



Part Number: **229001P**

Technology: **Fuses**

Series: **229P**

**229P Series- Lead-Free and RoHS compliant 2AG Slo-Blo®  
Subminiature Glass Body Fuse**

- Lead-Free and RoHS Compliant
- 229 series 2AG fuses have time-delay of 313 series 3AG fuses in less than one-third of the space.
- They provide superior protection for inductive loads such as motors, transformers, and solenoids.
- Use whenever time-delay fuses are indicated.
- 2AG indicating fuses instantly identify themselves upon opening by showing a discoloration of their glass bodies.
- Guesswork and time-consuming circuit testing is eliminated.
- This unique design offers the same quality performance characteristics as the standard 2AG fuse design.

### Electrical Characteristics

| Property                    | Value        |
|-----------------------------|--------------|
| Amp Rating (A)              | 1            |
| Form Factor                 | 2AG (5x15mm) |
| Fuse Class                  | Supplemental |
| $I^2t$ (A <sup>2</sup> Sec) | 5.64         |
| Opening Characteristic      | Slo-Blo®     |
| Resistance (Ohms)           | 0.209999993  |
| Voltage Rating (V)          | 250          |

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# Axial Lead and Cartridge Fuses

## Subminiature Glass Body

RoHS **2AG** Slo-Blo® Fuse 229P/230P 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               |
|--------------------|----------------------------|
| 100%               | 4 hours, <b>Minimum</b>    |
| 135%               | 1 hour, <b>Maximum</b>     |
| 200%               | 3 seconds, <b>Minimum</b>  |
|                    | 20 seconds, <b>Maximum</b> |

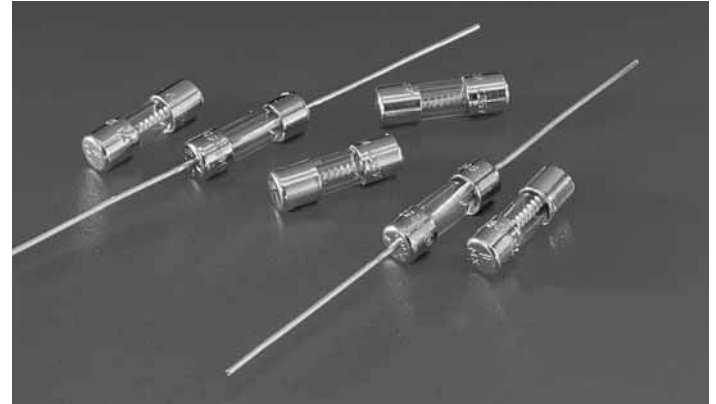
**AGENCY APPROVALS:** Listed by Underwriters Laboratories and Certified by CSA through 3.5 amperes. Recognized under the Components Program of Underwriters Laboratories from 4 through 7 amperes. 1 through 7 amperes approved by METI.

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

### INTERRUPTING RATINGS:

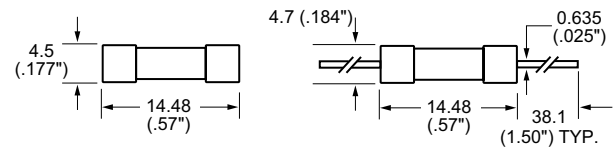
|           |                          |
|-----------|--------------------------|
| 0.25–3.5A | 10,000 amperes at 125VAC |
| 4–7A      | 400 amperes at 125VAC    |
| 0.25–1A   | 35 amperes at 250VAC     |
| 1.25–3.5A | 100 amperes at 250VAC    |

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



229 000P Series

230 000P Series



Axial Lead Material: Tin coated copper.

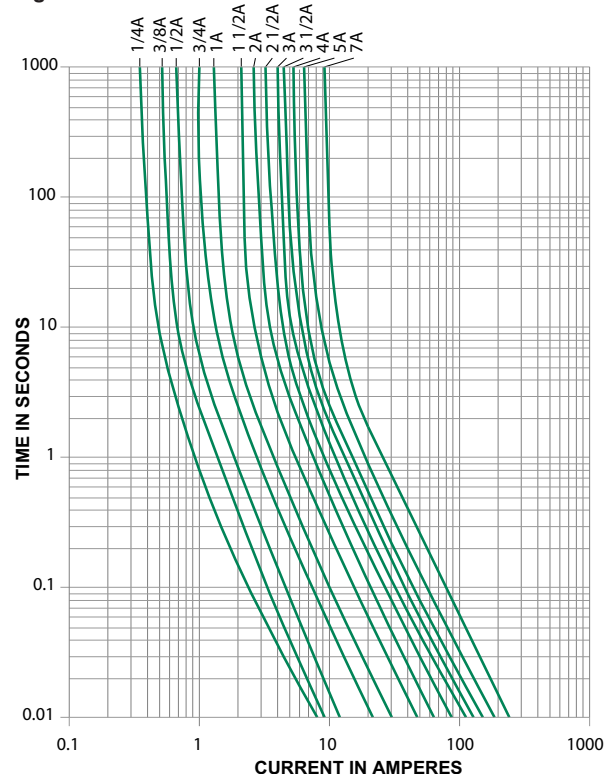
### PHYSICAL SPECIFICATIONS:

**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

### Average Time Current Curves



### 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. |
|--------------------------|---------------------------|---------------|----------------|------------------------------|--|
| 229.250P                 | 230.250P*                 | 1/4           | 250            | 2.41                         | 0.216  |
| 229.350P                 | 230.350P*                 | .350          | 250            | 1.30                         | 0.490  |
| 229.375P                 | 230.375P*                 | 3/8           | 250            |                              | 0.580  |
| 229.500P                 | 230.500P*                 | 1/2           | 250            | 0.688                        | 1.16   |
| 229.600P                 | 230.600P*                 | 6/10          | 250            | 0.477                        | 1.75   |
| 229.750P                 | 230.750P*                 | 3/4           | 250            | 0.340                        | 2.95   |
| 229.800P                 | 230.800P*                 | 8/10          | 250            | 0.304                        | 3.45   |
| 229.001P                 | 230.001P*                 | 1             | 250            |                              | 5.64   |
| 229.1.25P                | 230.1.25P*                | 1 1/4         | 250            | 0.145                        | 9.80   |
| 229.01.5P                | 230.01.5P                 | 1 1/2         | 250            | 0.107                        | 15.0   |
| 229.002P                 | 230.002P                  | 2             | 250            | 0.0692                       | 30.0   |
| 229.2.25P                | 230.2.25P                 | 2 1/4         | 250            | 0.0562                       | 39.0   |
| 229.02.5P                | 230.02.5P                 | 2 1/2         | 250            | 0.0498                       | 50.0   |
| 229.003P                 | 230.003P                  | 3             | 250            | 0.0380                       | 77.0   |
| 229.03.5P                | 230.03.5P                 | 3 1/2         | 250            | 0.0310                       | 110.0  |
| 229.004P                 | 230.004P                  | 4             | 125            | 0.0256                       | 148.0  |
| 229.005P                 | 230.005P                  | 5             | 125            | 0.0185                       | 267.0  |
| 229.006P                 | 230.006P                  | 6             | 125            | 0.0140                       | 380.0  |
| 229.007P                 | 230.007P                  | 7             | 125            | 0.0115                       | 464.0  |

Notes:

\* Complies with Telcordia GR-1089-CORE and TIA-968-A surge specifications

# Axial Lead and Cartridge Fuses

## Subminiature Glass Body

RoHS  **2AG** Slo-Blo® Fuse 229P/230P Series

## SURGE WITHSTAND SPECIFICATIONS

Our standard 229P and 230P 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.

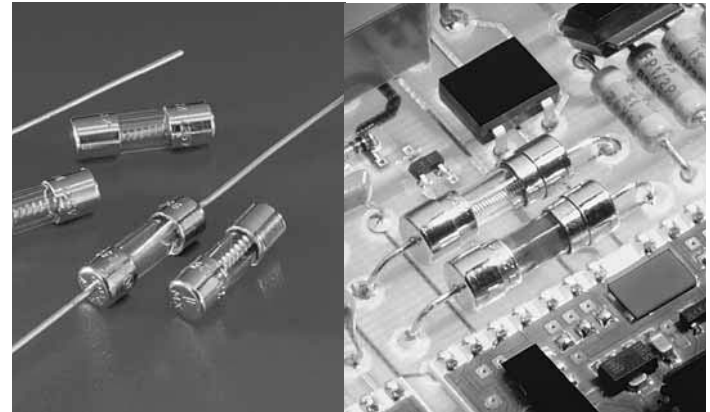
| Cartridge Catalog Number | Axial Lead Catalog Number | Ampere Rating      | 10 x 160 microsec. 1500V | 10 x 560 microsec. 800V | 10 x 1000 microsec. 1000V |
|--------------------------|---------------------------|--------------------|--------------------------|-------------------------|---------------------------|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

<sup>1</sup> Complies with Telcordia GR-1089-CORE and TIA-968-A surge specifications

<sup>2</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 229P/230P 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.