

SolidMatrix® Lead-Free 1206 Fast Acting Surface Mount Fuses



Features:

- Multilayer monolithic structure with glass ceramic body and silver fusing element
- Silver termination with nickel and pure-tin solder plating, providing excellent solderability
- Compatible with both wave and reflow soldering processes
- Operating temperature range: -55°C to +125°C (with de-rating)

Clear-Time Characteristics (Fast Acting):

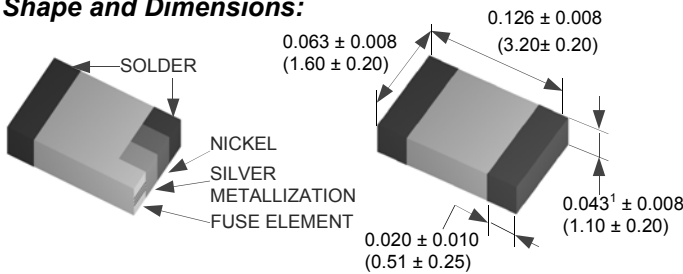
% of current rating	Clear-time at 25 °C
100%	4 hours min.
250%	5 seconds max.
400%	0.05 seconds max.

Agency Approval: Recognized Under the Components Program of Underwriters Laboratories, File Number: E232989

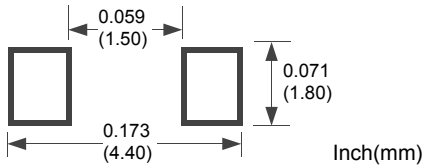
Patents: U.S. Patent numbers 5,650,199, 5,479,147, 5,453,726, 6,034,589, 6,228,230B1, 6,602,766, and other pending patents

Interrupting Ratings: 0.25A—3A 50A at rated voltage
4A—8A 45A at rated voltage

Shape and Dimensions:



Recommended Land Pattern:



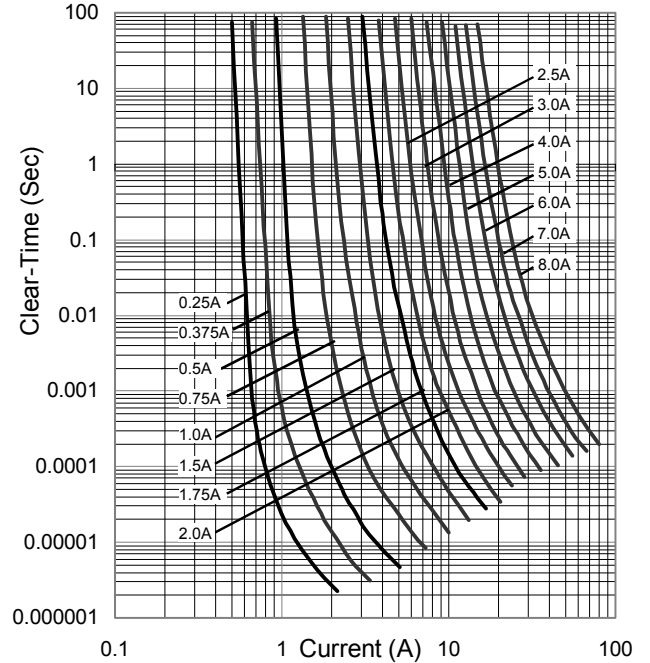
Ordering Information:

Part Number	Current Rating (A)	Voltage Rating (VDC)	Nominal Cold DCR (Ω) ²
F1206FA0250V125T	0.25	125	1.000
F1206FA0375V125T	0.375	125	0.600
F1206FA0500V063T	0.5	63	0.500
F1206FA0750V063T	0.75	63	0.330
F1206FA1000V063T	1.0	63	0.220
F1206FA1500V063T	1.5	63	0.120
F1206FA1750V063T	1.75	63	0.100
F1206FA2000V063T	2.0	63	0.050
F1206FA2500V032T	2.5	32	0.037
F1206FA3000V032T	3.0	32	0.032
F1206FA4000V032T	4.0	32	0.022
F1206FA5000V032T	5.0	32	0.018
F1206FA6000V024T	6.0	24	0.015
F1206FA7000V024T	7.0	24	0.012
F1206FA8000V024T	8.0	24	0.008

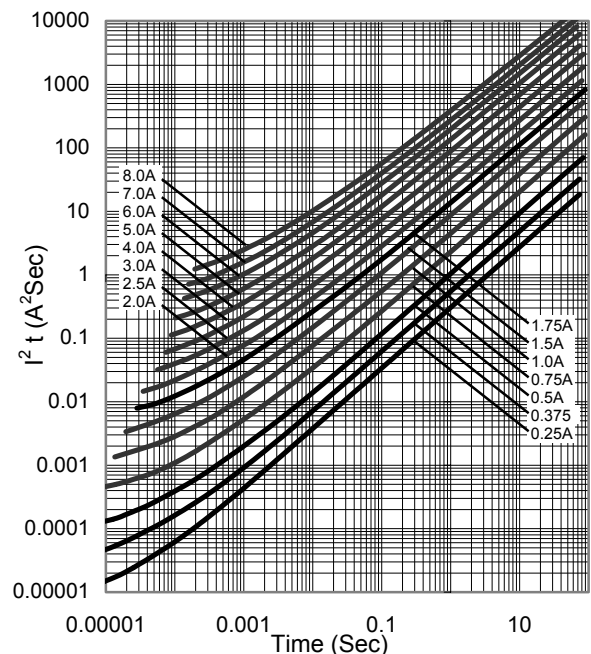
1. Nominal height of 0.023" is available.
2. Measured at $\leq 10\%$ rated current and 25°C ambient.



Average Clear-Time Curves:



I^2t vs. t Curves:



SolidMatrix® Lead-Free 0603 Fast Acting Surface Mount Fuses



Features:

- Multilayer monolithic structure with glass ceramic body and silver fusing element
- Silver termination with nickel and pure-tin solder plating, providing excellent solderability
- Compatible with both wave and reflow soldering processes
- Operating temperature range: -55°C to +125°C (with de-rating)

Clear-Time Characteristics (Fast Acting):

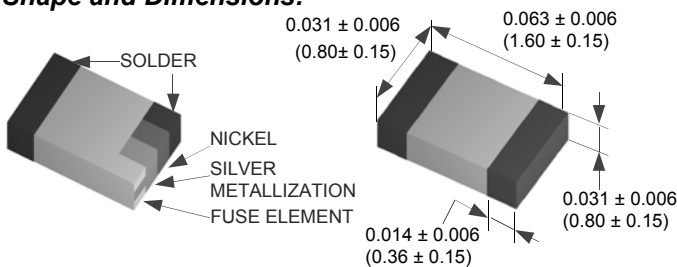
% of current rating	Clear-time at 25 °C
100%	4 hours min.
250%	5 seconds max.
400%	0.05 seconds max.

Agency Approval: Recognized Under the Components Program of Underwriters Laboratories, File Number: E232989.

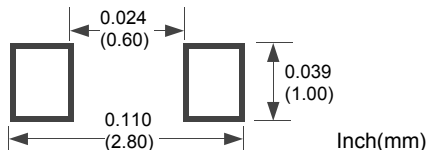
Patents: U.S. Patent numbers 5,650,199, 5,479,147, 5,453,726, 6,034,589, 6,228,230B1, 6,602,766, and other pending patents

Interrupting Ratings: 0.25A—1A 50A at rated voltage
1.25A—6A 35A at rated voltage

Shape and Dimensions:



Recommended Land Pattern:



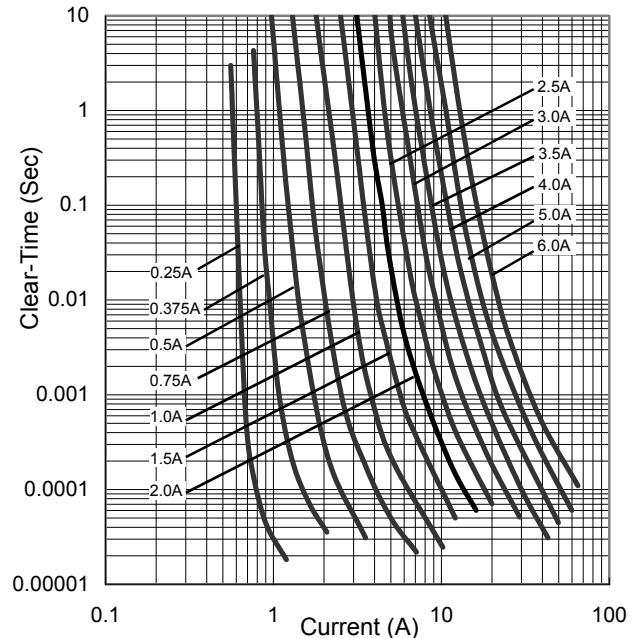
Ordering Information:

Part Number	Current Rating (A)	Voltage Rating (VDC)	Nominal Cold DCR (Ω) ¹
F0603FA0250V032T	0.25	32	1.260
F0603FA0375V032T	0.375	32	0.880
F0603FA0500V032T	0.5	32	0.485
F0603FA0750V032T	0.75	32	0.254
F0603FA1000V032T	1.0	32	0.140
F0603FA1500V032T	1.5	32	0.070
F0603FA2000V032T	2.0	32	0.052
F0603FA2500V032T	2.5	32	0.035
F0603FA3000V032T	3.0	32	0.027
F0603FA3500V032T	3.5	32	0.025
F0603FA4000V032T	4.0	32	0.019
F0603FA5000V032T	5.0	32	0.014
F0603FA6000V024T	6.0	24	0.012

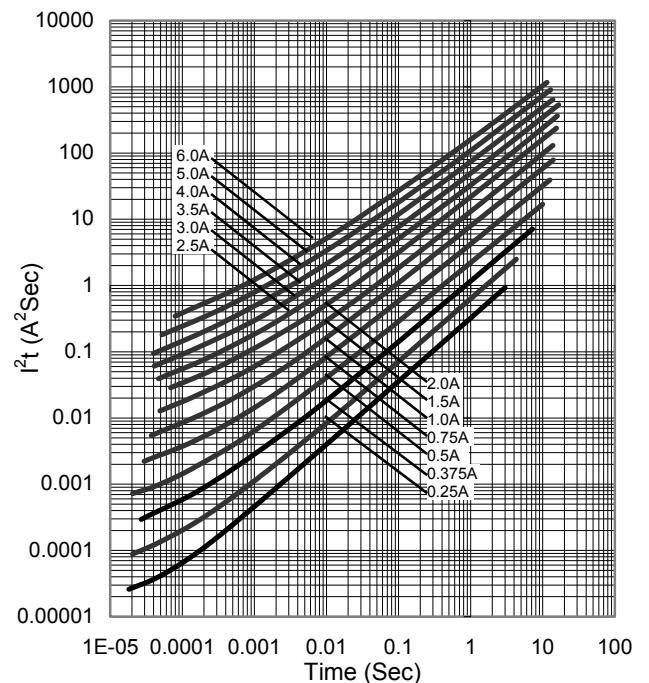
1. Measured at $\leq 10\%$ rated current and 25°C ambient.



Average Clear-Time Curves:



I²t vs. t Curves:



SolidMatrix® Lead-Free 0402 Fast Acting Surface Mount Fuses



Features:

- Multilayer monolithic structure with glass ceramic body and silver fusing element
- Silver termination with nickel and pure-tin solder plating, providing excellent solderability
- Compatible with both wave and reflow soldering processes
- Operating temperature range: -55°C to +125°C (with de-rating)

Clear-Time Characteristics (Fast Acting):

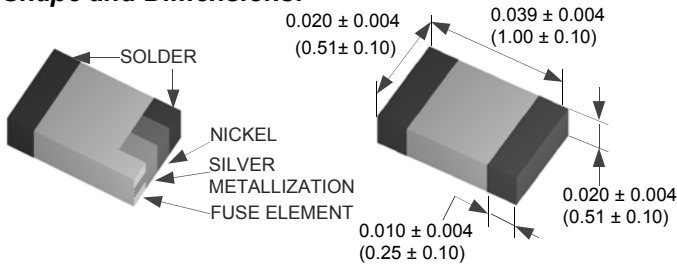
% of current rating	Clear-time at 25 °C
100%	4 hours min.
250%	5 seconds max.
400%	0.05 seconds max.

Agency Approval: Recognized Under the Components Program of Underwriters Laboratories, File Number: E232989

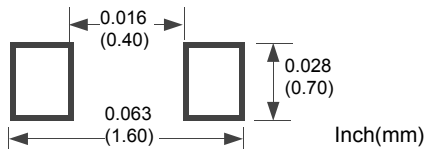
Patents: U.S. Patent numbers 5,650,199, 5,479,147, 5,453,726, 6,034,589, 6,228,230B1, 6,602,766, and other pending patents

Interrupting Rating: 35A at rated voltage

Shape and Dimensions:



Recommended Land Pattern:



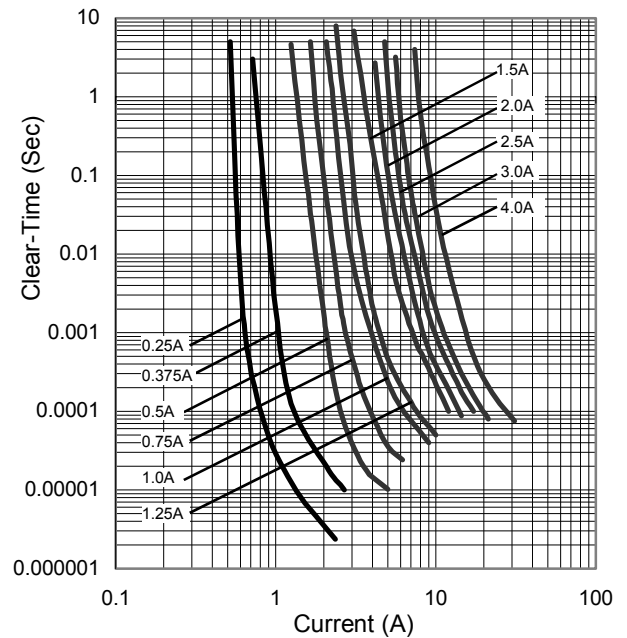
Ordering Information:

Part Number	Current Rating (A)	Voltage Rating (VDC)	Nominal Cold DCR (Ω) ¹
F0402FA0250V024T	0.25	24	0.900
F0402FA0375V024T	0.375	24	0.530
F0402FA0500V024T	0.5	24	0.380
F0402FA0750V024T	0.75	24	0.210
F0402FA1000V024T	1.0	24	0.125
F0402FA1500V024T	1.5	24	0.057
F0402FA2000V024T	2.0	24	0.041
F0402FA3000V024T	3.0	24	0.028
F0402FA4000V024T	4.0	24	0.018

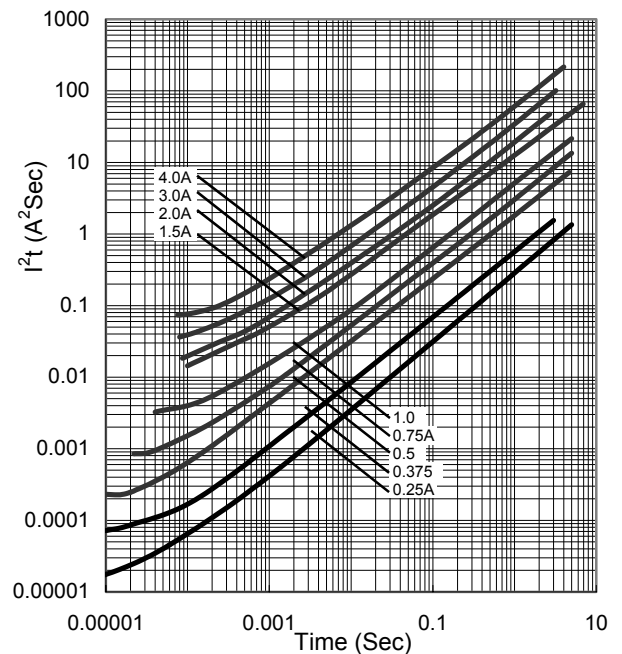
1. Measured at $\leq 10\%$ rated current and 25°C ambient.



Average Clear-Time Curves:



I^2t vs. t Curves:



Fast Acting Surface Mount Fuses

Product Identification:

F 0402 FA 1000 V024 T
 (1) (2) (3) (4) (5) (6)

- (1) **Series code:** F — Chip Fuse
- (2) **Size code:** Standard EIA Chip Size
- (3) **Action code:** FA — Fast Acting
- (4) **Current rating code:** 1000 — 1000 mA
- (5) **Voltage rating code:** V024 — 24 VDC
- (6) **Package code:** T — Tape & Reel, B — Bulk

Environmental Specifications:

Operating Temperature: -55°C to +125°C.

Mechanical Vibration: Withstands vibration of 5 — 3000 Hz with 30 G peak per Method 204 of MIL-STD-202.

Mechanical Shock: Withstands 1500 G, 0.5 millisecond half-sine pulses per Method 213 of MIL-STD-202.

Thermal Shock: Withstands 100 cycles between -65°C and +125°C per Method 107 of MIL-STD-202.

Resistance to Soldering Heat: Withstands 60 seconds at +260°C when evaluated per Method 210 of MIL-STD-202.

Solderability: Meets 95% minimum coverage requirement when evaluated per Method 208 of MIL-STD-202.

Moisture Resistance: Withstands 10 cycles when evaluated per Method 106 of MIL-STD-202.

Salt Spray: Withstands 48-hour exposure when evaluated per Method 101 of MIL-STD-202.

Terminal Strength: Hanging test: 1206: 1.5kg for 30 seconds; 0603: 0.5kg for 30 seconds; Push test: 0402: 2 lbs.

Electrical Specifications:

Clear-Time Characteristics: Same as specified on the Short Form Data Sheet

Insulation Resistance after Opening: 20,000 ohms minimum

Current Carrying Capacity: 100% rated current at +25°C ambient for 4 hours minimum when evaluated per MIL-PRF-23419

Interrupt Ratings: Same as specified on the Short Form Data Sheet

Packaging Specifications:

Chip Size	Parts on 7 inch (178 mm) Reel
0402(1005)	10,000
0603(1608)	4,000
1206(3216)	3,000

Fuse Selection and Temperature De-rating Guideline:

The ambient temperature affects the current carrying capacity of fuses. When a fuse is operating at a temperature higher than 25°C, the fuse shall be “de-rated”.

To select a fuse from the catalog, the following rule may be followed:
 Catalog Fuse Current Rating = Nominal Operating Current / 0.75 /
 % De-rating at the maximum operating temperature.

Example: At maximum operating temperature of 65°C, % De-rating is 90%. The nominal operating current is 4A. The current rating for fuse selected from the catalog shall be:
 $4 / 0.75 / 90\% = 5.9$ or 6A.

