

AirMatrix[®] Surface Mount Fuses

MF2410 Series (Slow Blow, 2410 Size)



Features:

- Extremely small size with 250 V AC rating
- Surface mount fuses in AC applications
- Excellent inrush current withstanding capability
- Fiberglass enforced epoxy fuse body
- Copper termination with nickel and tin plating

Clearing Time Characteristics:

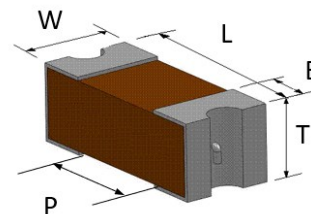
% of current rating	Clearing time at 25°C	
	Min.	Max.
125%	1 hour	-
200%	-	120 seconds
1000%	0.001 seconds	0.01 seconds

Shape and Dimensions:

Unit	Inch	mm
L	0.240 ± 0.006	6.10 ± 0.15
W	0.098 ± 0.006	2.49 ± 0.15
T	0.085 ± 0.008	2.16 ± 0.20
B	0.053 ± 0.015	1.35 ± 0.38
P	≥ 0.118	≥ 3.00

Applications:

- Power tools
- DC-DC convert
- Power adapter
- Panel & Server
- Battery pack
- Medical & Lighting
- Industrial equipment
- White goods



Agency Approval:

- Recognized Under the Components Program of Underwriters Laboratories. Certification #: UL-E232989
- CQC Certification #: CQC 11012065956
- KC Certification #: SU05038-12001/12002
- PSE Certification #: JD 50699437 (Current Rating ≥ 1.00A)
- VDE Certification #: 40034853

Ordering Information:

Part Number	Current Rating (A)	Voltage Rating (V AC)	Interrupting Ratings	Nominal Cold DCR (Ω) ¹	Voltage Drop Max. (mV) ²	Nominal I ² t (A ² s) ³	Marking ⁴
MF2410F0.500TM	0.50	250	100A @ 250V AC	0.206	166	0.11	C
MF2410F0.630TM	0.63	250		0.148	144	0.20	S
MF2410F0.800TM	0.80	250		0.109	139	0.35	H
MF2410F1.000TM	1.00	250		0.084	129	0.62	E
MF2410F1.250TM	1.25	250		0.065	128	1.00	F
MF2410F1.600TM	1.60	250		0.049	127	1.80	T
MF2410F2.000TM	2.00	250		0.038	123	3.00	I

1. Measured at ≤10% rated current and 25 °C ambient

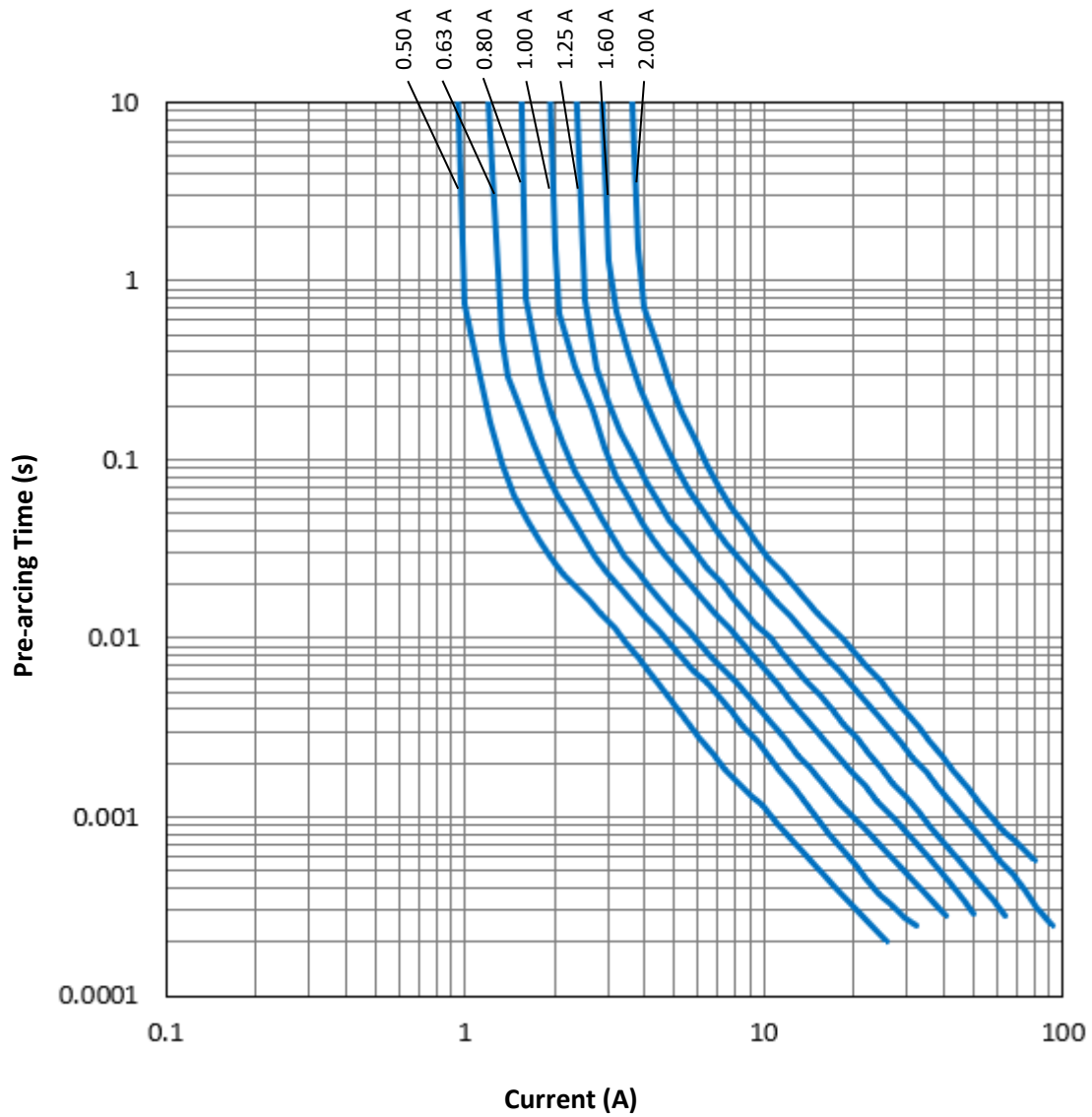
2. Voltage drop is measured at 100% of rated current.

3. Melting I²t at 0.001 second pre-arcing time.

4. Black marking current rating code.

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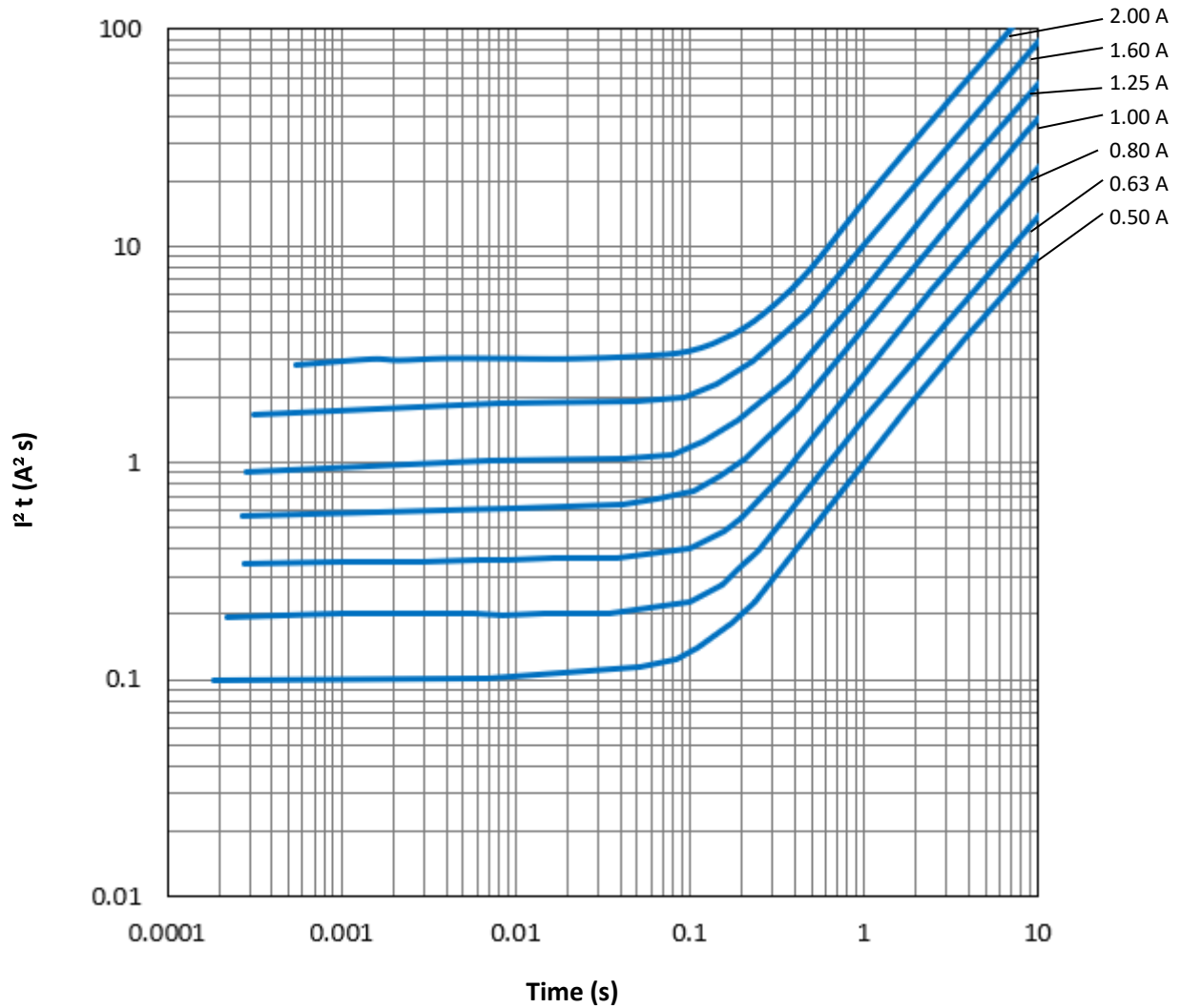
Average Pre-arcing Time Curves:



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Average I^2t vs. t Curves:

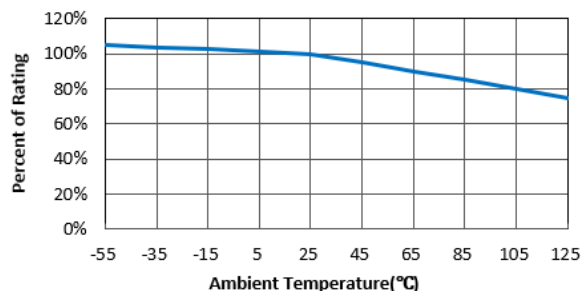


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Temperature De-rating:

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.



Operating Temperature Range:

- 55°C ~+125°C (with de-rating)

Product Identification:

MF 2410 F 0.500 T M -7

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

- Series Code:** MF Series
- Size Code:** L x W (inch), the first two digits - L (length), the last two digits - W (width)
- Characteristic Code:** F - Fuse
- Current Rating Code:** 0.500 - 0.50 A
- Package Code:** No suffix after M: - 2K Tape & Reel; With suffix -7 after M: - 7K Tape & Reel; B - Bulk
- Marking Code:** M - With marking

Reliability Tests:

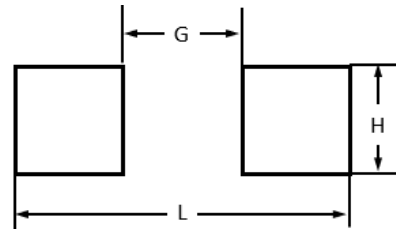
No.	Item	Condition	Criteria
1	Bend	2 mm bend	DCR change within $\pm 20\%$ ($\pm 10\%$ for $\leq 1A$), no mechanical damage
2	Solderability	245°C, 5 seconds	New solder coverage $\geq 95\%$
3	Soldering Heat Resistance	260°C, 10 seconds	DCR change within $\pm 20\%$ ($\pm 10\%$ for $\leq 1A$), new solder coverage 75% minimum, no mechanical damage
4	Terminal Strength	Gradually apply 1.8 kg force to the bottom of the part for 60 seconds	DCR change within $\pm 20\%$, no mechanical damage
5	Life	80% rated current (75% for $< 1A$), 2000 hours, ambient temperature +20°C to +30°C	Voltage drop change within $\pm 10\%$
6	Thermal Shock	-65°C to +125°C, 100 cycles	DCR change within $\pm 10\%$, no mechanical damage
7	Mechanical Vibration	5 – 3000 Hz, 0.4 inch double amplitude or 30 G peak	DCR change within $\pm 10\%$, no mechanical damage
8	Mechanical Shock	1500 G, 0.5 milliseconds, half-sine shocks	DCR change within $\pm 10\%$, no mechanical damage
9	Salt Spray	5% salt solution, 48 hours exposure	DCR change within $\pm 10\%$, no excessive corrosion
10	Moisture Resistance	10 cycles	DCR change within $\pm 10\%$, no excessive corrosion

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Recommended Land Pattern:

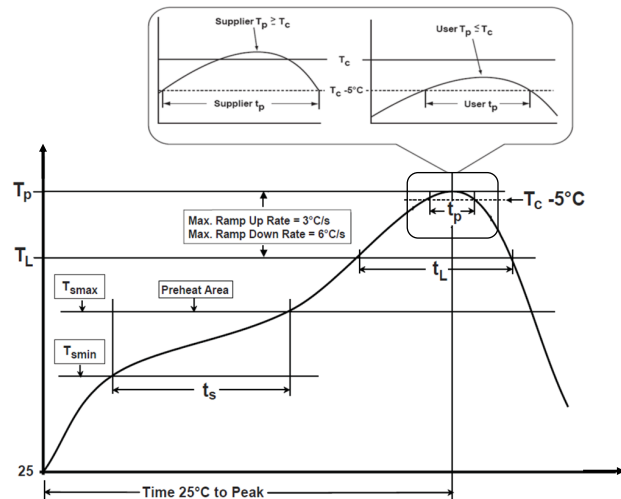
Chip Size	2410	Unit
L	0.338 (8.60)	Inch (mm)
G	0.118 (3.00)	Inch (mm)
H	0.110 (2.80)	Inch (mm)



Recommended Temperature Profile:

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-up rate (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 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	Parts on 13 inch (330 mm) Reel
2410	2,000	7,000

Disclaimer

Specifications are subject to change without notice. AEM products are designed for specific applications and should not be used for any purpose (including, without limitation, automotive, aerospace, medical, life-saving applications, or any other application which requires especially high reliability for the prevention of such defect as may directly cause damage to the third party's life, body or property) not expressly set forth in applicable AEM product documentation. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Warranties granted by AEM shall be deemed void for products used for any purpose not expressly set forth in applicable AEM product documentation. AEM shall not be liable for any claims or damages arising out of products used in applications not expressly intended by AEM as set forth in applicable AEM product documentation. The sale and use of AEM products is subject to AEM terms and conditions of sale. Please refer to AEM's website for updated catalog and terms and conditions of sale.



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