



**THE DATASHEET OF  
0216010.MXP**



### 216 Series, 5x20 mm, Fast-Acting Fuse



#### Description

5x20mm fast-acting ceramic body cartridge fuse designed to IEC specification.

#### Features

- Designed to International (IEC) Standards for use globally
- Meets the IEC 60127-2, sheet 1 specification for fast-acting fuses
- Available in cartridge and axial lead form
- RoHS compliant and lead-free

#### Agency Approvals

Agency	Agency File Number	Ampere Range
	Cartridge: 1-5A NBK 080205-E10480A 6.3A-10A NBK 250702-E10480E 12.5A NBK 240108-JP1021C 16A NBK 240108-JP1021E	1A – 16A
	Leaded: 1-5A NBK 080205-E10480B 6.3A-10A NBK 250702-E10480F 12.5A NBK 240108-JP1021D 16A NBK 240108-JP1021F	
	2003010207079960	0.05A – 6.3A
	SU05001-2013	1A – 10A
	E10480	0.05A – 16A
	29862	
	1402843	0.05A - 10A, 16A
	40013834	0.05A – 6.3A *8A, *10A
	40016442	*12.5A
	KM41462	1A – 6.3A
	J50248090	8A – 16A
	N/A	0.05A – 16A

\*Approval for Cartridge versions only

#### Applications

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

#### Electrical Characteristics for Series

% of Ampere Rating	Ampere Rating	Opening Time
150%	0.05A – 4A	60 minutes, Minimum
	5A – 6.3A	60 minutes, Minimum
	8A – 16A	30 minutes, Minimum
210%	0.05A – 4A	30 minutes, Maximum
	5A – 6.3A	30 minutes, Maximum
	8A – 16A	30 minutes, Maximum
275%	0.05A – 4A	0.01 sec., Min.; 2 sec. Max.
	5A – 6.3A	0.01 sec., Min.; 3 sec. Max.
	8A – 16A	0.04 sec., Min.; 20 sec. Max.
400%	0.05A – 4A	.003 sec., Min.; 0.3 sec. Max.
	5A – 6.3A	.003 sec., Min.; 0.3 sec. Max.
	8A – 16A	.01 sec., Min.; 1.0 sec. Max.
1000%	0.05A – 4A	.02 seconds, Maximum
	5A – 6.3A	.02 seconds, Maximum
	8A – 16A	.03 sec.onds, Maximum

#### Additional Information



**Datasheet**



**Resources**



**Samples**



**Accessories**

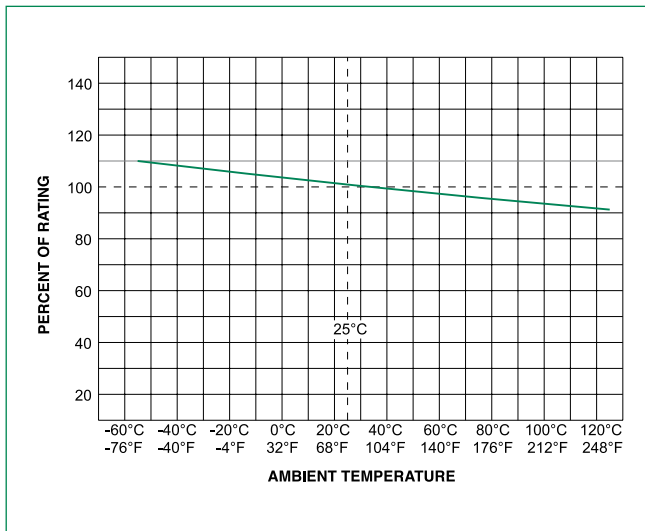
For recommended fuse accessories for this product series, see '[Recommended Accessories](#)' section.

## Electrical Characteristics Specifications by Item

Amp Code	Amp Rating (A)	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 1.5I <sub>n</sub> (W)	Agency Approvals												
								UL	CSA	UL US	SP	S	CE	D E	VDE	UL	PS E			
.050	0.05	250	1500A@250Vac	15.9000	0.00019	10000	1.6				X	X	X	X	X	X				
.063	0.063	250		10.4500	0.00079	8800	1.6				X	X	X	X	X	X				
.080	0.08	250		7.8850	0.00084	7600	1.6				X	X	X	X	X	X				
.100	0.1	250		5.7925	0.00450	7000	1.6				X	X	X	X	X	X				
.125	0.125	250		3.6750	0.00546	5000	1.6				X	X	X	X	X	X				
.160	0.16	250		5.3490	0.00326	4300	1.6				X	X	X	X	X	X				
.200	0.2	250		3.3500	0.00439	3500	1.6				X	X	X	X	X	X				
.250	0.25	250		2.3500	0.01350	2800	2.5				X	X	X	X	X	X				
.315	0.315	250		1.8500	0.02320	2500	2.5				X	X	X	X	X	X				
.500	0.5	250		0.8660	0.16500	1800	2.5				X	X	X	X	X	X				
.630	0.63	250		0.4650	0.05940	1500	2.5				X	X	X	X	X	X				
.800	0.8	250		0.2950	0.14600	1200	2.5				X	X	X	X	X	X				
001.	1	250		0.2370	0.18000	1000	2.5			X	X	X	X	X	X	X				X
1.25	1.25	250		0.1530	0.48000	800	4			X	X	X	X	X	X	X				X
01.6	1.6	250		0.1112	1.00500	600	4			X	X	X	X	X	X	X				X
002.	2	250		0.0764	1.87000	500	4			X	X	X	X	X	X	X				X
02.5	2.5	250		0.0584	3.67200	400	4			X	X	X	X	X	X	X				X
3.15	3.15	250		0.0368	6.70000	350	4			X	X	X	X	X	X	X				X
004.	4	250		0.0247	14.99500	300	4			X	X	X	X	X	X	X				X
005.	5	250		0.0183	27.46000	250	4			X	X	X	X	X	X	X				X
06.3	6.3	250	0.0137	56.43000	200	4			X	X	X	X	X	X	X				X	
008.	8	250	0.0123	64.31500	200	4			X		X	X	X	X	X*			X	X	
010.	10	250	0.0079	154.34000	200	4			X		X	X	X	X	X*			X	X	
12.5	12.5	250	0.0057	175.00000	200	N/A**					X	X		X		X*		X	X	
016.	16	250	0.0040	462.50000	200	N/A**					X***	X	X	X			X***		X	

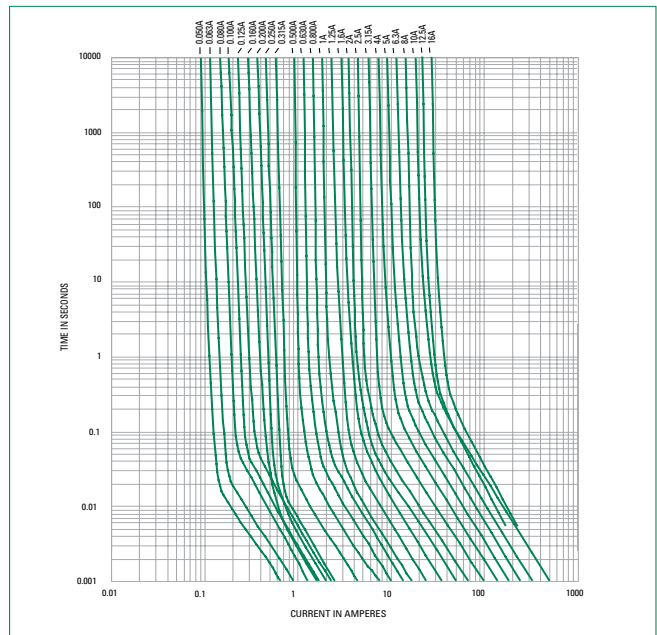
\* Approval for cartridge versions only.  
N/A\*\* - Please contact Littelfuse for details on these parameters  
I<sup>2</sup>t test at 10x rated current  
\*\*\*1500A@750Vac for 16A

### Temperature Re-rating Curve

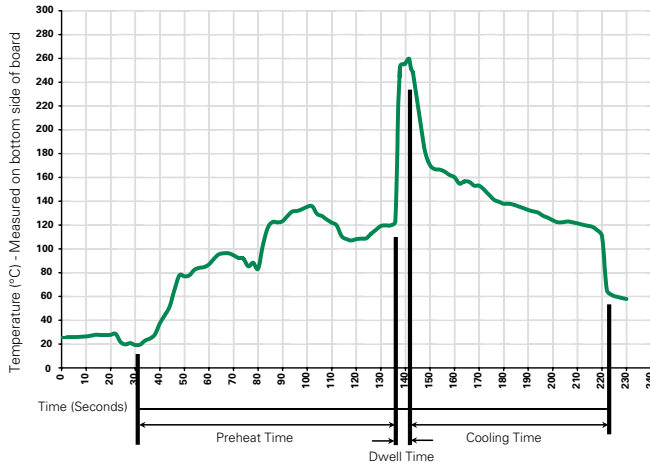


Note: Re-rating depicted in this curve is in addition to the standard derating of 25% for continuous operation.

### 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.

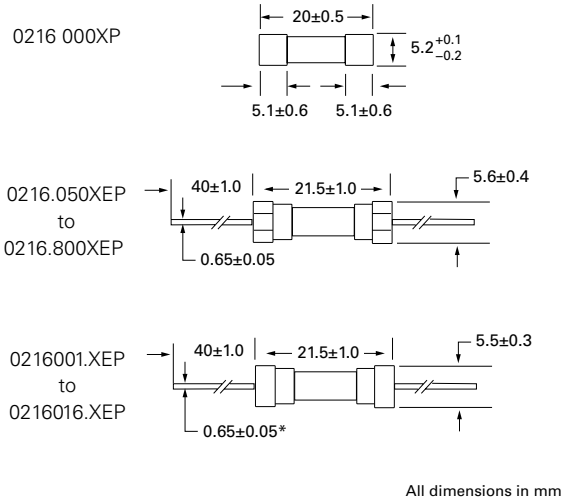
**Note: These devices are not recommended for IR or Convection Reflow process.**

**Product Characteristics**

<b>Material</b>	Body: Ceramic Cap: Nickel-plated brass Leads: Tin-plated Copper Filler (160mA-16A): Sand
<b>Terminal Strength</b>	MIL-STD-202, Method 211, Test Condition A
<b>Solderability</b>	MIL-STD-202 Method 208
<b>Product Marking</b>	Cap 1: Brand logo, current and voLage rating Cap 2: Agency approval markings
<b>Packaging</b>	Available in Bulk (M=1000 pcs/pkg) or on Tape/Reel (MRET1=1000 pcs/reel)

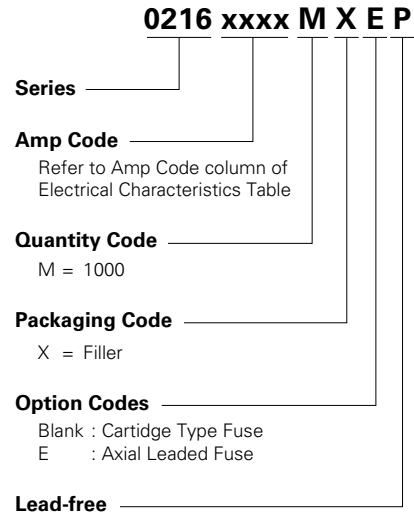
<b>Operating Temperature</b>	-55°C to +125°C
<b>Thermal Shock</b>	MIL-STD-202, Method 107, Test Condition B: (5 cycles -65°C to +125°C)
<b>Vibration</b>	MIL-STD-202, Method 201
<b>Humidity</b>	MIL-STD-202, Method 103, Test Condition A. high RH (95%) and elevated temperature (40°C) for 240 hours.
<b>Salt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

### Dimensions



Notes:  
\* Ratings above 6.3 A have  $0.8 \pm 0.05$  diameter lead.

### Part Numbering System



### Packaging

Packaging Option	Packaging Specification	Quantity	Quantity & Packaging Code	Taping Width
<b>216 Series</b>				
Bulk	N/A	1000	MX	N/A
Bulk	N/A	1000	MXE	N/A
Reel and Tape	EIA 296-E	1000	MRET1	T1=53mm (2.087")
Bulk	N/A	1000	MXG	N/A
Bulk	N/A	1000	MXB	N/A
Bulk	N/A	100	HX	N/A

### Recommended Accessories

Accessory Type	Series	Description	Max Application Voltage	Max Application Amperage
Holder	<a href="#">345_ISF</a>	Panel Mount Shock-Safe Fuseholder	250	10
	<a href="#">345</a>	Shock-Safe Fuseholder with PC Mount, Solder Mount and Panel Mount options		20A
	<a href="#">830</a>	PC Mount Shock-Safe Miniature Fuseholder		16
Block	<a href="#">520</a>	Metric OMNI-BLOK® Fuse Block		10
	<a href="#">646</a>	PC Mount Miniature Fuse Block		6.3
	<a href="#">658</a>	Surface Mount Miniature Fuse Block		10
Clip	<a href="#">520_W</a>	PC Mount Miniature Fuse Clip		6.3
	<a href="#">111</a>	PC Board Mount Fuse Clip		10
	<a href="#">445</a>	PC Board Mount Fuse Clip		10

Notes:  
1. Do not use in applications above rating.  
2. Please refer to fuseholder data sheet for specific re-rating information.  
3. Please contact Littelfuse for applications greater than the max voltage and amperage shown.

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