AEM
Innovation to power your vision

RoHS COMPLIANT HALOGEN FREE cULus

Revision of Nov. 2024

SolidMatrix® Surface Mount Fuses

HI Series (High Inrush), 1206 Size

Features:

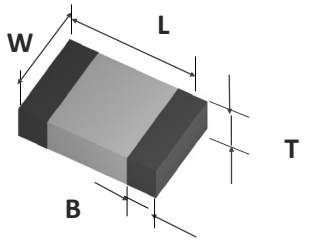
- High inrush current withstanding capability
- Ceramic Monolithic structure
- Silver fusing element and silver termination with nickel and tin plating
- Symmetrical design with marking on both sides (optional)
- Operating temperature range: -55°C to +150°C (with de-rating)

Clearing Time Characteristics:

% of Current Rating	Clearing time at 25°C	
100%	4 hours min.	
200% (1.0 A -8.0A)	1 second min.	60 seconds max.
350% (0.5 A -0.75 A)		5 seconds max.
1000% (0.5 A -5.0 A)	0.0002 seconds min.	0.02 seconds max.
1000% (6.0 A -8.0 A)	0.0002 seconds min.	0.04 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.

Applications:

- Power tools
- DC-DC convert
- Display
- PC & NB
- Server
- Battery pack
- Set top box

Ordering Information:

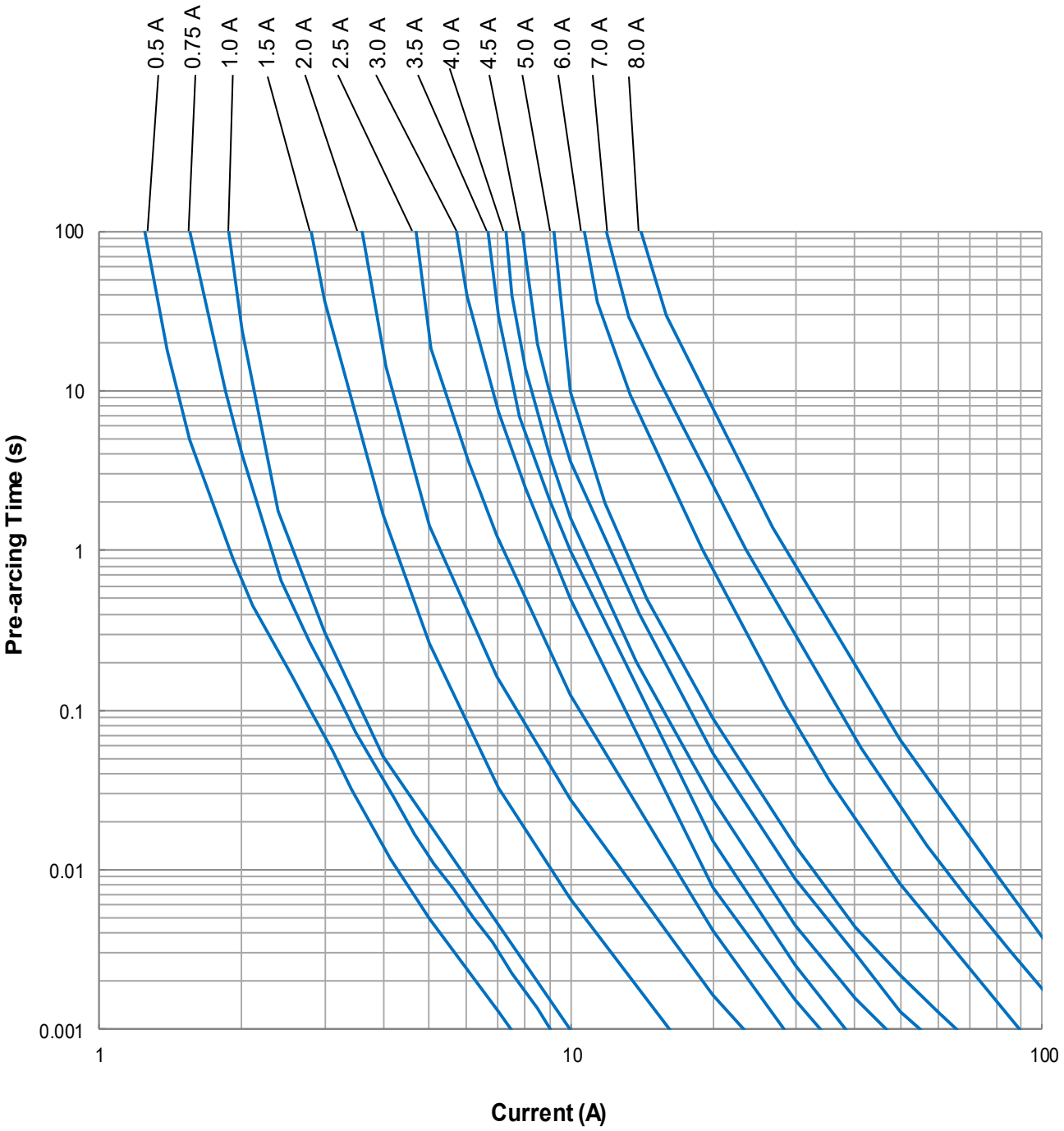
Part Number	Current Rating (A)	Voltage Rating (Vdc)	Interrupting Ratings	Nominal Cold DCR (Ω)[1]	Nominal I^2t $(A^2s)^2$	Marking Code[3]
F1206HI0500V065TM	0.5	65	50A at rated voltages	1.000	0.035	C
F1206HI0750V065TM	0.75	65		0.420	0.10	D
F1206HI1000V063TM	1.0	63		0.340	0.11	E
F1206HI1500V063TM	1.5	63		0.150	0.33	G
F1206HI2000V063TM	2.0	63		0.090	0.80	I
F1206HI2500V032TM	2.5	32		0.065	1.19	J
F1206HI3000V032TM	3.0	32		0.035	1.35	K
F1206HI3500V032TM	3.5	32		0.029	1.84	L
F1206HI4000V032TM	4.0	32		0.023	2.74	M
F1206HI4500V032TM	4.5	32		0.021	3.20	T
F1206HI5000V032TM	5.0	32		0.017	5.50	N
F1206HI6000V024TM	6.0	24	80A at rated voltage	0.013	12.5	O
F1206HI7000V024TM	7.0	24		0.010	30.0	P
F1206HI8000V024TM	8.0	24		0.009	60.0	R

1. Measured at ≤ 10% rated current and 25°C ambient. 2. Melting I^2t at 1000% of current rating. 3. Green Marking Character Code.

SolidMatrix® Surface Mount Fuses

HI Series (High Inrush), 1206 Size

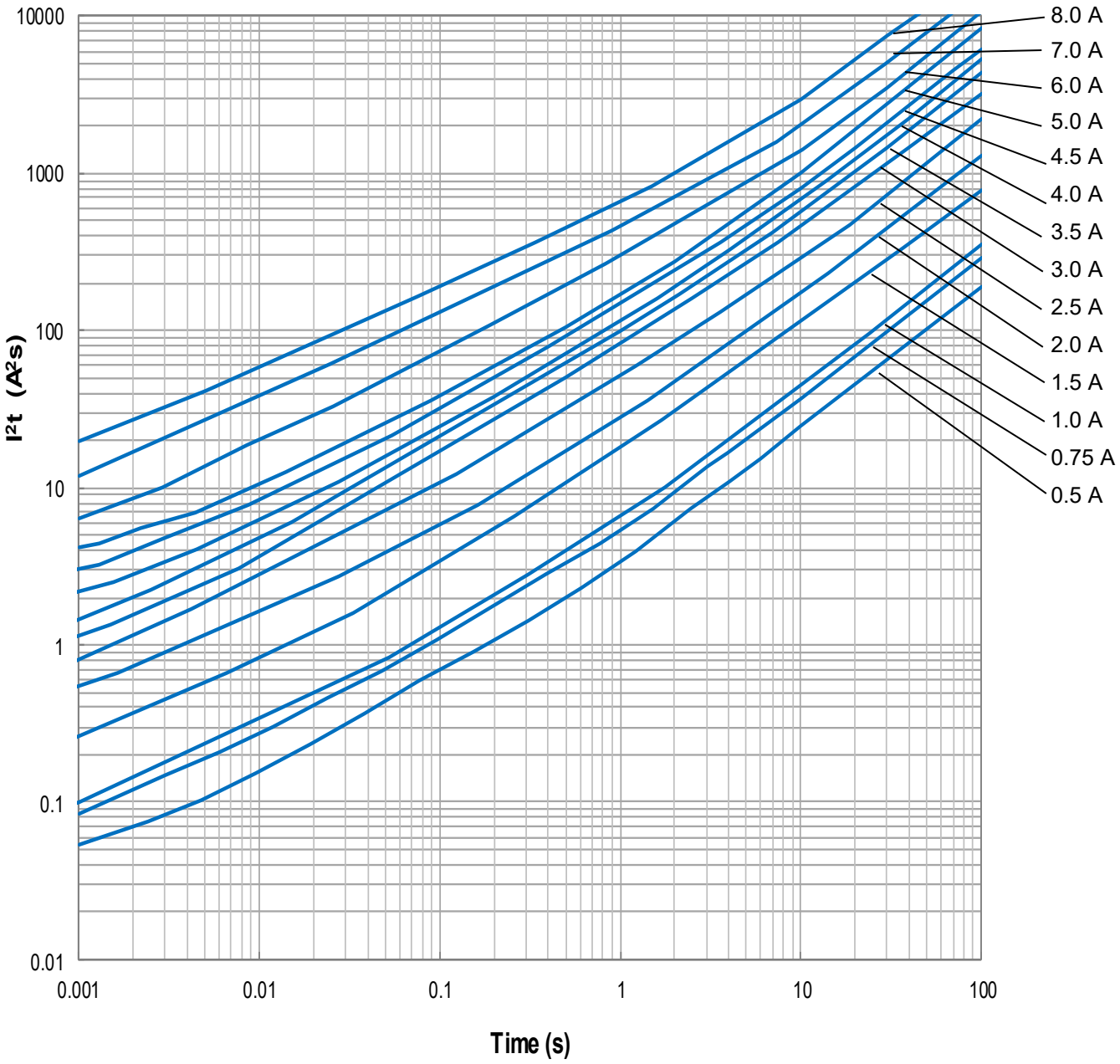
Average Pre-arcing Time Curves:



SolidMatrix® Surface Mount Fuses

HI Series (High Inrush), 1206 Size

Average I^2t vs. t Curves:



SolidMatrix® Surface Mount Fuses

Product Identification:

F 0603 FA 1000 V032 T M
(1) (2) (3) (4) (5) (6) (7)

(1) Product Code: F—Chip Fuse

(2) Size Code: Standard EIA Chip Sizes

(3) Series Code: FA - Fast Acting, SB - Slow Blow,
HI - High Inrush, FF - Very Fast Acting, HB - High Current

(4) Current Rating Code: 1000 - 1000 mA (For HB, 10 - 10A)

(5) Voltage Rating Code: V032 - 32 VDC

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

(7) Marking Code: M - With Marking

F 1206 HC 20A0 T M
(1) (2) (3) (4) (5) (6)

(1) Product Code: F—Chip Fuse

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

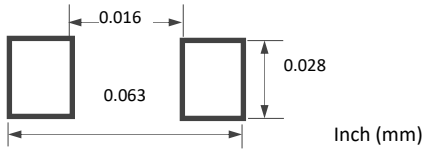
(3) Series Code: HC Series

(4) Current Rating Code: 20A0—20.0A

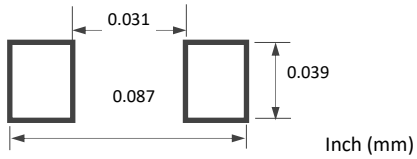
(5) Package Code: T - Tape & Reel, B - Bulk

(6) Marking Code: M - With Marking

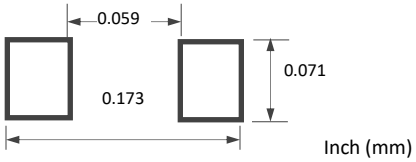
Recommended Land Pattern:



0402 Size



0603 Size



1206 Size

Environmental Tests:

No.	Test	Test Condition and Requirement	Test reference
1	Soldering heat resistance	DCR change ≤ ±10%. No mechanical damage One dip at 260°C for 60 seconds	MIL-STD-202 Method 210
2	Solderability	245°C , 5 seconds, new solder coverage ≥95%	MIL-STD-202 Method 208
3	Thermal shock	DCR change ≤ ±10%. No mechanical damage 100 cycles between -65°C and +125° C	MIL-STD-202 Method 107
4	Moisture resistance	10 cycles, DCR change ≤ ±10%, no excessive corrosion	MIL-STD-202 Method 106
5	Salt spray	DCR change ≤ ±10%. No excessive corrosion 48 hour exposure	MIL-STD-202 Method 101
6	Mechanical vibration	DCR change ≤ ±10%. No mechanical damage. 0.4 ” D.A. or 30 G between 5 – 3000 Hz	MIL-STD-202 Method 204
7	Mechanical shock	DCR change ≤ ±10%. No mechanical damage. 1500 G, 0.5 ms, half-sine shocks	MIL-STD-202 Method 213
8	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

Moisture Sensitivity Level 1

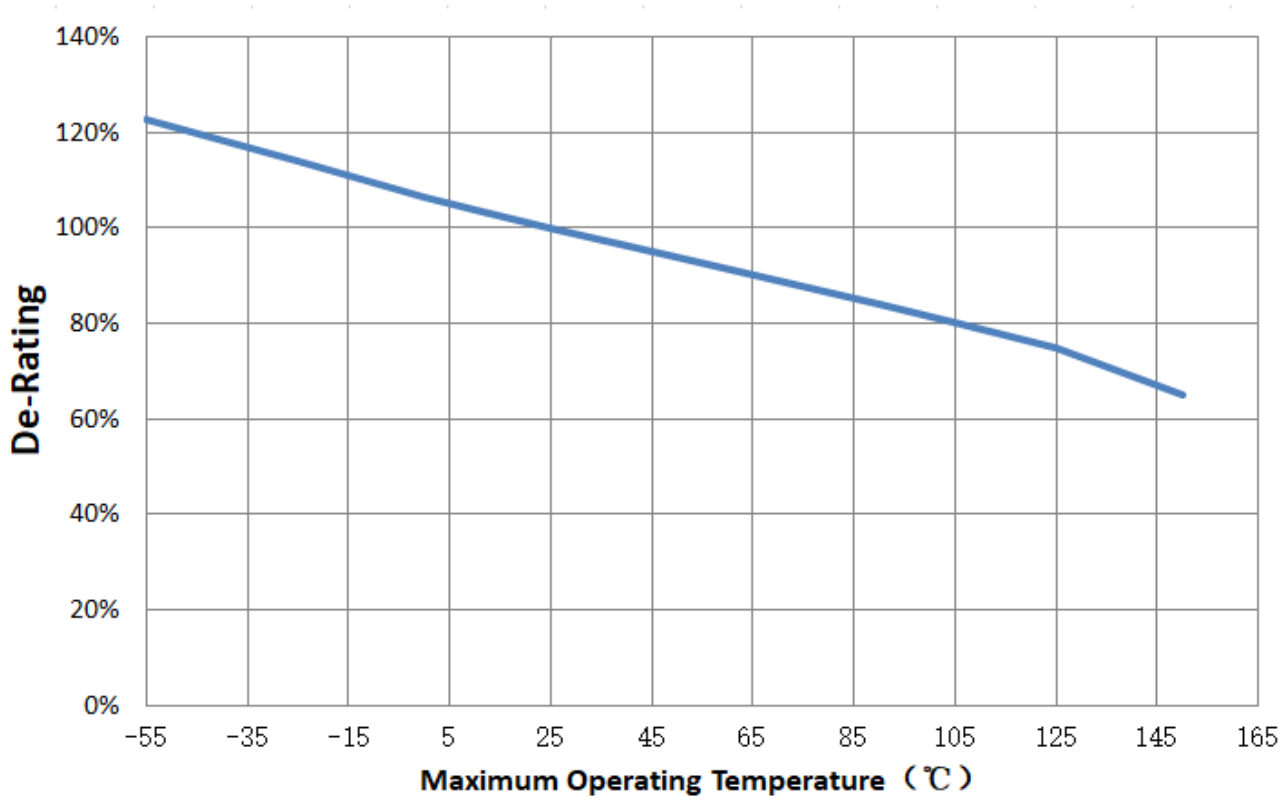
SolidMatrix® Surface Mount Fuses

Electrical Specification:

Clearing Time Characteristics:
Same as specified on the Short Form Data Sheet
Insulation Resistance after Opening:
20,000 ohms typical when cleared with rated voltage applied. Fuse clearing under low voltage conditions may result in lower after clearing insulation resistance values. (Note: Under normal fault conditions (low or rated voltage conditions), AEM SolidMatrix fuses provide sufficient after clearing insulation resistance values for circuit protection.)
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 in this catalog.

Fuse Selection and Temperature De-rating Guideline:

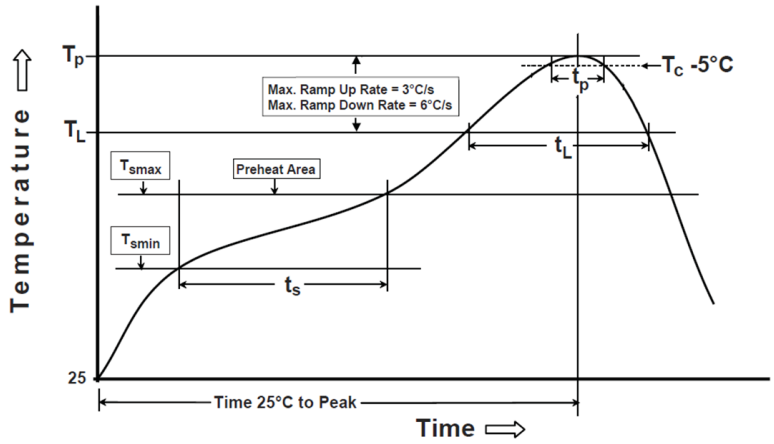
The ambient temperature affects the current carrying capacity of fuses. When a fuse is operating at a temperature higher than 25°C, the fuse shall be "de-rated".
To select a fuse from the catalog, the following rule may be followed:
Catalog Fuse Current Rating = Nominal Operating Current / 0.75 / % De-rating 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 A. Specifications and descriptions in this literature are as accurate as known at the time of publish, but are subject to change without notice.



SolidMatrix® Surface Mount Fuses

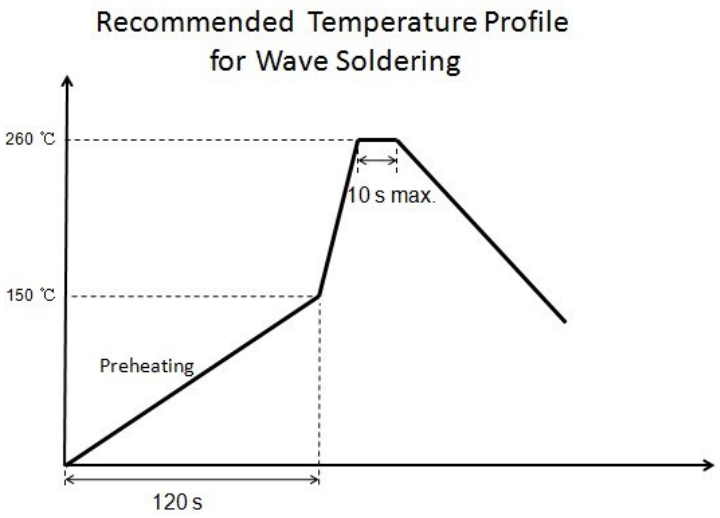
Soldering Temperature Profile:

* 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



Notice: Wave Soldering is suitable for 1206 and 0603 size.

Packaging:

Chip Size	Parts on 7 inch (178 mm) Reel
0402 (1005)	10,000
0603 (1608)	4,000
0603FF (1608)	6,000
1206 (3216)	3,000

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.

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