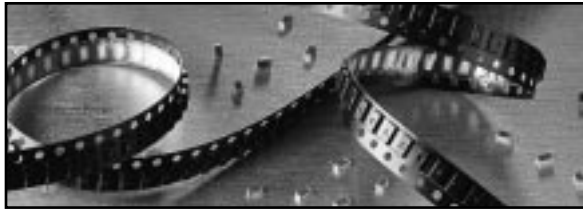


SMT Chip Fuse

Subminiature Surface Mount Fuses

3216FF



Catalog Symbol: 3216FF
 Voltage Rating: 32 Volt AC, 63 Volt DC (250mA-3A)
 32 Volt AC, 32 Volt DC (4-6.5A)

Interrupting Rating: 50 Amp AC/DC

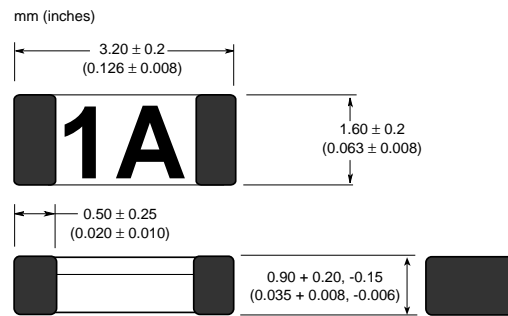
Physical Size:
 EIA SOCM-3216AC (Equivalent to 1206)
 3.2 × 1.6 × 0.90mm
 0.126 × 0.063 × 0.035 in.

Agency Approvals:
 UL Recognized, Std. 248-14
 All Ratings - File E19180, Guide JDYX2

CSA Certified:
 1.5-3A - File 53787, Class 1422-01
 CSA Component Acceptance
 250mA,1A, 4-6.5A - File 53787, Class 1422-30

- EIA-RS481 (equivalent to IEC 286, Part 3).
- Fuses are orientated in embossed pockets with ceramic side facing up to facilitate proper mounting (see "Electrical Characteristics", General Note 4.)

Dimensional Data



General Information:

- Bussmann SMT Chip Fuses utilize metal film and ultrasonic wire bond technologies for superior fusing action and enhanced reliability.
- The fuse element is bonded to a ceramic substrate and encapsulated with green-colored glass, providing excellent short-circuit performance and environmental integrity.
- Substrate and coating thermal expansion coefficients are closely matched to that of FR-4 epoxy-glass circuit board for superior joint reliability.
- The end terminations are over-plated with nickel and tin-lead.

Time-Current Characteristics

- Fast acting fuse: Will carry 100% of rated current for a minimum of 4 hours, and will open within 5 seconds at 250% of rated current (250mA-3A).
- The 4-6.5A fuses will open within 1 second at 350% of rated current.

Packaging & Ordering Information:

- Tape and Reel:** Standard 8mm tape, in compliance with

| | | |
|--|-----------------------|----------------------|
| | 3216FF | (See Table) |
| | Product Symbol | Rated Current |

Package Code
TR/ 3,000 pcs., on a 178mm reel, 8mm tape width
SP/ 50 pcs. on tape in a plastic box
TR1/ 15,000 pcs., on a 330mm reel, 8mm tape width

CE logo denotes compliance with European Union Low Voltage Directive (50-1000 VAC, 75-1500 VDC). Refer to BIF document #8002 or contact Bussmann Application Engineering at 636-527-1270 for more information.

Electrical Characteristics

| Part Number | Current Rating (Ampere) | Mark Appearing On Part | Typical Melting Integral @ 50A (A ² * sec) | | Typical Total Clearing Integral @ 50A (A ² * sec) | | Typ. Resistance @ ≤10% Rated Current (Ohms) | Typ. Voltage Drop @ Rated Current (Volts) |
|--------------------------|-------------------------|------------------------|---|--------|--|-------|---|---|
| | | | AC | DC | AC | DC | | |
| (XX=Package Code) | | | | | | | | |
| XX/3216FF-250mA | .250 | .25 | .00016 | .00084 | .00017 | .0001 | 4.50 | 1.4 |
| XX/3216FF-375mA | .375 | White Dot | .001 | .0002 | .0010 | .0009 | 1.80 | .73 |
| XX/3216FF-500mA | .500 | 0.5 | .0014 | .0019 | .0016 | .0026 | 1.15 | .66 |
| XX/3216FF-750mA | .750 | .75 | .0033 | .00095 | .0033 | .0042 | .75 | .63 |
| XX/3216FF-1A | 1 | 1 | .012 | .007 | .014 | .009 | .168 | .20 |
| XX/3216FF-1.5A | 1.5 | 1.5 | .047 | .029 | .048 | .034 | .098 | .18 |
| XX/3216FF-2A | 2 | 2 | .116 | .081 | .136 | .092 | .063 | .16 |
| XX/3216FF-2.5A | 2.5 | 2.5 | .208 | .171 | .210 | .198 | .046 | .14 |
| XX/3216FF-3A | 3 | 3 | .426 | .359 | .507 | .369 | .037 | .13 |
| XX/3216FF-4A | 4 | 4 | .187 | .164 | .208 | .168 | .019 | .11 |
| XX/3216FF-4.5A | 4.5 | 4.5 | .546 | .463 | .550 | .47 | .014 | .10 |
| XX/3216FF-5A | 5 | 5 | .663 | .619 | .668 | .623 | .013 | .09 |
| XX/3216FF-6.5A | 6.5 | 6.5 | 2.18 | 3.21 | 2.21 | 3.23 | .0085 | .076 |

General Notes:

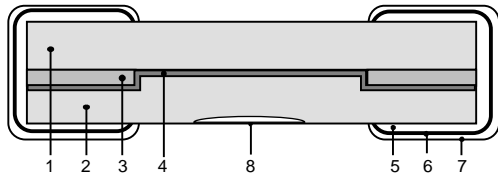
- AC interrupting rating, melting integral and total clearing integral measured at 32V, unity power factor.
- DC interrupting rating, melting integral and total clearing integral measured at 63V (250mA-3A) and 32V (4-6.5A), with a battery source.
- Voltage drop measured at 23 ± 3°C ambient temperature with the device mounted on a suitable circuit board trace.
- 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.
- Contact Bussmann if higher ampere ratings are needed.

SMT Chip Fuse

Subminiature Surface Mount Fuses



Construction

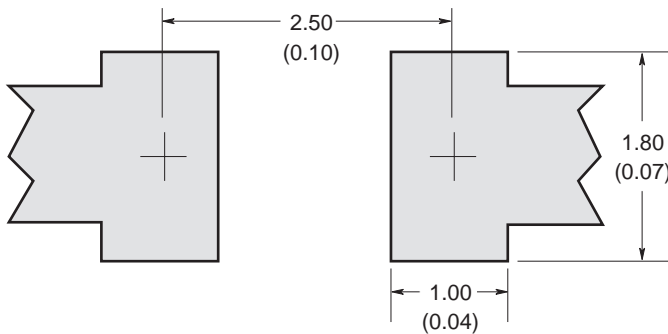


Construction:
Metal Film Fusible
Element
(250mA - 6.5A)

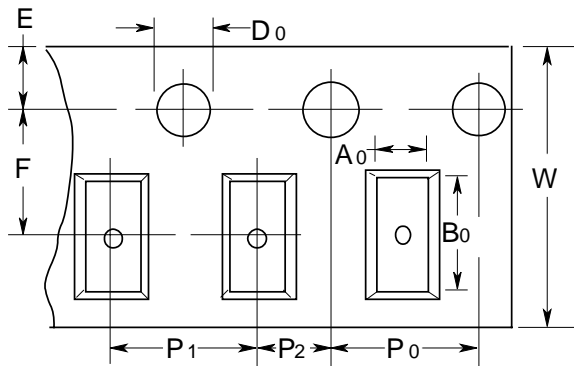
- 1. Ceramic Substrate
- 2. Glass Cover (Green)
- 3. Termination Pad
- 4. Metal Film Element
- 5. Silver End Termination
- 6. Nickel Barrier (3.88 - 4.3 μm)
- 7. 90/10 Tin-lead Plating (7.6 - 12.7 μm)
- 8. Marking

Drawing is not to scale.

Recommended Land Pattern - mm (inches)



NOTE: Trace geometry may affect fuse performance (time-current characteristics \leq 300% of rated current and voltage drop at rated current).

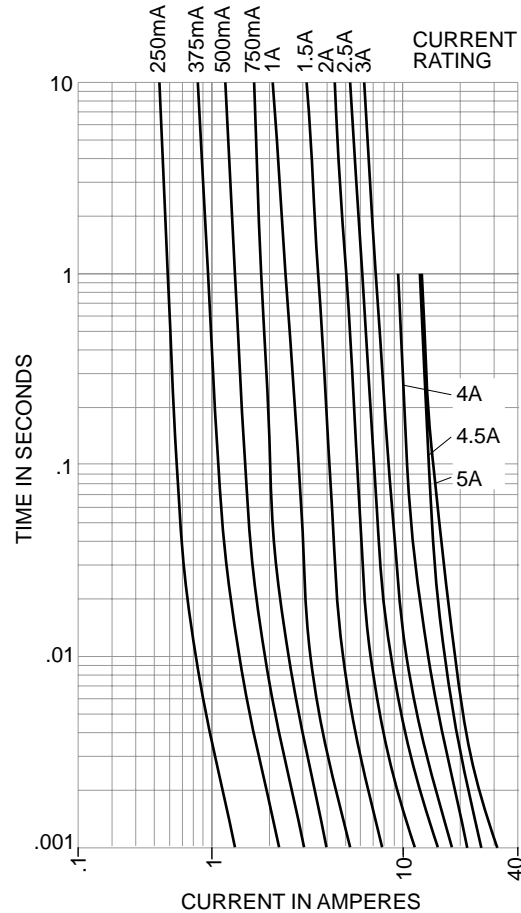


Carrier Dimensions - mm

| | |
|----|------------------|
| W | 8.0 + 0.3 / -0.1 |
| F | 3.5 ± 0.05 |
| E | 1.75 ± 0.1 |
| P2 | 2.0 ± 0.05 |
| P0 | 4.0 ± 0.1 |
| P1 | 4.0 ± 0.1 |
| A0 | 1.73 ± 0.2 |
| B0 | 3.56 ± 0.2 |
| D0 | 1.5 + 0.1 / -0.0 |

Time-Current Characteristic Curve

(Full Size Curves Available)



Environmental Specifications

Operating Temperature Range:

-55 to +125°C, with proper derating.

Thermal Shock:

MIL-STD-202, Method 107, Test Condition B (-65 to 125°C).

Vibration:

MIL-STD-202, Method 204, Test Condition C (55 to 2000 Hz, 10G).

Solderability:

Withstands 60 seconds above 200°C, 260°C maximum.

Moisture Resistance:

MIL-STD-202, Method 106, 10 day cycle.

Solder Leach Resistance & Terminal Adhesion:

EIA-576.