AEM
Innovation to power your vision

Revision of Nov. 2024

AirMatrix® Surface Mount Fuses

AF Series, 1206 Size

Features:

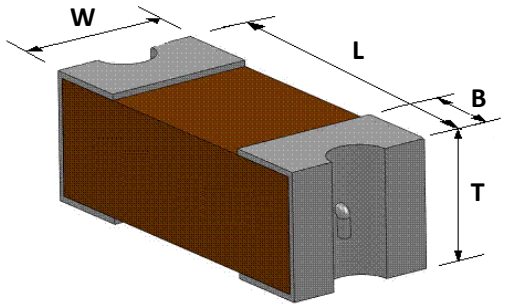
- Fast acting at 250% overload current level
- Excellent inrush current withstanding capability
- Extremely thin body for space saving
- Much safer with wire-in-air design
- Fiberglass enforced epoxy fuse body
- Copper termination with nickel and tin plating
- Operating temperature range: -55°C to +125 °C (with de-rating)
- 100% lead-free

Clearing Time Characteristics:

% of Current Rating	Clearing Time at 25°C	
	Min.	Max.
100%	4 hour	
250%		5 seconds

Shape and Dimensions:

Unit	Inch	mm
L	0.126 ± 0.008	3.20 ± 0.20
W	0.063 + 0.012 / -0.004	1.60 + 0.30 / -0.20
T	0.042 ± 0.006	1.08 ± 0.15
B	0.033 ± 0.012	0.85 ± 0.30



Application Fields:

- Notebook
- Backlight Driver
- DC/DC Converter
- Low voltage lighting power
- Automotive electronics
- Power adapter
- Panel
- Server
- Battery pack
- Medical Device

Agency Approval:

- Recognized Under the Components Program of Underwriters Laboratories. File Number: E232989
- TUV File Number: 50425087 (1.5-8A), 50425128 (10-15A)

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Ordering Information:

Part Number	Current Rating (A)	Marking (White)	Voltage Rating (Vdc)	Interrupting Rating	Nominal Cold DCR (Ω)[1]	Nominal I^2t (A^2s)	Agency Approval (TUV)
AF1206F1.50TM	1.50	G	65	50A@65Vdc	0.050	0.37	√
AF1206F1.60TM	1.60	T			0.043	0.52	√
AF1206F2.00TM	2.00	I			0.032	0.88	√
AF1206F2.50TM	2.50	J			0.028	1.1	√
AF1206F3.00TM	3.00	K			0.022	1.9	√
AF1206F3.15TM	3.15	V			0.020	2.2	√
AF1206F3.50TM	3.50	L			0.018	2.6	
AF1206F4.00TM	4.00	M			0.016	3.3	√
AF1206F5.00TM	5.00	N	32	50A@32Vdc	0.013	5.4	√
AF1206F6.30TM	6.30	O			0.010	8.9	√
AF1206F7.00TM	7.00	P			0.0092	10.4	
AF1206F8.00TM	8.00	R			0.0084	13.5	√
AF1206F10.0TM	10.0	Q			0.0050	11.2	√
AF1206F12.0TM	12.0	X			0.0041	15.0	
AF1206F15.0TM	15.0	Y			0.0035	24.5	√

1. Resistance is measured at ≤10% of rated current and 25℃ ambient.
2. Melting I^2t is calculated at 0.001 second pre-arcing time.

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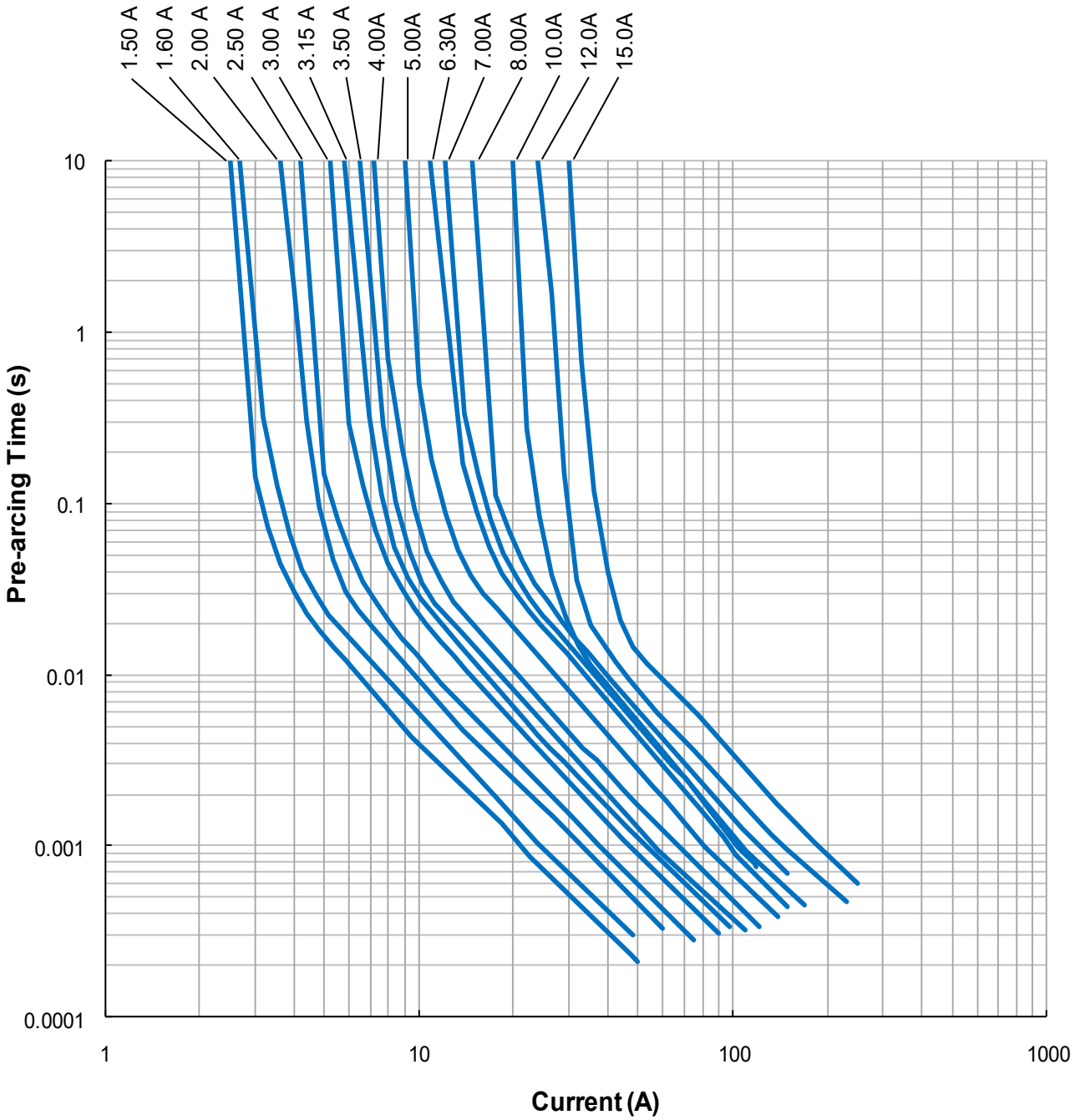
Average Pre-arcing Time Curves:



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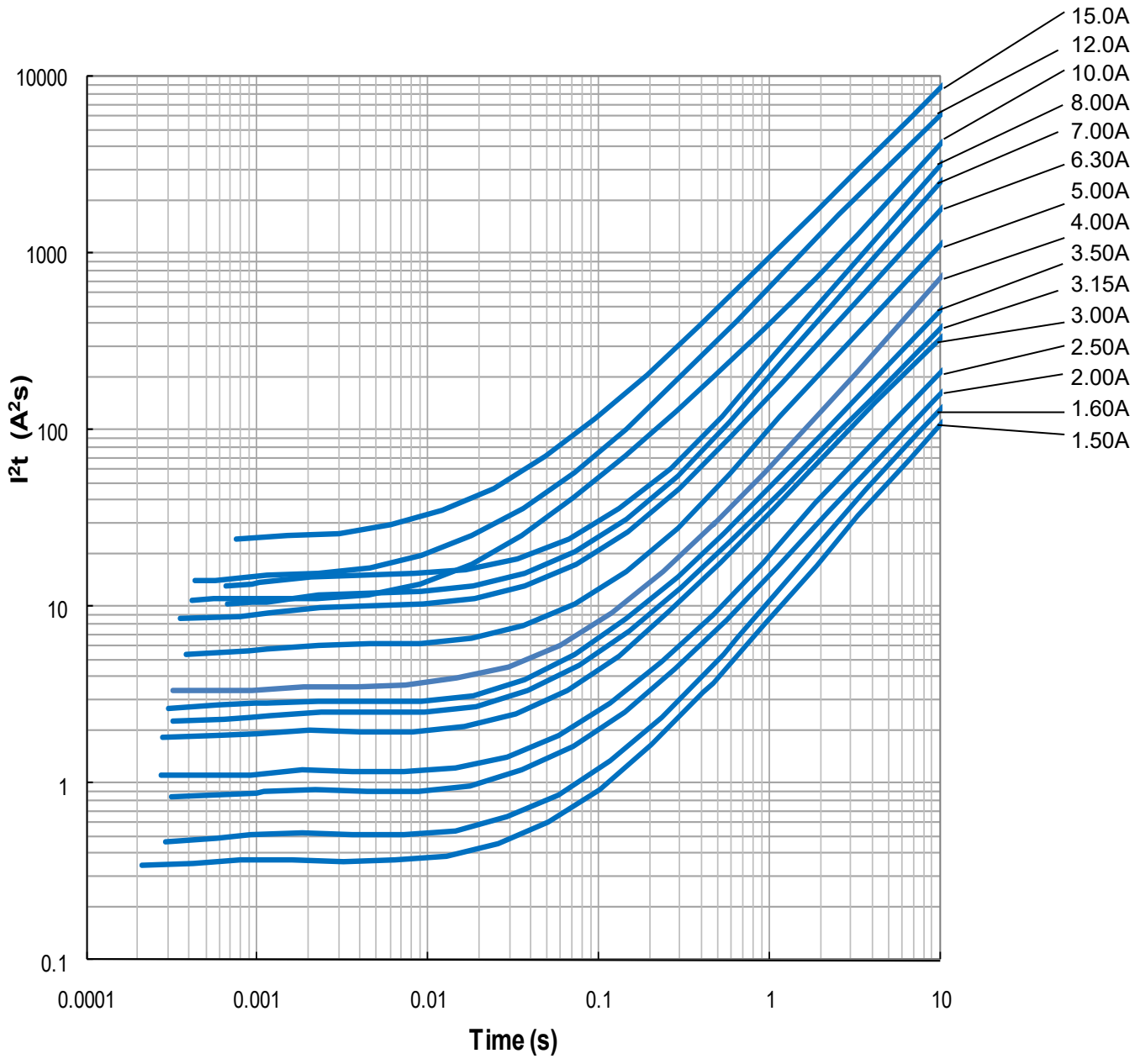
Average I^2t vs. t Curves:



AirMatrix® Surface Mount Fuses

Product Identification:

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

(1) Series Code: AF—AF 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

AF2 1.00 V125 T M -7
(1) (2) (3) (4) (5) (4)

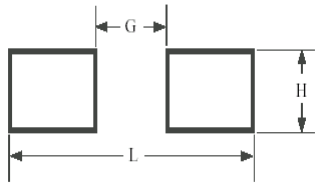
(1) Series Code: AF2
(2) Current Rating Code: 1.00—1.00A
(3) Voltage Rating Code: V125—125VDC
(4) Package Code: T - Tape & Reel, B - Bulk
No suffix after M: - 2K Tape & Reel
With suffix -7 after M: - 7K Tape & Reel
(5) Marking Code: M - With Marking

MF 2410 F 0.500 T M -7
(1) (2) (3) (4) (5) (6) (5)

(1) Series Code: MF—MF Series
(2) Size Code: Standard EIA Chip Sizes
(3) Time/Current Characteristic: F
(4) Current Rating: 0.500—0.5A
(5) Package Code: T - Tape & Reel, B - Bulk
No suffix after M: - 2K Tape & Reel
With suffix -7 after M: - 7K Tape & Reel
(6) Marketing Code: M-With Marking

Recommended Land Pattern:

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



Packaging:

Chip Size	Parts on 7 inch (178 mm) Reel	Parts on 13 inch (330 mm) Reel
2410 (6125)	2,000	7,000
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.

AirMatrix® Surface Mount Fuses

Fuse Selection and Temperature De-rating Guideline:

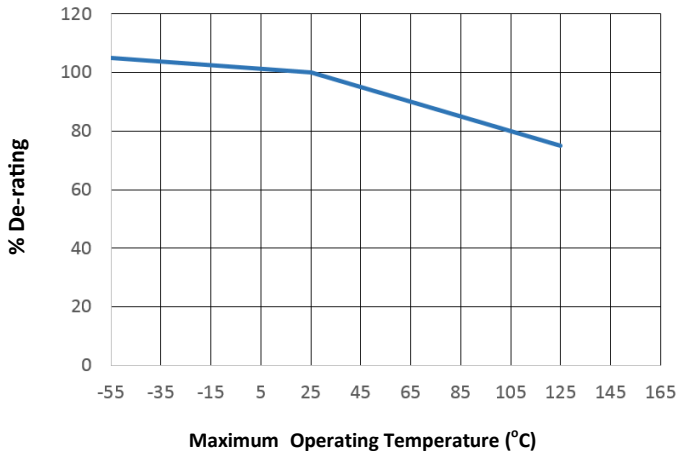
The ambient temperature affects the current carrying capacity of fuses. When a fuse is operating at a temperature higher than 25°C, the fuse shall be "de-rated".

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:

No.	Reliability Test	Test Condition and Requirement	Test Reference
1	Bend	2 mm bend, DCR change within ±20% (±10% for≤1A), no mechanical damage.	IEC60068-2-21
2	Solderability	245°C , 5 seconds, new solder coverage ≥95%	MIL-STD-202 Method 208
3	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
4	Life	80% rated current (75% for <1A), 2000 hours, ambient temperature (from +20°C to 30° C), voltage drop change within ±10%	Refer to AEM QIQ106
5	Thermal Shock	-65°C to +125°C, 100 cycles, DCR change ≤ ±10%, no mechanical damage	MIL-STD-202 Method 107
6	Mechanical Vibration	5 – 3000 Hz, 0.4 inch double amplitude or 30 G peak, DCR change ≤ ±10%, no mechanical damage	MIL-STD-202 Method 204
7	Mechanical Shock	1500 G, 0.5 milliseconds, half-sine shocks, DCR change ≤ ±10%, no mechanical damage	MIL-STD-202 Method 213
8	Salt Spray	5% salt solution, 48 hour exposure, DCR change ≤ ±10%, no excessive corrosion	MIL-STD-202 Method 101
9	Moisture Resistance	10 cycles, DCR change ≤ ±10%, no excessive corrosion	MIL-STD-202 Method 106

Moisture Sensitivity Level 1

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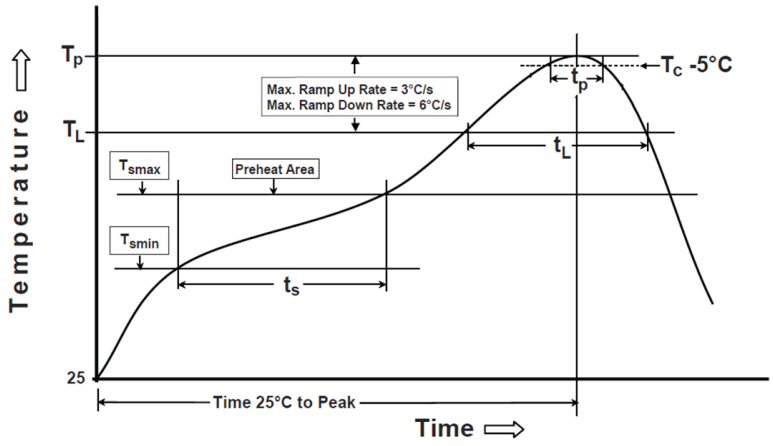
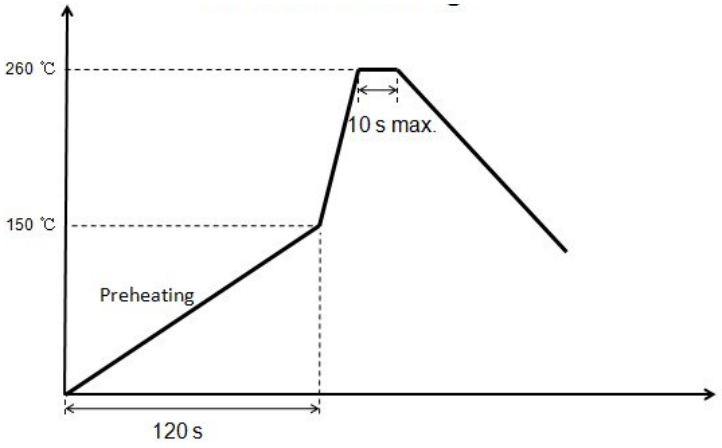
Soldering Temperature Profile:

* Recommended Temperature Profile for Reflow Soldering



Profile Feature	Pb-Free Assembly
Preheat/Soak	
Temperature Min (T_{smin})	150°C
Temperature Max(T_{smax})	200°C
Time(t_s) from (T_{smin} to T_{smax})	60~120 seconds
Ramp-uprate (T_L to T_p)	3°C/second max.
Liquidous temperature(T_L)	217°C
Time(t_L) maintained above T_L	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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