THE DATASHEET OF

F0402FA0500V024T

SolidMatrix® Surface Mount Fuses

F0402FA Series (Fast Acting, 0402 Size)

Features:

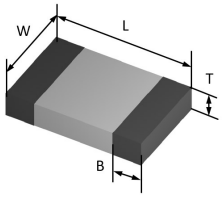
- Multilayer monolithic structure with glass ceramic body and silver fusing element
- Silver termination with nickel and pure-tin solder plating, providing excellent solderability
- Compatible with both wave and reflow soldering processes

Clearing Time Characteristics:

% of current rating	Clearing time at 25°C	
	Min.	Max.
100%	4 hours	-
250%	-	5 seconds
400%	-	0.05 seconds

Shape and Dimensions:

Unit	Inch	mm
L	0.039 ± 0.004	1.00 ± 0.10
W	0.020 ± 0.004	0.51 ± 0.10
T	0.020 ± 0.004	0.51 ± 0.10
B	0.010 ± 0.004	0.25 ± 0.10



Applications:

- Panel
- Notebook
- Toy
- HDD
- IoT
- Finger print
- Smart lock
- Battery pack

Ordering Information:

Part Number	Current Rating (A)	Voltage Rating (V DC)	Interrupting Ratings	Nominal DCR (Ω)[1]	Nominal I^2t (A^2s)[2]
F0402FA0500V024T	0.5	24	35A @24V DC	0.380	0.004
F0402FA0750V024T	0.75			0.210	0.007
F0402FA1000V024T	1.0			0.120	0.014
F0402FA1500V024T	1.5			0.056	0.050
F0402FA2000V024T	2.0			0.035	0.070
F0402FA3000V024T	3.0			0.021	0.110
F0402FA4000V024T	4.0			0.014	0.210
F0402FA5000V024T	5.0			0.011	0.450
F0402FA6000V024T	6.0			0.010	0.550
F0402FA7000V024T	7.0			0.008	0.800
F0402FA8000V024T	8.0			0.007	1.000

1. Measured at ≤10% rated current and 25 °C ambient
2. Melting I^2t at 0.001 second pre-arcing time.

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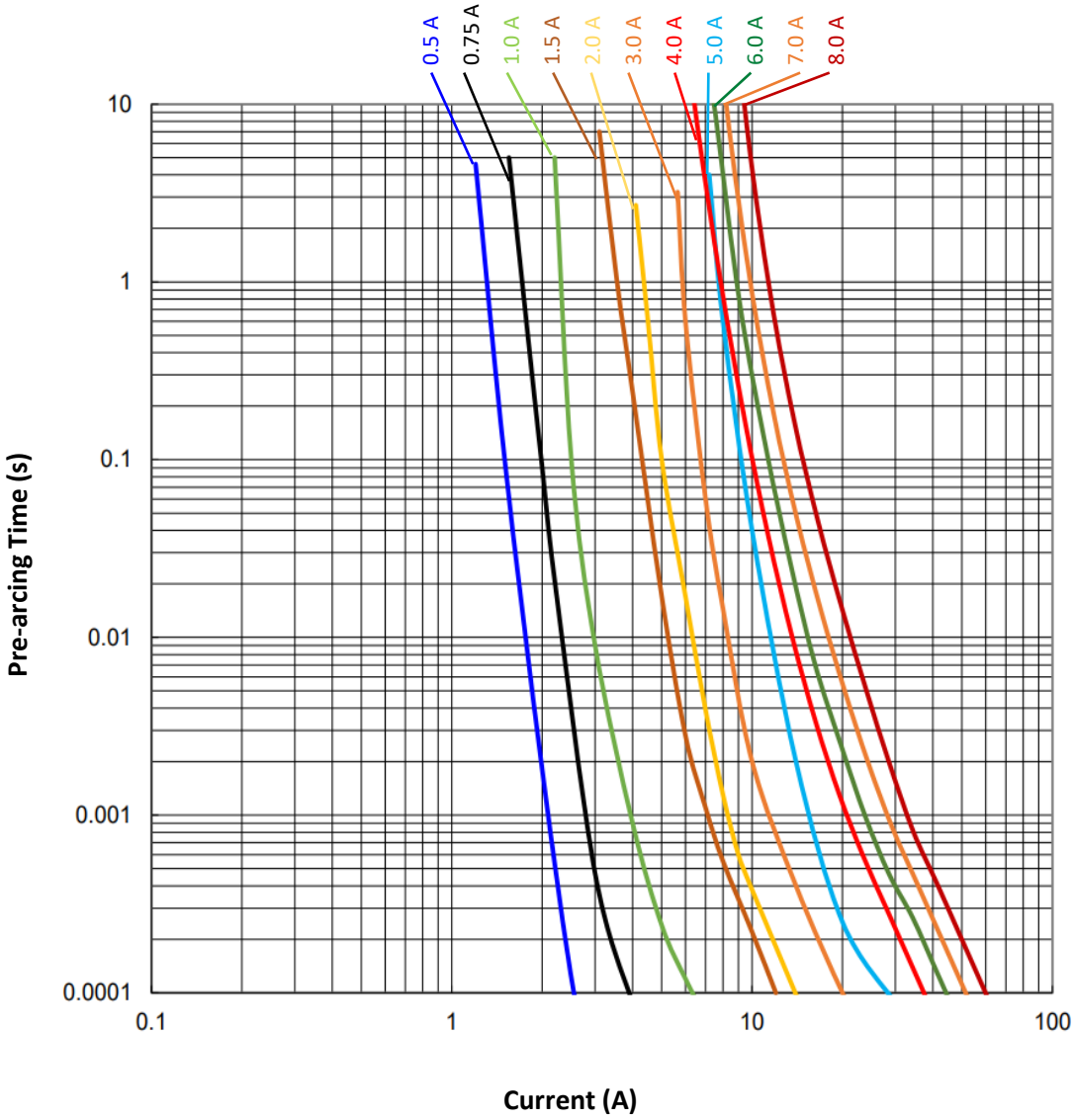
Average Pre-arcing Time Curves:



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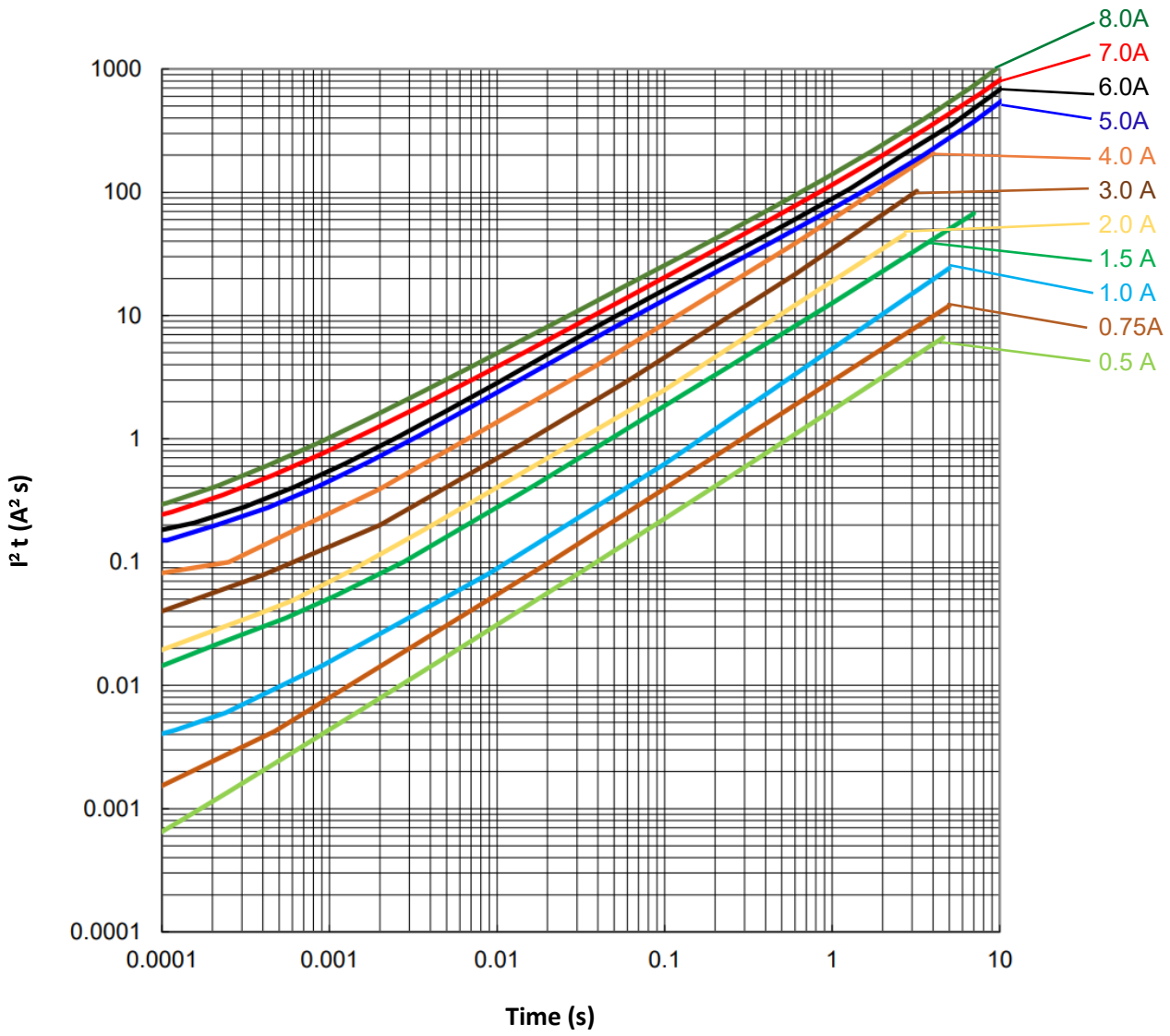
Average I^2t vs. t Curves:



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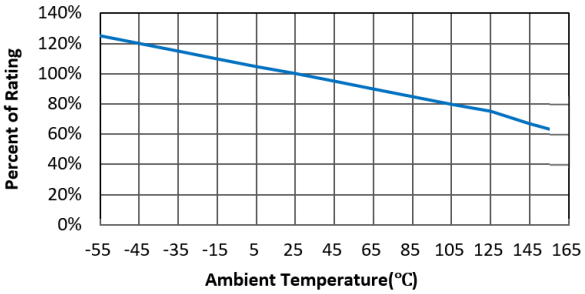
Temperature De-rating:

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" according to the de-rating curve.



Product Identification:

F 0402 FA 0500 V024 T

(1) (2) (3) (4) (5) (6)

(1) Series Code: SolidMatrix Surface Mount Fuses

(2) Size Code: L x W (inch), the first two digits - L (length), the last two digits - W (width)

(3) Characteristic Code: FA - Fast Acting

(4) Current Rating Code: 0500 - 500mA

(5) Voltage Rating Code: V024 - 24V DC

(6) Package Code: T - Tape & Reel, B - Bulk

Operating Temperature Range:

- -55°C ~+150°C (with de-rating)

Agency Approval:

- Recognized Under the Components Program of Underwriters Laboratories.
- Certification #: UL-E232989

Reliability Tests:

No.	Item	Condition	Criteria
1	Bend	2 mm bend	DCR change within ±20%. (±10% for ≤1A), no mechanical damage
2	Solderability	245°C, 5 seconds	New solder coverage ≥95%
3	Soldering Heat Resistance	260°C, 60 seconds	DCR change within ±10%, new solder coverage 75% minimum, no mechanical damage
4	Terminal Strength	Gradually apply 0.5 kg force to the side of the part for 60 seconds	DCR change within ±10%, no mechanical damage
5	Life	80% rated current (75% for <1A), 2000 hours, ambient temperature +20°C to +30°C	Voltage drop change within ±10%
6	Thermal Shock	-65°C to +150°C, 100 cycles	DCR change within ±10%, no mechanical damage
7	Mechanical Vibration	5 – 3000 Hz, 0.4 inch double amplitude or 30 G peak	DCR change within ±10%, no mechanical damage
8	Mechanical Shock	1500 G, 0.5 milliseconds, half-sine shocks	DCR change within ±10%, no mechanical damage
9	Salt Spray	5% salt solution, 48 hours exposure	DCR change within ±10%, no excessive corrosion
10	Moisture Resistance	10 cycles	DCR change within ±10%, no excessive corrosion

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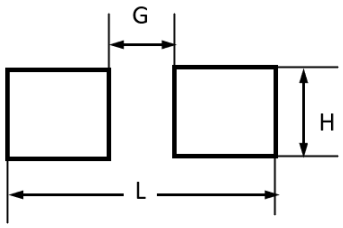
Recommended Land Pattern:

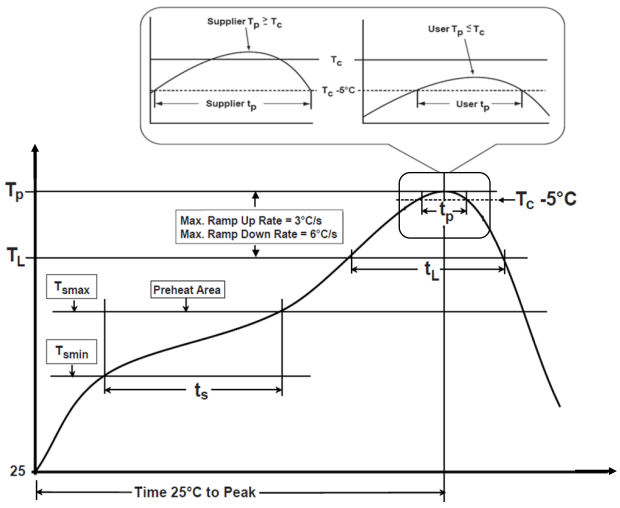
Chip Size	0402	Unit
L	0.063 (1.60)	Inch (mm)
G	0.016 (0.40)	Inch (mm)
H	0.028 (0.70)	Inch (mm)



Recommended Temperature Profile:

Profile Feature	Pb-Free Assembly
Preheat/Soak Temperature Min (T_{smin}) Temperature Max (T_{smax}) Time (t_s) from (T_{smin} to T_{smax})	 150°C 200°C 60~120 seconds
Ramp-uprate (T_L to T_p)	3°C/second max.
Liquidous temperature (T_L) Time (t_L) maintained above T_L	217°C 60~150 seconds
Peak package body temperature (T_p)	260°C
Time (t_p)*within 5°C of the specified classification temperature (T_c)	30 seconds *
Ramp-down rate (T_p to T_L)	6°C/second max.
Time 25°C to peak temperature	8 minutes max.
* Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum	

* Recommended Temperature Profile for Reflow Soldering



Recommended conditions for hand soldering:

1. Appropriate temperature (max.) of soldering iron tip/soldering time (max.): 280°C /10 s or 350°C / 3 s
2. Using hot air rework station with tip that can melt the solder on both terminations at the same time is strongly recommended. Do not directly contact the chip termination with the tip of soldering iron.

Storage:

1. The maximum ambient temperature shall not exceed 35°C . Storage temperatures higher than 35°C could result in the deformation of packaging materials.
2. The maximum relative humidity recommended for storage is 75%. High humidity with high temperature can accelerate the oxidation of the solder plating on the termination and reduce the solderability of the components.
3. The products shall not be stored in areas where harmful gases containing sulfur or chlorine are present.
4. MSL=1

Packaging:

Chip Size	Parts on 7 inch (178 mm) Reel
0402	10,000

Disclaimer

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AEM Components (Suzhou) Co., Ltd

461 Zhongnan Street,
China-Singapore Suzhou Industrial Park
Jiangsu, P. R. China, 215026

Tel: 86-512-6258-0028
Fax: 86-512-6258-0018
Email: marketing@aemchina.com

AEM Components (USA), Inc.

6670 Cobra Way, San Diego, CA 92121, USA

Tel: 1-858-750-6100
Fax: 1-858-481-1123
Email: sales@aemcomponents.com

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