

## Chip™ Fuses

### 3216FF Series, Fast-Acting



#### Description

- Fast-acting surface mount fuse
- Ratings up to 20 amps
- Excellent temperature and cycling characteristics
- Compatible with reflow and wave solder

#### Agency Information

- UL Recognition Guide JDYX2 & File E19180.
- CSA Component Acceptance: 053787 C 000 & Class No: 1422 30.

- cULus Recognition File: E19180 (15 - 20A)

#### Environmental Data

- Thermal Shock: MIL-STD-202, Method 107, Test Condition B (-65°C to 125°C)
- Vibration: MIL-STD-202, Method 204, Test Condition C (55Hz - 2kHz, 10G)
- Moisture Resistance: MIL-STD-202, Method 106, 10 day cycle
- Solderability: ANSI/J-STD-002, Test B

RoHS  
2002/95/EC

#### Ordering

- Specify packaging and product code (i.e., TR/3216FF250-R)

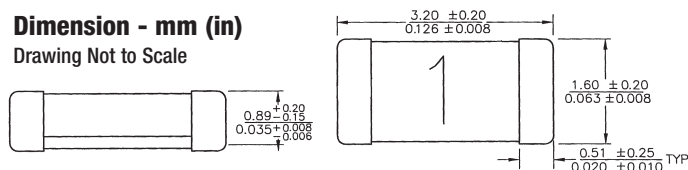
#### Soldering Method

- Wave Immersion: 260°C, 10 sec max.
- Infrared Reflow: 260°C, 30 sec max.

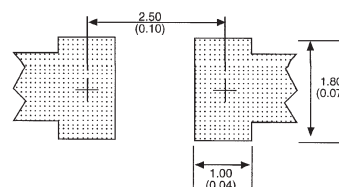
Electrical Characteristics		
Amp Rating	% of Amp Rating	Opening Time
250mA - 20A	100%	4 Hrs. Min.
1.25A - 3A	200%	60 Sec. Max.
250mA - 3A	250%	5 Sec. Max.
4A - 7A	350%	1 Sec. Max.
10A - 20A	350%	5 Sec. Max.

#### Dimension - mm (in)

Drawing Not to Scale



#### Recommended Pad Layout - mm (in)



### Specifications

Product Code	Ratings				Resistance (Ω)** Typ.	Typical Melt I <sup>††</sup> DC	Typical Voltage Drop (V)‡
	Amps	Vac	Vdc	IR Amps AC/DC*			
3216FF250-R	250mA	32	63	50	3.5000	0.00038	1.4
3216FF375-R	375mA	32	63	50	1.7500	0.00077	0.73
3216FF500-R	500mA	32	63	50	0.9800	0.0019	0.66
3216FF750-R	750mA	32	63	50	0.5400	0.0053	0.63
3216FF1-R	1	32	63	50	0.2190	0.030	0.20
3216FF1.25-R	1.25	32	63	50	0.1700	0.046	0.18
3216FF1.5-R	1.5	32	63	50	0.1190	0.093	0.18
3216FF2-R	2	32	63	50	0.0660	0.126	0.16
3216FF2.5-R	2.5	32	63	50	0.0460	0.260	0.14
3216FF3-R	3	32	63	50	0.0360	0.275	0.13
3216FF4-R	4	32	32	50	0.0180	0.337	0.11
3216FF4.5-R	4.5	32	32	50	0.0160	0.405	0.10
3216FF5-R	5	32	32	50	0.0140	0.534	0.09
3216FF6.5-R	6.5	32	32	50	0.0086	2.294	0.076
3216FF7-R	7	32	32	50	0.0070	3.623	0.078
3216FF10-R	10	—	24	150	0.0045	2.0	0.062
3216FF12-R	12	—	24	150	0.0039	7.0	0.070
3216FF15-R	15	—	24	150	0.0031	25.5	0.066
3216FF20-R	20	—	24	150	0.0018	48.6	0.060

\* AC Interrupting Rating (Measured at rated voltage with a unity power factor); DC Interrupting Rating (Measured at rated voltage, time constant of less than 50 microseconds, battery source)

\*\* DC Cold Resistance (Measured at 10% of rated current)

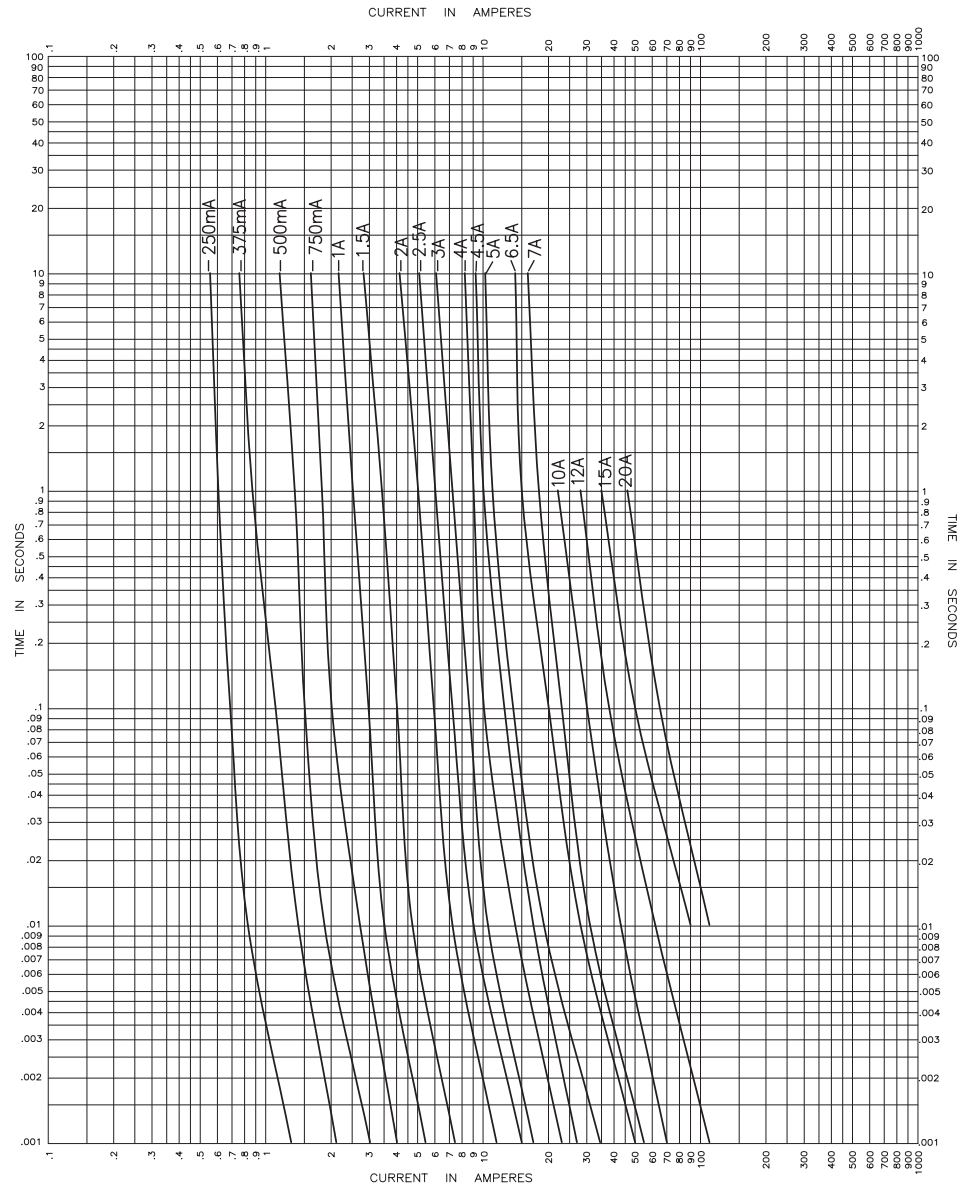
† Typical Melting I<sup>††</sup> (Measured with a battery bank at rated DC voltage, 10x-rated current, not to exceed IR, time constant of calibrated circuit less than 50 microseconds) (6.5A & 7A measured at interrupting rating)

‡ Typical Voltage Drop (Measured at rated current after temperature stabilizes)

It is recommended that fuses be mounted with ceramic (white) side facing up.

Device designed to carry rated current for four hours minimum. An operating current of 80% or less of rated current is recommended, with further derating required at elevated ambient temperatures.

## Time-Current Curves



Packaging	
Packaging Code Prefix	Description
TR	3000 fuses on 8mm tape-and-reel on a 7 inch (178mm) reel per EIA Standard RS481

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