



### 229/230 Series Lead-Free 2AG, Slo-Blo® Fuse and Indicating Slo-Blo® Fuse



#### Agency Approvals

Agency	Agency File Number	Ampere Range
	E10480	250mA - 3.5A
	LR 29862	250mA - 7A
	E10480	4A - 7A
	NBK210405 - E10480D/F/G/H	1A - 7A
		250mA - 7A

#### Electrical Characteristics for Series

% of Ampere Rating	Opening Time
100%	4 hours, Minimum
135%	1 hour, Maximum
200%	3 sec.onds, Maximum
	20 seconds, Maximum

#### Description

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

The fuse catalog number with the suffix "S" 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 Slo-Blo® fuse design. When ordering the 2AG Indicating Slo-Blo® Fuse, an 'S' is required after the catalog number.

#### Features

- In accordance with UL Standard 248-14
- Fuses are boradwashable in most solvents
- RoHS compliant and Lead-free
- Available in cartridge and axial lead form and with various lead forming dimensions
- Sleeved fuses are available

#### Applications

- Standard 229/230 series meets the demanding requirements of the Telecom Industry.
- These fuses combine conventional overcurrent protection with ability to withstand high current, short duration pulses which complies to short circuit requirements of UL 1459 for Telecom equipments.

**Electrical Characteristic Specification by Item**

Amp Code	Ampere Rating (A)	Voltage Rating (V)	Interrupting Rating	Nominal Cold Resistance (Ohms)	Nominal Melting I <sup>2</sup> t (A <sup>2</sup> sec)	Agency Approvals				
										
.250	0.25	250	35A@250Vac 10KA@125Vac 10KA@125Vdc 80A@310Vac	2.4300	0.216	x			x	x
.350	0.35	250		1.3100	0.490	x			x	x
.375	0.375	250		1.1685	0.580	x			x	x
.500	0.5	250		0.6935	1.16	x			x	x
.600	0.6	250		0.4805	1.75	x			x	x
.750	0.75	250		0.3430	2.95	x			x	x
.800	0.8	250		0.3060	3.45	x			x	x
001.	1	250		0.2120	5.64	x		x	x	x
1.25	1.25	250		0.1460	9.80	x		x	x	x
01.5	1.5	250	100A@250Vac 10KA@125Vac 10KA@125Vdc 80A@310Vac	0.1077	15.0	x		x	x	x
002.	2	250		0.0698	30.0	x		x	x	x
2.25	2.25	250		0.0567	39.0	x		x	x	x
02.5	2.5	250		0.0502	50.0	x		x	x	x
003.	3	250		0.0383	77.0	x		x	x	x
03.5	3.5	250		0.0312	110.0	x		x	x	x
004.	4	125	400A@125Vac 400A@125Vdc	0.0258	148.0		x	x	x	x
005.	5	125		0.0186	267		x	x	x	x
006.	6	125		0.0141	380		x	x	x	x
007.	7	125		0.0116	464		x	x	x	x

### Description

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.

### Features

- In accordance with underwriter's Laboratories Standard UL 248-14.
- Fuses are boardwashable in most solvents.
- Available in cartridge and axial lead form and with various lead forming dimensions.
- RoHS compliant and lead-free.
- Available in ratings from 250mA to 1.25A.

### Applications

Used for the telecom industry.

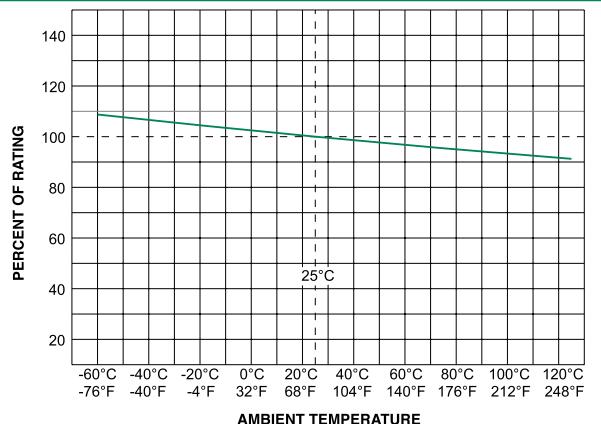
### Surge Withstand Specifications

**Peak Withstand Current( $I_p$ ):** These fuses will withstand 50 repetitions of a double exponential impulse wave having peak currents( $I_p$ ) and peak voltages as listed.

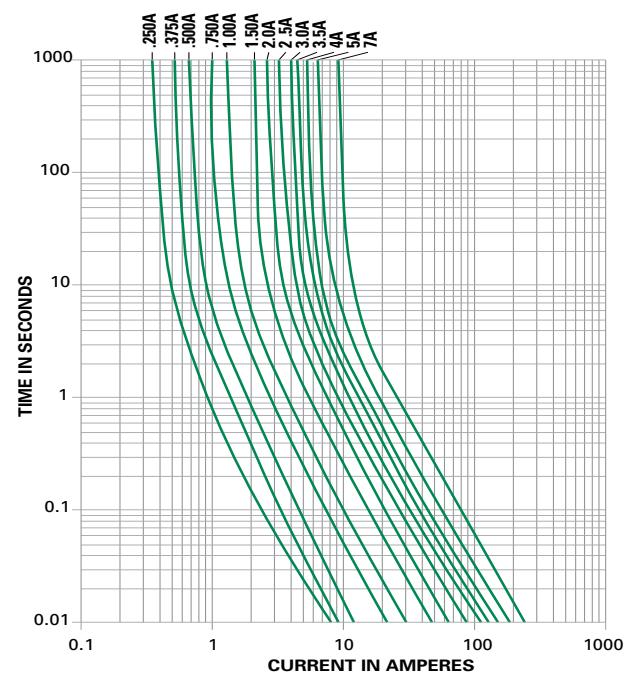
Amp Code	Ampere Rating (A)	Interrupting Rating	Nominal Cold Resistance (Ohms)	Nominal Melting $I^2t$ ( $A^2 sec$ )	10 x 160 $\mu$ s 1500V	10 x 560 $\mu$ s 800V	10 x 1000 $\mu$ s 1000V
.250	0.25	60A@600Vac 40A@600Vac 7A@600Vac 2.2A@600Vac	2.4300	0.216	23.0A	16.6A	12.4A
.350	0.35		1.3100	0.490	34.0A	25.8A	19.3A
.375	0.375		1.1685	0.580	40.0A	25.4A	19.0A
.500	0.5		0.6935	1.16	60.0A	37.7A	28.2A
.600	0.6		0.4805	1.75	71.0A	47.2A	35.3A
.750	0.75		0.3430	2.95	91.0A	65.5A	49.0A
.800	0.8		0.3060	3.45	104.0A	68.9A	51.6A
001.	1		0.2120	5.64	130A	88.6A	66.3A
1.25	1.25*		0.1460	9.80	162.0A	118.1A	100.0A

\* 500A peak, 2500V, 2 x 10 microseconds, 20 repetitions

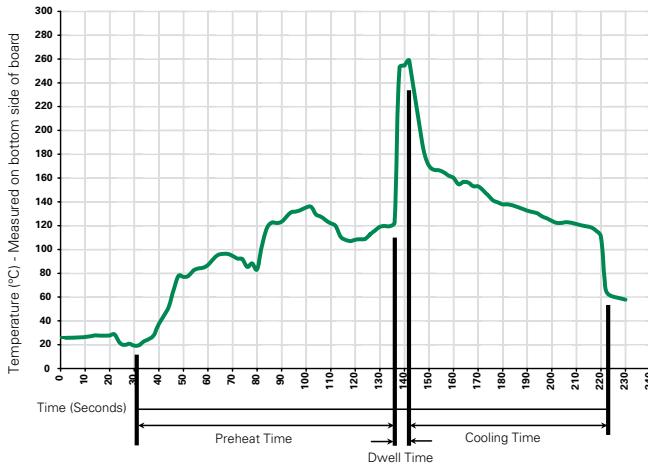
**Temperature Rerating Curve**



**Average Time Current Curves**



**Soldering Parameters - Wave Soldering**



**Recommended Process Parameters:**

Wave Parameter	Lead-Free Recommendation
<b>Preheat:</b> (Depends on Flux Activation Temperature)	(Typical Industry Recommendation)
Temperature Minimum:	100° C
Temperature Maximum:	150° C
Preheat Time:	60-180 seconds
<b>Solder Pot Temperature:</b>	260° C Maximum
<b>Solder Dwell Time:</b>	2-5 seconds

**Recommended Hand-Solder Parameters:**

Solder Iron Temperature: 350° C +/- 5°C  
Heating Time: 5 seconds max.

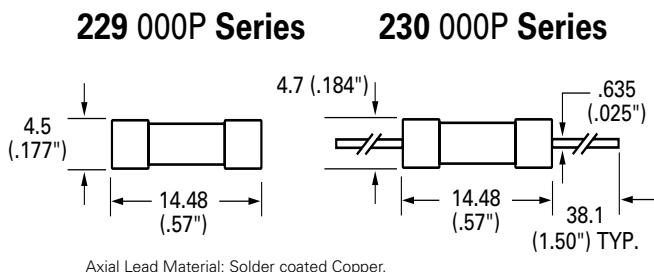
**Note: These devices are not recommended for IR or Convection Reflow process.**

### Product Characteristics

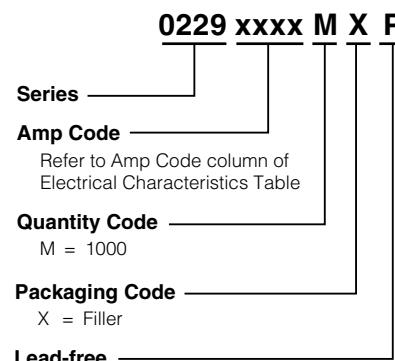
<b>Materials</b>	Body: Glass Cap: Nickel-plated brass Leads: Tin-plated Copper
<b>Terminal Strength</b>	MIL-STD-202G, Method 211A, Test Condition A
<b>Solderability</b>	Reference IEC 60127 Second Edition 2003-01 Annex A
<b>Product Marking</b>	Cap1: Brand logo, current and voltage ratings Cap2: Series and agency approval marks

<b>Operating Temperature</b>	-55°C to +125°C
<b>Thermal Shock</b>	MIL-STD-202G, Method 107G, Test Condition B: (5 cycles - -65°C to 125°C)
<b>Vibration</b>	MIL-STD-202G, Method 201A
<b>Humidity</b>	MIL-STD-202G, Method 103B, Test Condition A: High RH (95%) and Elevated temperature(40°C) for 240 hours
<b>Salt Spray</b>	MIL-STD-202G, Method 101D, Test Condition B

### Dimensions



### Part Numbering System



**Packaging**

Packaging Option	Packaging Specification	Quantity	Quantity & Packaging Code	Taping Width
<b>229 Series</b>				
Bulk	N/A	5	VX	N/A
Bulk	N/A	5	VXS	N/A
Bulk	N/A	100	HX	N/A
Bulk	N/A	100	HXS	N/A
Bulk	N/A	1000	MX	N/A
Bulk	N/A	1000	MXS	N/A
<b>230 Series</b>				
Bulk	N/A	5	VX	N/A
Bulk	N/A	5	VXS	N/A
Bulk	N/A	100	HX	N/A
Bulk	N/A	100	HXS	N/A
Bulk	N/A	1000	MX	N/A
Bulk	N/A	1000	MXE	N/A
Bulk	N/A	1000	MXF1	N/A
Bulk	N/A	1000	MXF16	N/A
Bulk	N/A	1000	MXF16O	N/A
Bulk	N/A	1000	MXF17	N/A
Bulk	N/A	1000	MXF17O	N/A
Bulk	N/A	1000	MXF23	N/A
Bulk	N/A	1000	MXF23O	N/A
Bulk	N/A	1000	MXF32	N/A
Bulk	N/A	1000	MXO	N/A
Bulk	N/A	1000	MXS	N/A
Reel and Tape	EIA 296-E	1500	DRT2	T2=63mm (2.500")
Reel and Tape	EIA 296-E	1500	DRT2S	T2=63mm (2.500")
Reel and Tape	EIA 296-E	1500	DRT4	N/A
Reel and Tape	EIA 296-E	2500	ERT2	T2=63mm (2.500")
Reel and Tape	EIA 296-E	2500	ERT2S	T2=63mm (2.500")
Reel and Tape	EIA 296-E	1000	MRT1E	T1=52mm (2.062")
Reel and Tape	EIA 296-E	1500	DAT1	T1=52mm (2.062")
Reel and Tape	EIA 296-E	1500	DAT1O	T1=52mm (2.062")
Reel and Tape	EIA 296-E	1500	DRT1	T1=52mm (2.062")
Reel and Tape	EIA 296-E	1500	DRT1S	T1=52mm (2.062")
Reel and Tape	EIA 296-E	1500	DRT1SS	T1=52mm (2.062")
Reel and Tape	EIA 296-E	1500	DRT3	T3=73mm (2.874")
Reel and Tape	EIA 296-E	1500	DRT3S	T3=73mm (2.874")
Reel and Tape	EIA 296-E	2500	ERT1	T1=52mm (2.062")
Reel and Tape	EIA 296-E	2500	ERT1S	T1=52mm (2.062")
Reel and Tape	EIA 296-E	2500	ERT3	T3=73mm (2.874")
Reel and Tape	EIA 296-E	2500	ERT3S	T3=73mm (2.874")