

## Excellent Integrated System Limited

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[sales@integrated-circuit.com](mailto:sales@integrated-circuit.com)

## Axial Lead & Cartridge Fuses

### 5x20 mm > Time-Lag > 215 Series

#### 215 Series, 5x20 mm, Time-Lag Fuse



#### Description

5x20mm Time-Lag surge withstand ceramic body cartridge fuse designed to IEC specification

#### Features

- Designed to International (IEC) Standards for use globally
- High breaking capacity
- Meets the IEC 60127-2, Sheet 5 specification for Time-Lag fuses
- RoHS compliant and lead-free

#### Applications

Used as supplementary protection in appliance or utilization equipment to provide individual protection for components or internal circuits.

#### Additional Information



Datasheet



Resources



Samples

#### Agency Approvals

Agency	Agency File Number	Ampere Range
PSE	Cartridge: NBK080205-E10480A NBK250702-E10480E NBK100408-JP1021A	1A – 5A 6.3A – 15A 16A – 20A
	Leaded: NBK080205-E10480B NBK250702-E10480F NBK100408-JP1021B	1A – 5A 6.3A – 15A 16A – 20A
CCC	2005010207145714	1A – 6.3A
KC	SU05001-2011B	1A – 2.5A
	SU05001-10001	3.15A – 6.3A
	SU05001-10002	8A
	SU05001-2012B	4A – 10A
UL US	E10480	0.125A – 20A
SFA	29862	0.5A – 12A
S	1402842	0.125A – 20A
DVE	40013521	0.2A – 8A *10A
	40016610	*12A
KM	KM41462	0.200A – 10A
CQC	CQC07012021808	8A – 10A
J50	J50258578	16A/20A
CE	N/A	0.125A – 20A

\* Approved for cartridge versions only

#### Electrical Characteristics for Series

% of Ampere Rating	Ampere Rating	Opening Time
150%	0.125A – 0.800A	60 minutes, Minimum
	1A – 3.15A	60 minutes, Minimum
	4A – 6.3A	60 minutes, Minimum
	8A – 20A	30 minutes, Minimum
210%	0.125A – 0.800A	30 minutes, Maximum
	1A – 3.15A	30 minutes, Maximum
	4A – 6.3A	30 minutes, Maximum
275%	8A – 12A	30 minutes, Maximum
	0.125A – 0.800A	.25 sec. Min.; 80 secs. Max.
	1A – 3.15A	.75 sec. Min.; 80 secs. Max.
400%	4A – 6.3A	.75 sec. Min.; 80 secs. Max.
	8A – 20A	.75 sec. Min.; 80 secs. Max.
	0.125A – 0.800A	.05 sec., Min.; 5 secs. Max.
	1A – 3.15A	.095 sec., Min.; 5 secs. Max.
1000%	4A – 6.3A	.150 sec., Min.; 5 secs. Max.
	8A – 20A	.150 sec., Min.; 5 secs. Max.
	0.125A – 0.800A	.005 sec., Min.; .150 sec. Max.
	1A – 3.15A	.010 sec., Min.; .150 sec. Max.
	4A – 6.3A	.010 sec., Min.; .150 sec. Max.
	8A – 20A	.010 sec., Min.; .150 sec. Max.

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## Electrical Characteristic Specifications by Item

Amp Code	Amp Rating	Voltage Rating (V)	Interrupting Rating	Nominal Cold Resistance (Ohms)	Nominal Melting I <sup>2</sup> t (A <sup>2</sup> sec)	Maximum Voltage Drop at Rated Current (mV)	Maximum Power Dissipation at 1.5In (W)	Agency Approvals															
								UL	CSA	UL	UL	UL	UL	UL	UL	UL	UL	UL	UL				
.125	0.125	250	1500 A @ 250 VAC	11.4455	0.0330	2600	1.6							x	x							x	
.160	0.16	250		7.1000	0.0465	2400	1.6								x	x							x
.200	0.2	250		1.8400	0.340	2100	1.6	x							x	x	x						x
.250	0.25	250		1.2400	0.545	1500	1.6	x							x	x	x						x
.315	0.315	250		0.8800	0.975	1100	1.6	x							x	x	x						x
.400	0.4	250		0.5825	1.325	1000	1.6	x							x	x	x						x
.500	0.5	250		1.1675	0.420	850	1.6	x							x	x	x	x					x
.630	0.63	250		0.7200	0.635	650	1.6	x							x	x	x	x					x
.800	0.8	250		0.4675	0.975	500	1.6	x							x	x	x	x					x
001.	1	250		0.1515	1.520	350	2.5	2.5	x	x	x	x	x	x	x	x	x	x					x
1.25	1.25	250		0.1074	3.200	300	2.5	2.5	x	x	x	x	x	x	x	x	x	x					x
01.6	1.6	250		0.0707	6.830	200	2.5	2.5	x	x	x	x	x	x	x	x	x	x					x
002.	2	250		0.0566	11.680	190	2.5	2.5	x	x	x	x	x	x	x	x	x	x					x
02.5	2.5	250		0.0386	22.290	180	2.5	2.5	x	x	x	x	x	x	x	x	x	x					x
3.15	3.15	250		0.0283	43.255	140	4	4	x	x	x	x	x	x	x	x	x	x					x
004.	4	250		0.0185	46.960	100	4	4	x	x	x	x	x	x	x	x	x	x					x
005.	5	250		0.0153	66.095	100	4	4	x	x	x	x	x	x	x	x	x	x					x
06.3	6.3	250		0.0108	128.750	100	4	4	x	x	x	x	x	x	x	x	x	x					x
008.	8	250		0.0092	209.880	100	4	4	x	x		x	x	x	x	x	x	x			x		x
010.	10	250		0.0066	333.565	100	4	4	x	x		x	x	x	x	x	x	x*			x		x
012.	12	250	0.0061	515.500	100	4	4		x			x	x	x			x*					x	
015.	15	250	0.0033	1237.0	N/A**	N/A**	N/A**		x					x			x*					x	
016.	16	250	0.0031	1408.0	N/A**	N/A**	N/A**		x					x			x*				x	x	
020.	20	250	0.0023	2600.0	N/A**	N/A**	N/A**		x					x			x*				x	x	

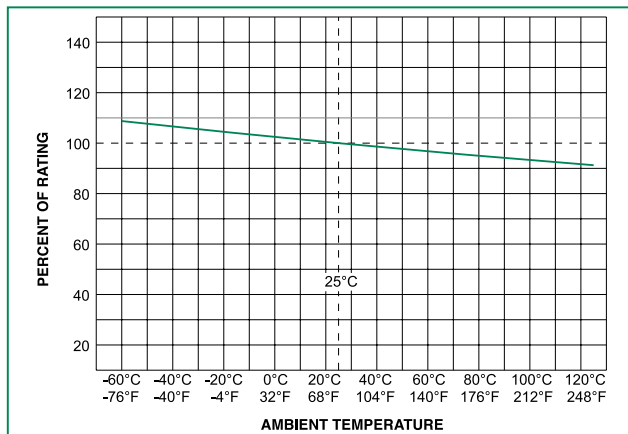
X\* Approval for cartridge versions only

N/A\*\* - Please contact Littelfuse for details on these parameters

1A to 2A have an IR : 100A@500VAC, 4A to 6-3A have the IR : 100A@305 VAC and 1000A@72VDC

I<sup>2</sup>t test at 10x rated current.

### Temperature Re-rating Curve



Note: Rerating depicted in this curve is in addition to the standard derating of 25% for continuous operation.

### Product Characteristics

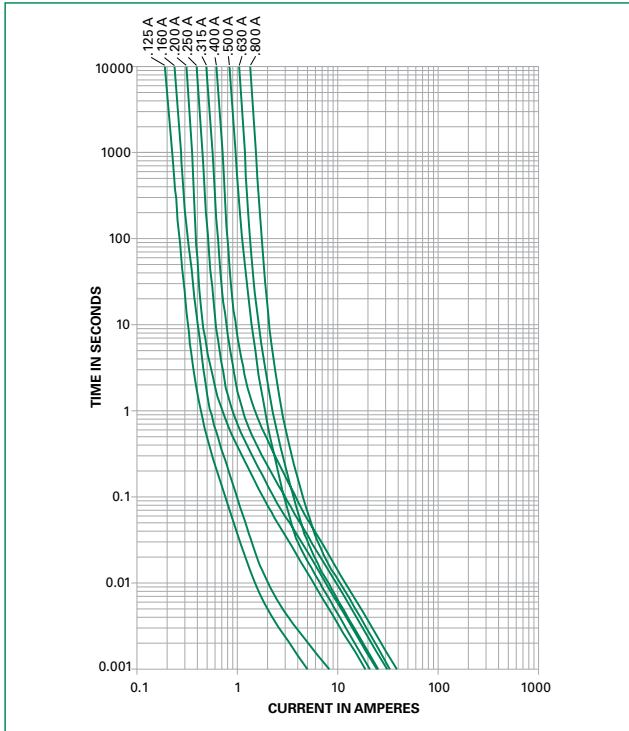
<b>Materials</b>	<b>Body:</b> Ceramic <b>Cap:</b> Nickel-plated Brass <b>Leads:</b> Tin-plated Copper
<b>Terminal Strength</b>	MIL-STD-202, Method 211, Test Condition A
<b>Solderability</b>	MIL-STD-202 Method 208
<b>Product Marking</b>	<b>Cap 1:</b> Brand logo, current and voltage ratings <b>Cap 2:</b> Agency approval markings
<b>Operating Temperature</b>	-55°C to +125°C
<b>Thermal Shock</b>	MIL-STD-202, Method 107, Test Condition B (5 cycles, -65°C to +125°C)
<b>Vibration</b>	MIL-STD-202, Method 201
<b>Humidity</b>	MIL-STD-202, Method 103, Test Condition A (High RH (95%) and elevated temp (40°C) for 240 hours)
<b>Salt Spray</b>	MIL-STD-202, Method 101, Test Condition B

## Axial Lead & Cartridge Fuses

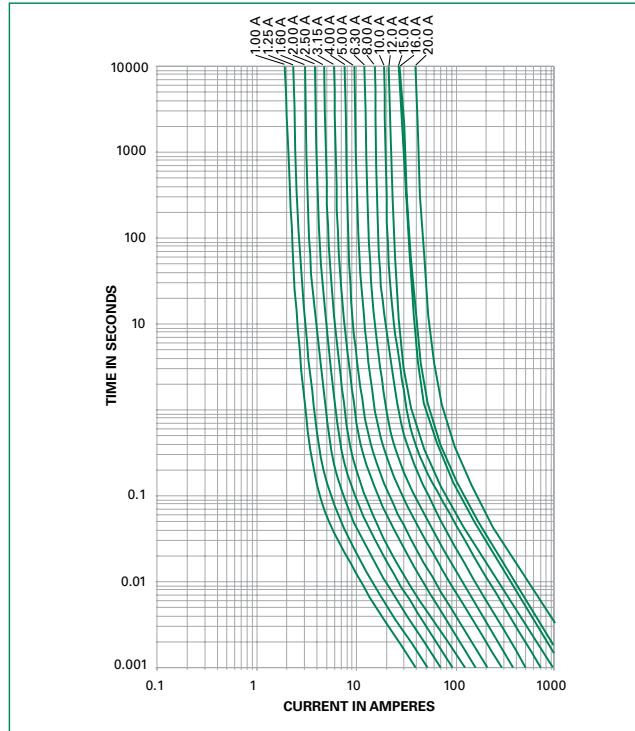
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### Average Time Current Curves

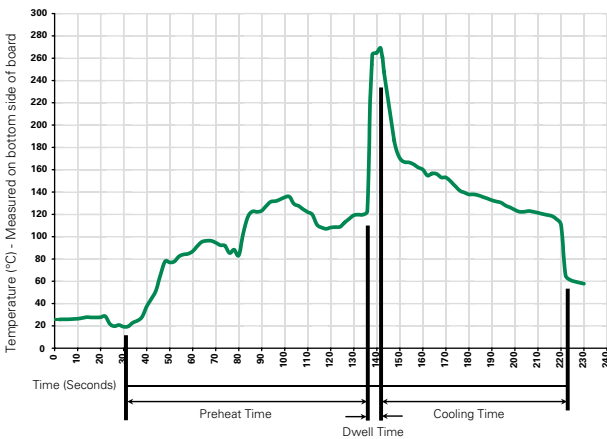
T-C Curves for 125mA to 800mA only



T-C Curves for 1A to 20A only



### Soldering Parameters - Wave Soldering



#### Recommended Process Parameters:

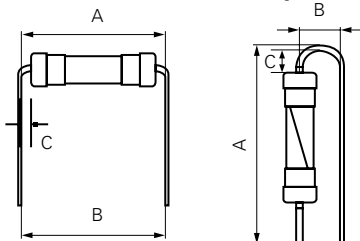
Wave Parameter	Lead-Free Recommendation
<b>Preheat:</b> (Depends on Flux Activation Temperature) (Typical Industry Recommendation)	
Temperature Minimum:	100° C
Temperature Maximum:	150° C
Preheat Time:	60-180 seconds
<b>Solder Pot Temperature:</b>	260° C Maximum
<b>Solder Dwell Time:</b>	2-5 seconds

#### 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.**

Different values of A and B available, please contact the Littelfuse sales representative in your region:



For the pigtailed fuse, please follow the recommendations below for axial lead forming and mounting into PCB:

#### Lead forming:

The distance C between cap flat surface and axial lead shall be greater than 1.0 mm.

#### PCB mounting:

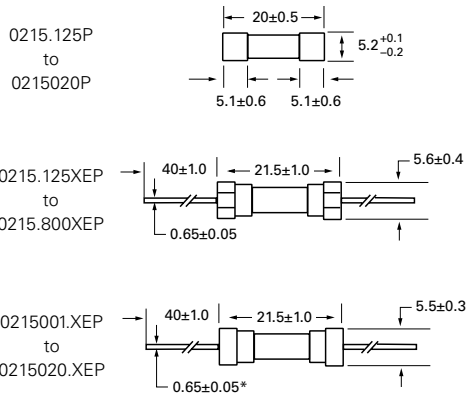
The distance between PCB and fuse cap is recommended to be a minimum of 1.5 mm.

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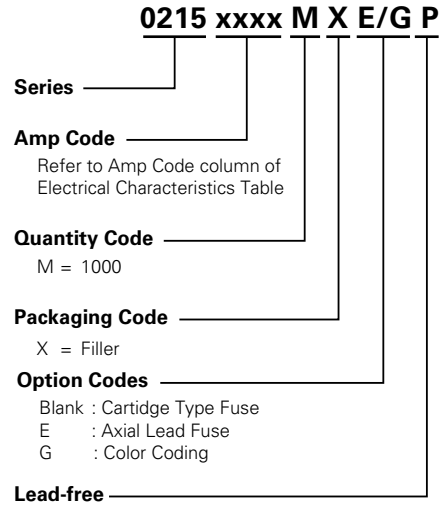
### Dimensions

All dimensions in mm



Notes:  
 \* Ratings above 6.3 A have 0.8 ± 0.05 diameter lead;  
 \* Ratings above 12 A have 1.2 ± 0.05 diameter lead.

### Part Numbering System



### Packaging

Packaging Option	Packaging Specification	Quantity	Quantity & Packaging Code	Taping Width
<b>215 Series</b>				
Bulk	N/A	1000	MX	N/A
Bulk	N/A	1000	MXE	N/A
Reel and Tape	N/A	1000	MRET1	T1=53mm (2.087")
Bulk and Color Coding	N/A	1000	MXG	N/A
Bulk	N/A	1000	MXB	N/A
Bulk	N/A	100	HX	N/A