Revision of July 2017

SolidMatrix® Surface Mount Fuses

SB Series (Slow Blow), 1206 Size

Features:

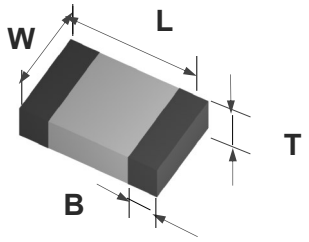
- High inrush current withstanding capability
- Multilayer monolithic structure with glass ceramic body and silver fusing element
- Silver termination with nickel and pure-tin solder plating, providing excellent solderability
- Compatible with both wave and reflow soldering processes
- Operating temperature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

Clearing Time Characteristics:

% of current rating	Clearing time at 25°C	
100%	4 hours min.	
200%	1 second min.	120 seconds max.
300%	0.1 seconds min.	3 seconds max.
800%	0.002 seconds min.	0. 05 seconds max.

Shape and Dimensions:

Unit	Inch	mm
L	0.126 ± 0.008	3.20 ± 0.20
W	0.063 ± 0.008	1.60 ± 0.20
T	0.038 ± 0.008	0.97 ± 0.20
B	0.020 ± 0.010	0.51 ± 0.25



Agency Approval:

Recognized Under the Components Program of UL.
File Number: E232989.

Patents:

Patent numbers “US6,034,589”, “US6,602,766”, “US7,268,661 B2”, “ZL00134544.3”, “ZL02114719.1”, “ZL200410104280.7”, “ZL201020551352.3”, “ZL201020551360.8”, “ZL201010299185.2”, “ZL201220030614.0”, “ZL201210020693.1”.

Ordering Information:

Part Number	Current Rating (A)	Voltage Rating (VDC)	Interrupting Ratings	Nominal Cold DCR (Ω)[1]	Nominal I^2t $(A^2s)^2$	Marking Code[3]
F1206SB1000V063TM	1.0	63	50 A at rated voltages	0.360	0.11	E
F1206SB1250V063TM	1.25	63		0.200	0.22	F
F1206SB1500V063TM	1.5	63		0.150	0.23	G
F1206SB2000V063TM	2.0	63		0.088	0.63	I
F1206SB2500V032TM	2.5	32		0.065	0.90	J
F1206SB3000V032TM	3.0	32		0.034	1.20	K
F1206SB3500V032TM	3.5	32		0.028	1.60	L
F1206SB4000V032TM	4.0	32		0.024	2.20	M
F1206SB4500V032TM	4.5	32		0.020	3.60	T
F1206SB5000V032TM	5.0	32		0.018	5.30	N
F1206SB5500V024TM	5.5	24		0.014	6.40	U
F1206SB6000V024TM	6.0	24	60 A at rated voltage	0.011	8.50	O
F1206SB7000V024TM	7.0	24		0.010	10.0	P
F1206SB8000V024TM	8.0	24		0.009	16.9	R

1. Measured at ≤ 10% rated current and 25°C ambient. 2. Melting I^2t at 0.001 second pre-arcing time. 3. Red Marking Character Code.

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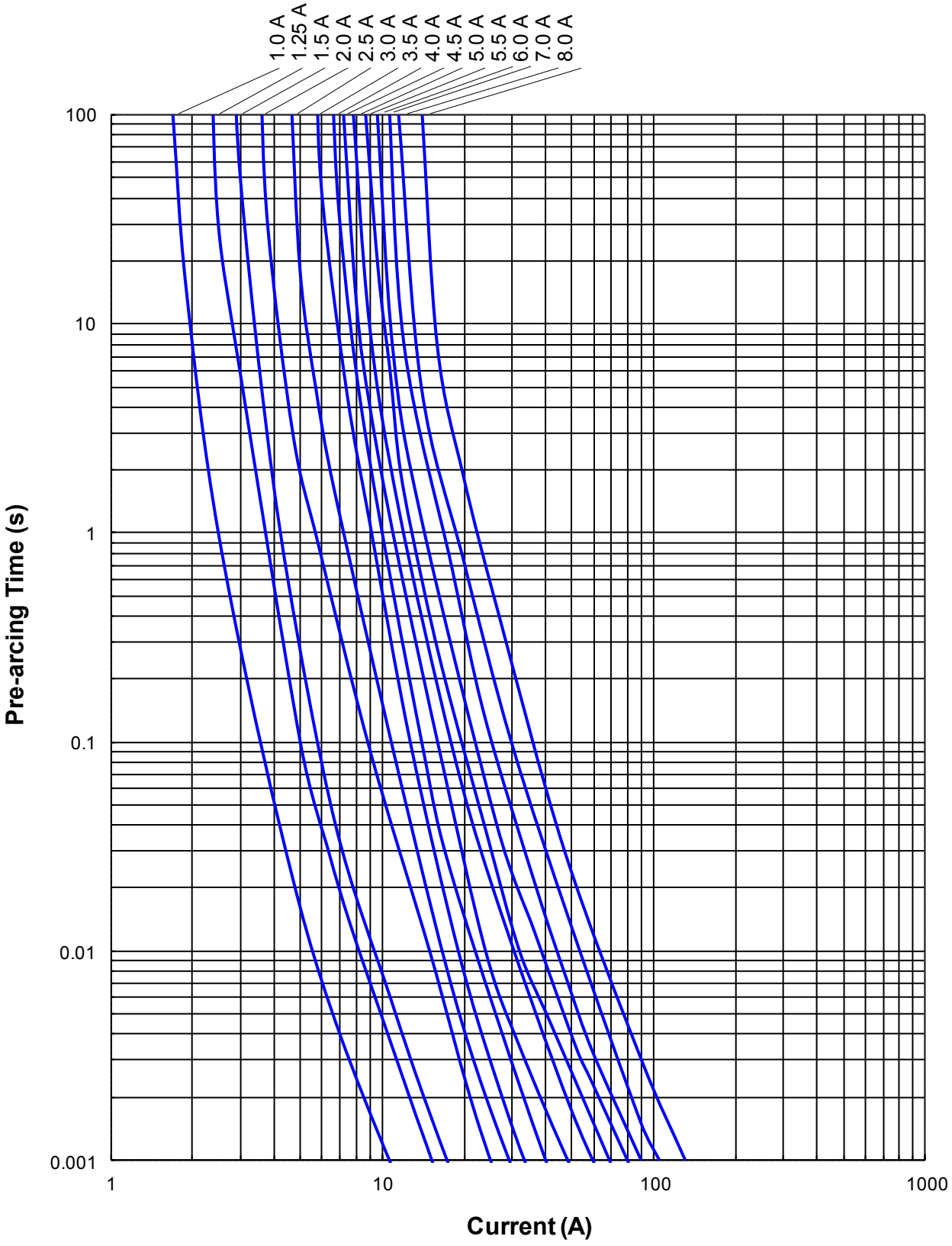
Average Pre-arcing Time Curves:



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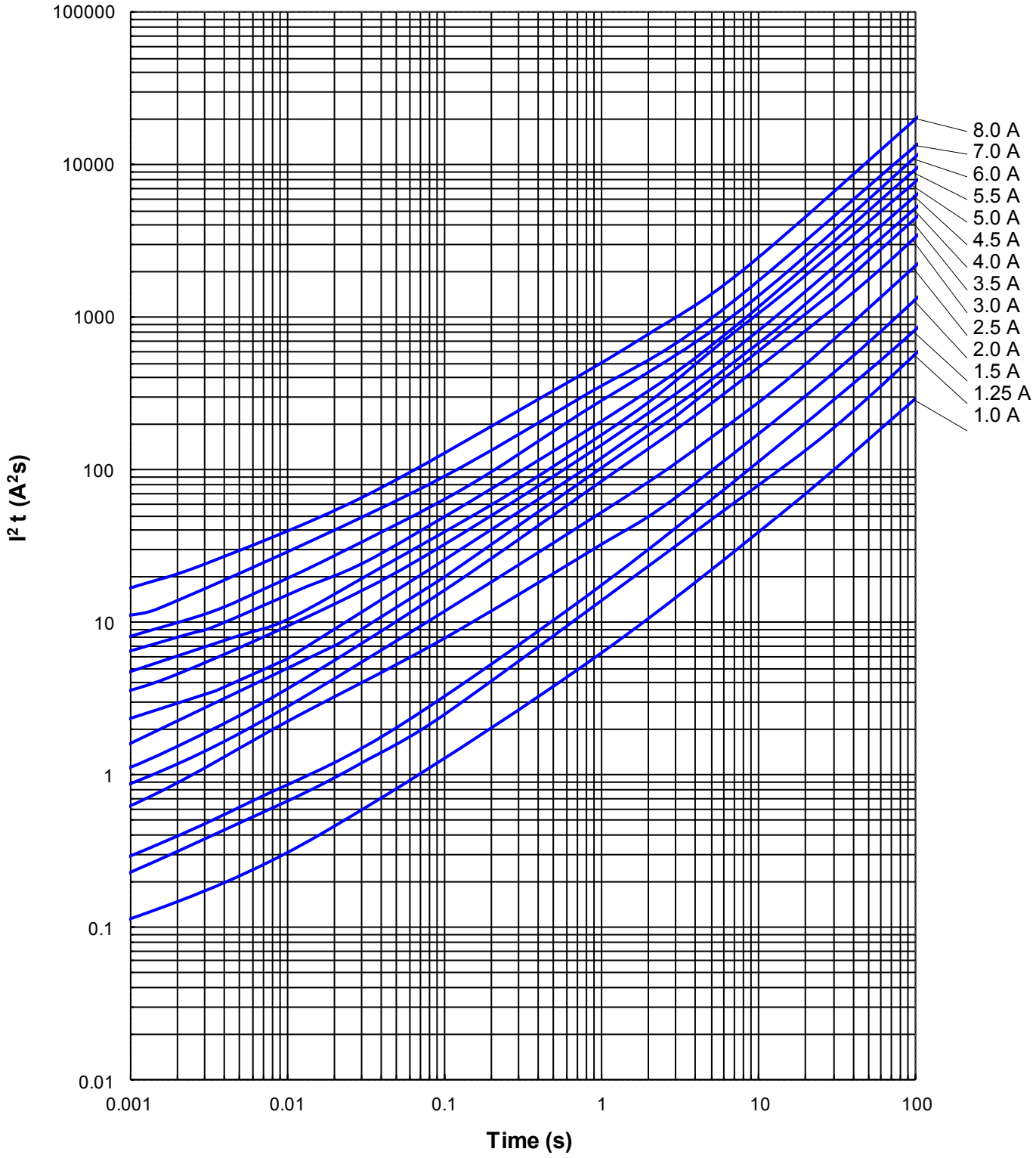
SB Series (Slow Blow), 1206 Size

Average I^2t vs. t Curves:



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AirMatrix® Surface Mount Fuses

Product Identification:

AF2 1.00 V125 T M
(1) (2) (3) (4) (5)

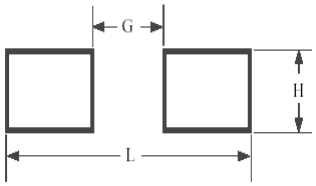
(1) Series Code: AF2
(2) Current Rating Code: 1.00—1.00A
(3) Voltage Rating Code: V125—125VDC
(4) Package Code: T - Tape & Reel, B - Bulk
(5) Marking Code: M - With Marking

AF 1206 F 2.00 T M
(1) (2) (3) (4) (5) (6)

(1) Series Code: AF—AF Series, MF—MF Series
(2) Size Code: Standard EIA Chip Sizes
(3) Time/Current Characteristic: F
(4) Current Rating: 2.00—2.00A
(5) Package Code: T - Tape & Reel, B - Bulk
(6) Marking Code: M - With Marking

Recommended Land Pattern:

	AF2		AF1206		MF2410		MF1210	
	Inch	mm	Inch	mm	Inch	mm	Inch	mm
L	0.338	8.60	0.173	4.40	0.338	8.60	0.170	4.40
G	0.118	3.00	0.059	1.50	0.118	3.00	0.070	1.70
H	0.124	3.15	0.071	1.80	0.110	2.80	0.110	2.70



Packaging:

Chip Size	Parts on 7 inch (178 mm) Reel
2410 (6125)	2,000
1210 (3225)	2,500
1206 (3216)	3,500

Storage:

The maximum ambient temperature shall not exceed 35°C . Storage temperatures higher than 35°C could result in the deformation of packaging materials.

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.

Sealed vacuum foil bags with desiccant should only be opened prior to use.

The products should not be stored in areas where harmful gases containing sulfur or chlorine are present.

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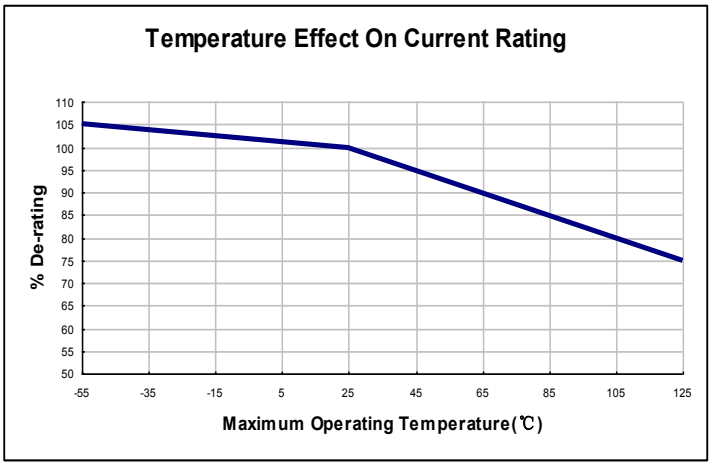
AirMatrix® Surface Mount Fuses

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 4 A. The current rating for fuse selected from the catalog shall be:
4 / 0.75 / 90% = 5.9 or 6.3 A.



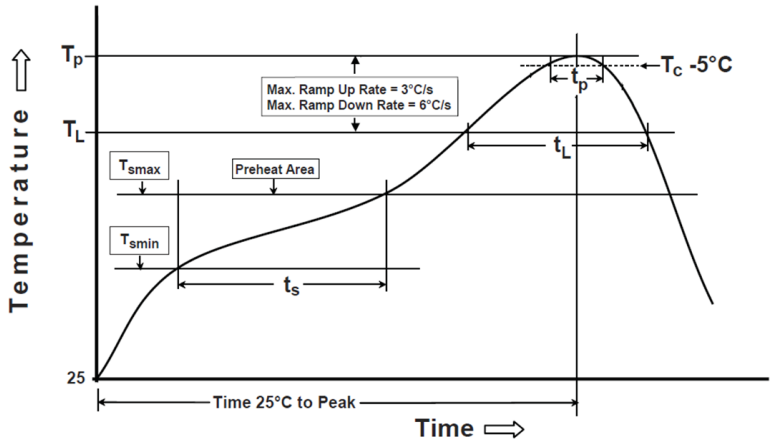
Environmental Tests:

Reliability Test	Test Condition and Requirement	Test Reference
Reflow & Bend	3 reflows at 245°C followed by a 2 mm bend, 20% DCR change max. (10% for ≤ 1 A), no mechanical damage	Refer to AEM QIQ034 ,QIQ048
Solderability	245°C, 5 seconds, new solder coverage 90% minimum	MIL-STD-202 Method 208
Soldering Heat Resistance	260°C, 10 seconds, 20% DCR change max. (10% for ≤ 1 A), new solder coverage 75% minimum	MIL-STD-202 Method 210
Life	25°C, 2000 hours, 80% rated current (75% for < 1 A), voltage drop change≤ ±20%	Refer to AEM QIQ106
Thermal Shock	-65°C to +125°C, 100 cycles, 10% DCR change max., no mechanical damage	MIL-STD-202 Method 107
Mechanical Vibration	5 – 3000 Hz, 0.4 inch double amplitude or 30 G peak, 10% DCR change max., no mechanical damage	MIL-STD-202 Method 204
Mechanical Shock	1500 G, 0.5 milliseconds, half-sine shocks, 10% DCR change max., no mechanical damage	MIL-STD-202 Method 213
Salt Spray	5% salt solution, 48 hour exposure, 10% DCR change max., no excessive corrosion	MIL-STD-202 Method 101
Moisture Resistance	10 cycles, 15% DCR change max., no excessive corrosion	MIL-STD-202 Method 106

AirMatrix® Surface Mount Fuses

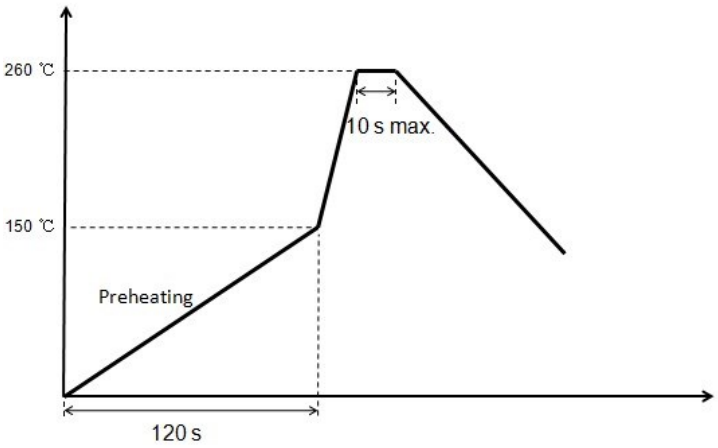
Soldering Temperature Profile:

* Recommended Temperature Profile for Reflow Soldering



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 Wave Soldering



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