offers the same quality performance characteristics as the standard 2AG fuse design.



\* When ordering the 2AG Indicating Slo-Blo Fuse, an 'S' is required after the catalog number.

#### Example:

-1A Indicating Slo-Blo® Fuse = 230 001S

## 2AG 229/230 Series General Specifications

#### ENVIRONMENTAL SPECIFICATIONS:

**Operating Temperature:** -55°C to 125°C.

**Shock:** MIL-STD-202, Method 213, Test Condition I (100 G's peak for 6 milliseconds).

**Vibration:** MIL-STD-202, Method 201 (10–55 Hz, 0.06 inches total excursion).

**Salt Spray:** MIL-STD-202 Method 101, Test Condition B (48 hours).  
Insulation Resistance (After Opening): MIL-STD-202, Method 302, Test Condition B.

**Resistance to Soldering Heat:** (Axial Leaded Fuses): MIL-STD-202, Method 210A, Test Condition B (260°C, 3 Seconds).

**Thermal Shock:** MIL-STD-202, Method 107, Test Condition B (-65°C to 125°C).

**Moisture Resistance:** MIL-STD-202, Method 106 (90-98% RH, 65°C).

**Solderability:** (Axial Leaded Fuses): MIL-STD-202, Method 208.

#### PHYSICAL SPECIFICATIONS:

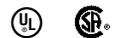
**Materials:** Glass Body, Nickel-Plated Brass Fuse Caps. (Insulating sleeve option available).

#### SOLDERING PARAMETERS:

Wave solder — 500°F (260°C), 3 seconds Max.  
Reflow solder — Not recommended.

## 2AG Special Surge Withstand

### Slo-Blo® Type



**AXIAL LEAD PART NUMBER: 220 003 (0.35A)**

#### ELECTRICAL CHARACTERISTICS:

| Amperes | Opening Time               |
|---------|----------------------------|
| 0.35A   | 4 hours, <b>Minimum</b>    |
| 0.6A    | 90 seconds, <b>Maximum</b> |
| 2.0A    | 2 seconds, <b>Maximum</b>  |
| 6.0A    | 0.5 second, <b>Maximum</b> |

**INTERRUPTING RATINGS:** Same as 230 Series.

**LIGHTNING SURGE WITHSTAND CAPABILITY:** 25 amperes peak, 800V, 10 x 560 microseconds.

#### PATENTED

Refer to page 50 for other Surge Withstand Fuses.