



**AEM**科技(苏州)股份有限公司  
AEM Components (Suzhou) Co., Ltd

## Product Specification

SolidMatrix® Surface Mount Fuses FA Series 0603 Size

Part Number : F0603FA1000V032T

[www.aemchina.com](http://www.aemchina.com)

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## 1 Operating Temperature Range

-55°C ~ +150°C

## 2 Ratings

AEM Part Number	Current Rating (A)	Voltage Rating (VDC)	Nominal Cold DCR ( $\Omega$ ) <sup>1</sup>	DCR Min ( $\Omega$ )	DCR Max ( $\Omega$ )	Nominal I <sup>2</sup> t (A <sup>2</sup> s) <sup>2</sup>
F0603FA1000V032T	1.0	32	0.147	0.103	0.191	0.013

1. Measured at  $\leq 10\%$  rated current and 25°C ambient..

2. Melting I<sup>2</sup>t at 0.001 second pre-arcing time.

## 3 Clear-Time Characteristics:

% of current rating	Clear-time at 25 °C
100%	4 hours ( min )
250%	5 seconds ( max )
400%	0.05 seconds ( max )

## 4 Interrupting Ratings:

1.00A      50A at rated voltage

## 5 Marking(Optional):

Without marking

## 6 Agency Approval:

Recognized Under the Components Program of Underwriters Laboratories.

File Number: E232989

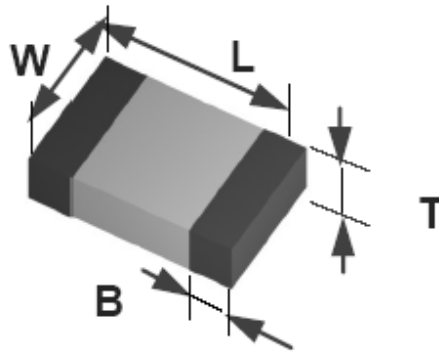
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## 7 Shape and Dimensions: Inch (mm)



Size	L	W	T	B
0603 (1608)	0.063±0.006 (1.60±0.15)	0.031±0.006 (0.80±0.15)	0.031±0.006 (0.80±0.15)	0.014±0.006 (0.36±0.15)

## 8 Product Identification

F 0603 FA 1000 V032 T

(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: FA Series

(4) Current rating code: 1000 - 1000 mA

(5) Voltage rating code: V032 - 32 VDC

(6) Package code:

T - Tape & Reel

B - Bulk

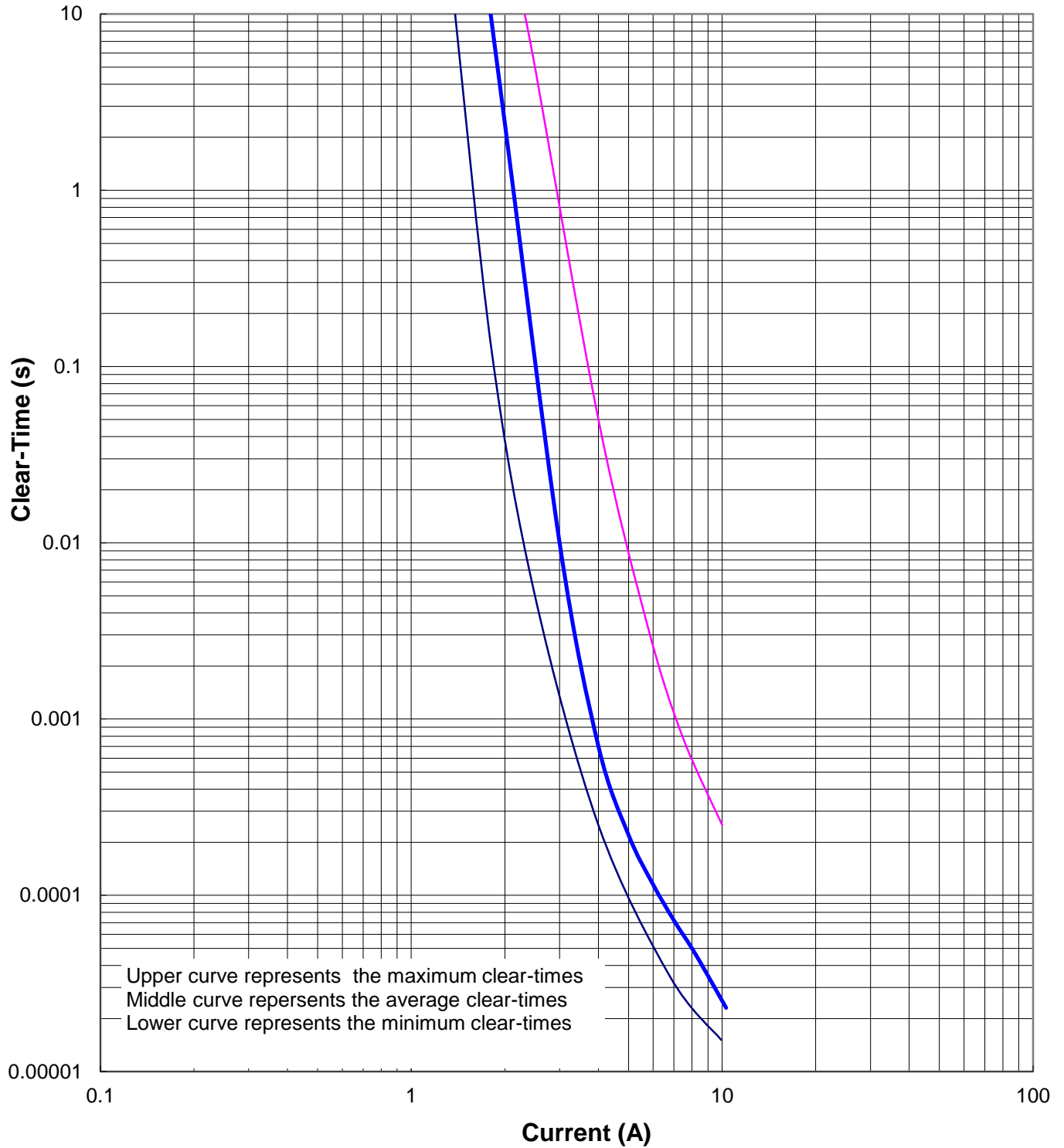
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## 9 Clear Time Curves:



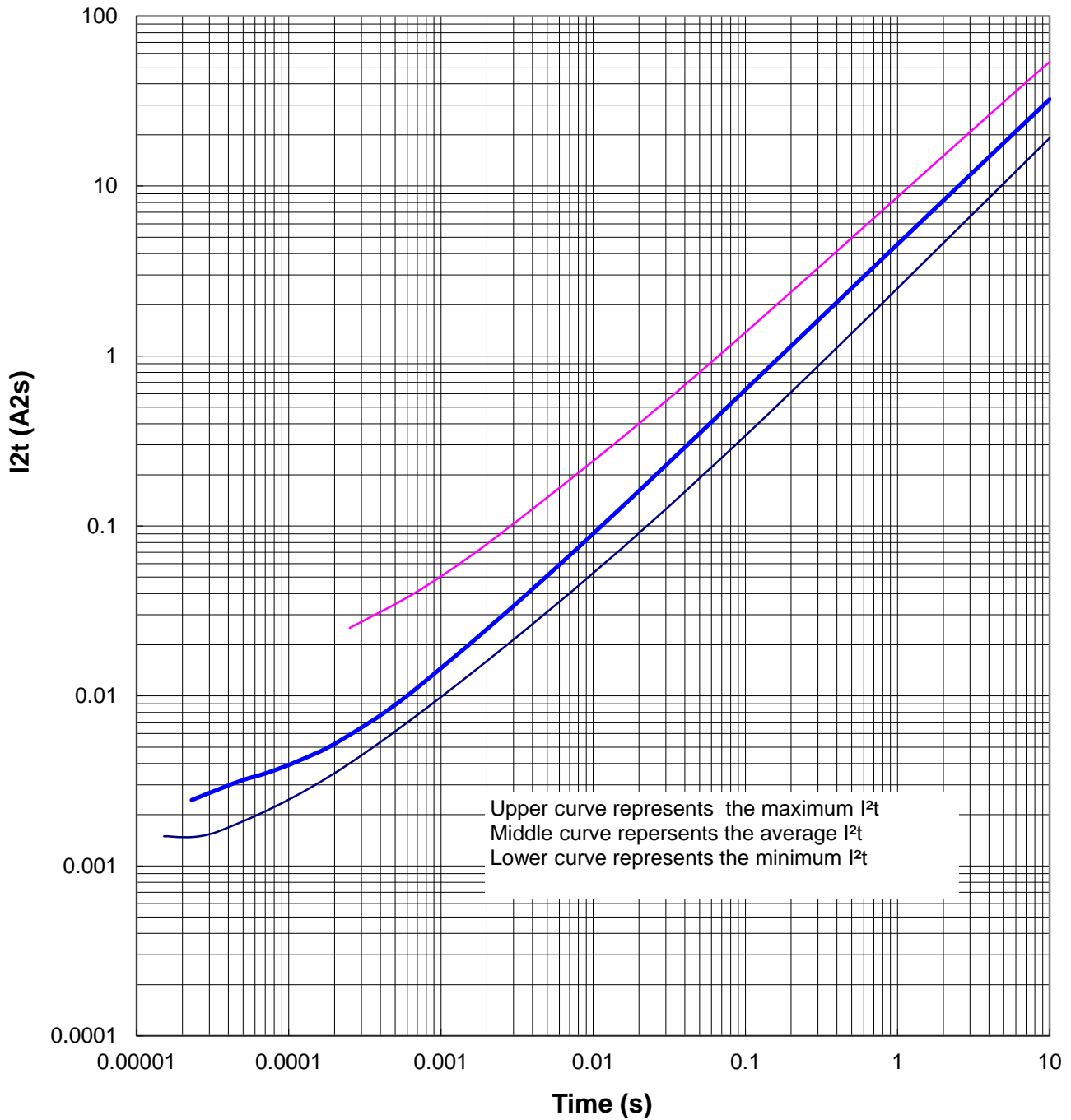
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## 10 I<sup>2</sup>t vs .t Curves:



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## 11 Features

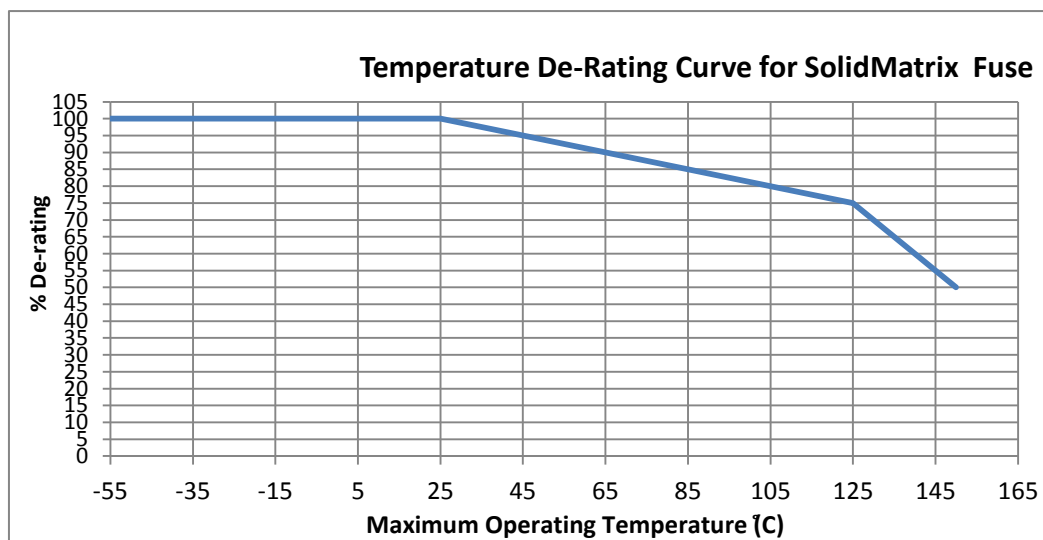
- 11.1 Multilayer monolithic structure with glass ceramic body and silver fusing element
- 11.2 Silver termination with nickel and solder plating (lead free), providing excellent solderability
- 11.3 Compatible with both wave and reflow soldering processes

## 12 Typical Applications

- 12.1 Consumer Electronics, e.g. CD-/LD-Disc drives, portable sets (drives)
- 12.2 Communication Technology, e.g. ISDN-line card protection, PCM-cards, mobile phones tuner input, satellite receivers, cards in GSM-base stations
- 12.3 Data-Processing, e.g. disc drives, keyboard/mouse ports, LAN-/PC-cards, modems
- 12.4 Measurement and Control Technology, e.g. communication ports, measurement inputs/probes/sensors, analysis units, PLCs
- 12.5 Medical Technology, e.g. communication ports, measurement in & out probes
- 12.6 Power Supply Technology, e.g. low voltage section of power supplies/chargers

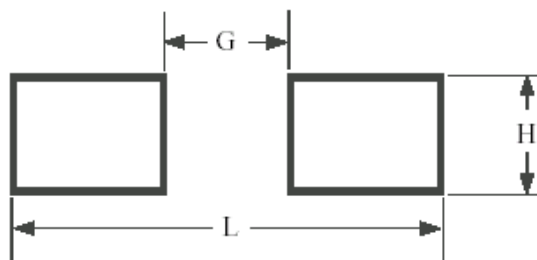
## 13 Temperature De-rating Guideline

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” according to the de-rating curve.



## 14 Recommended PC Board Land Pattern

Chip Size	0603 (1608)
L INCH (mm)	0.087 (2.20)
G INCH (mm)	0.031 (0.80)
H INCH (mm)	0.039 (1.00)



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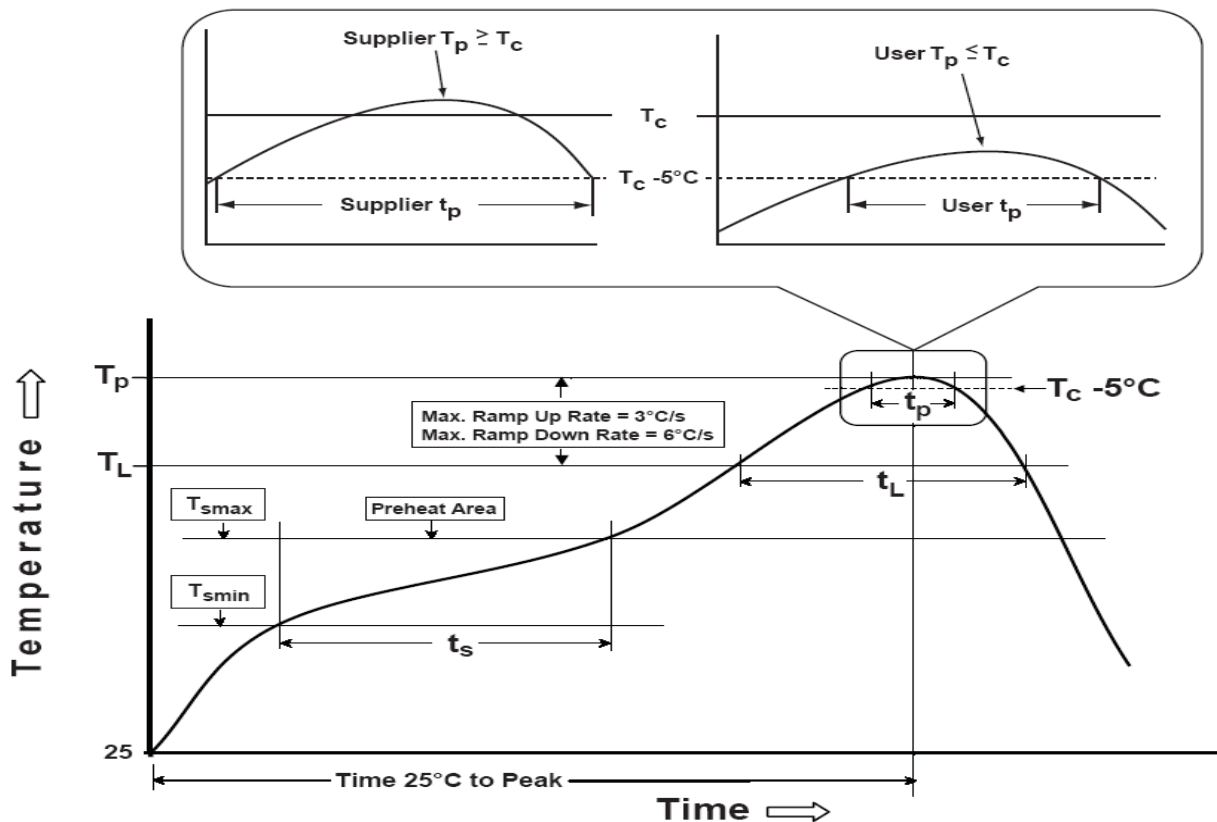
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## 15 Recommended Temperature Profile for Reflow Soldering

Profile Feature	Pb-Free Assembly
<b>Preheat/Soak</b>	
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 ( $T_c$ ),see Figure5-1.	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 auser	



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.

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## 16 Special Measuring Equipment

### 16.1 Clear Time

Clear time is measured with clear time tester.

### 16.2 DC Resistance

DC resistance is measured with Keithley 580/Keithley 2010.

### 16.3 Interrupting Capability

Interrupting capability is measured with short circuit tester.

## 17 Reliability Tests

Reliability Test	Test Condition and Requirement
Bend	2 mm bend ,DCR change within $\pm 20\%$ . ( $\pm 10\%$ for $\leq 1A$ ), no mechanical damage.
Solderability	245°C, 5 seconds, new solder coverage $\geq 95\%$ .
Soldering Heat Resistance	260°C, 60seconds, DCR change within $\pm 10\%$ ,new solder coverage 75% minimum. no mechanical damage.
Terminal Strength	Gradually apply 0.5 kg force to the side of the part for 60 seconds, DCR change within $\pm 10\%$ . no mechanical damage.
Life	80% rated current (75% for $< 1A$ ), 2000 hours, ambient temperature +20°C to 30°C, voltage drop change within $\pm 10\%$ .
Thermal Shock	-65°C to +150°C, 100 cycles, DCR change within $\pm 10\%$ . no mechanical damage.
Mechanical Vibration	5 – 3000 Hz, 0.4 inch double amplitude or 30 G peak, DCR change within $\pm 10\%$ .no mechanical damage.
Mechanical Shock	1500 G, 0.5 milliseconds, half-sine shocks, DCR change within $\pm 10\%$ . no mechanical damage.
Salt Spray	5% salt solution, 48 hour exposure, DCR change within $\pm 10\%$ . no excessive corrosion.
Moisture Resistance	10 cycles, DCR change within $\pm 10\%$ . no excessive corrosion.

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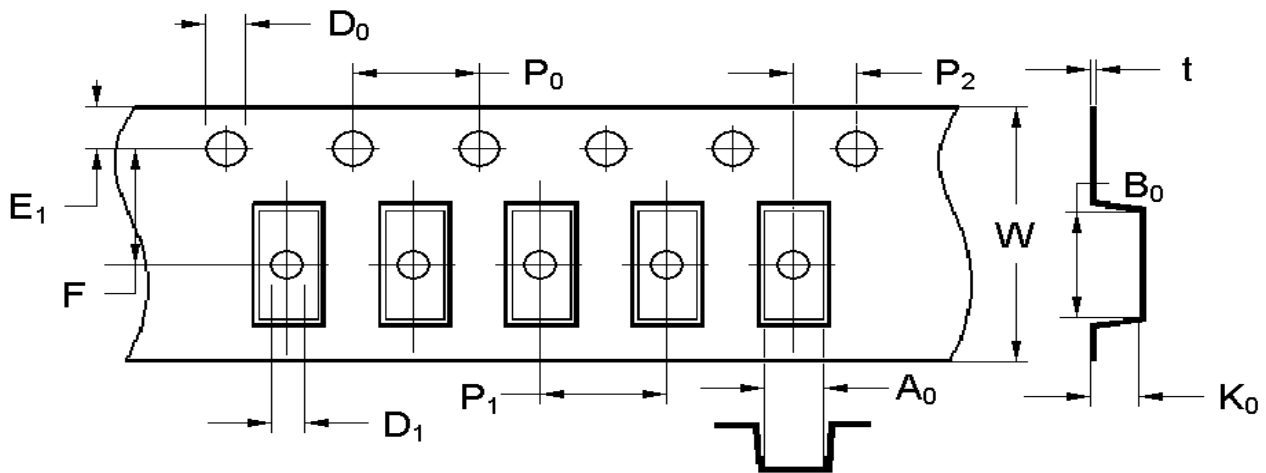
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## 18 Packaging

18.1 Surface mount chip fuses are provided on tape-and-reel for use in pick-and-place machines or in bulk for special applications. The reel size is 7 inches.

18.2 Tape Dimensions: Inch (mm)



Size	Ao	Bo	Ko	Type
0603 (1608)	$0.039 \pm 0.004$ ( $1.00 \pm 0.10$ )	$0.071 \pm 0.004$ ( $1.80 \pm 0.10$ )	$0.037 \pm 0.003$ ( $0.95 \pm 0.08$ )	Paper

E1	F	W	P1	P0	P2	D0	D1	t
$0.069 \pm 0.004$ ( $1.75 \pm 0.10$ )	$0.138 \pm 0.002$ ( $3.50 \pm 0.05$ )	$0.315 \pm 0.008$ ( $8.00 \pm 0.20$ )	$0.157 \pm 0.004$ ( $4.00 \pm 0.10$ )	$0.157 \pm 0.004$ ( $4.00 \pm 0.10$ )	$0.079 \pm 0.002$ ( $2.00 \pm 0.05$ )	$0.059 + 0.004/-0.00$ ( $1.50 + 0.10/-0.00$ )	N/A	N/A

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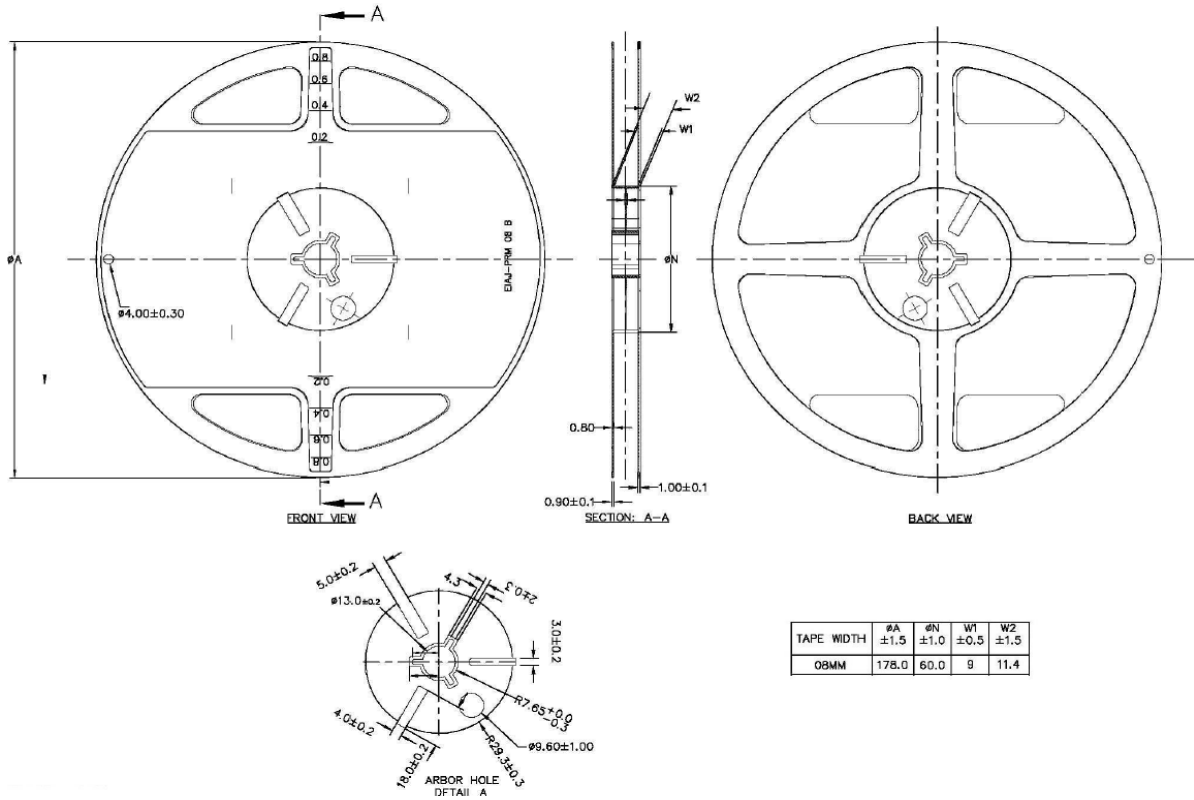
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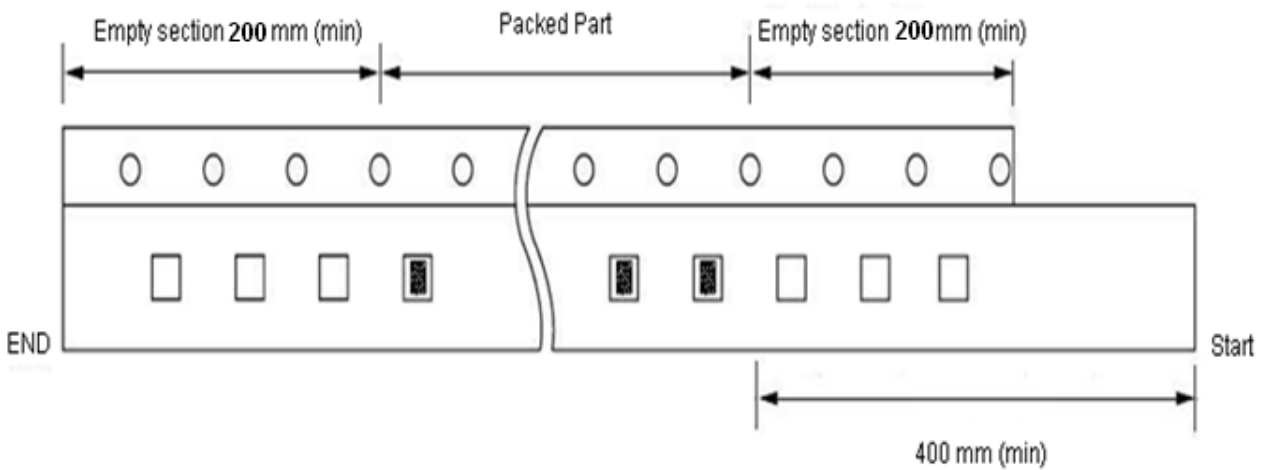
## 18.3 Quantity Per Reel

Chip Size	Parts on 7 inch (178 mm) Reel
0603 (1608)	4,000

## 19 Reel dimensions



## 20 Taping Size



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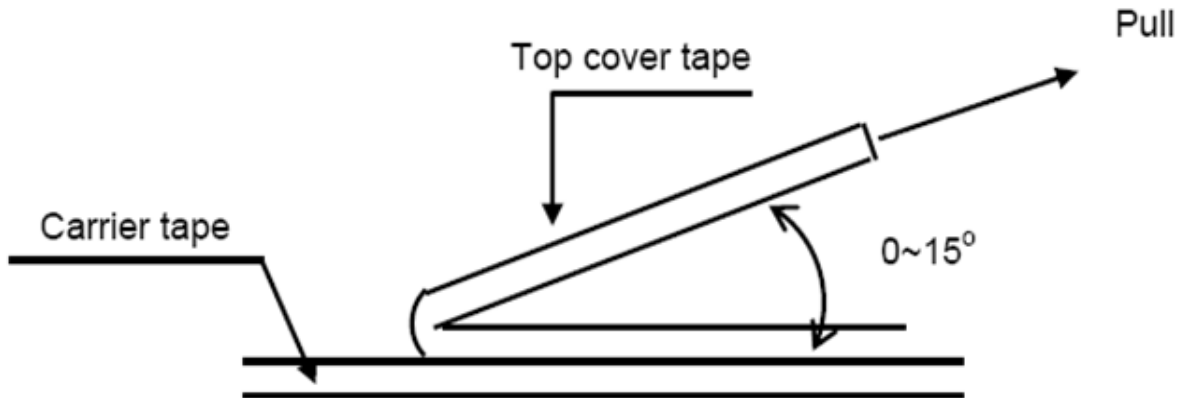
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**21 Peeling off of Cover Tape**

10g ≤ Peel off force ≤ 100g




**22 Each reel will be labeled (label sample)**






**RoHS**




**UL US**  
AEM China  
UL file# E232989


AEM COMPONENTS CO., LTD.




AEM P/N: F0603SB8000V032T

Rating: 8A 32VDC

QTY:  4000 PCS

LOT #  F1573229



DATE CODE

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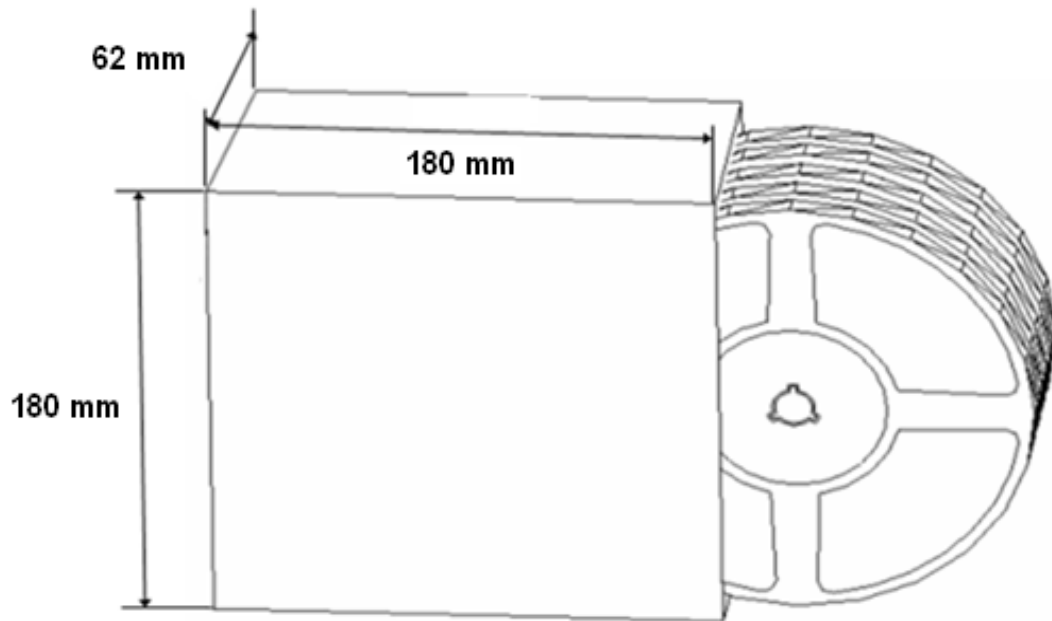
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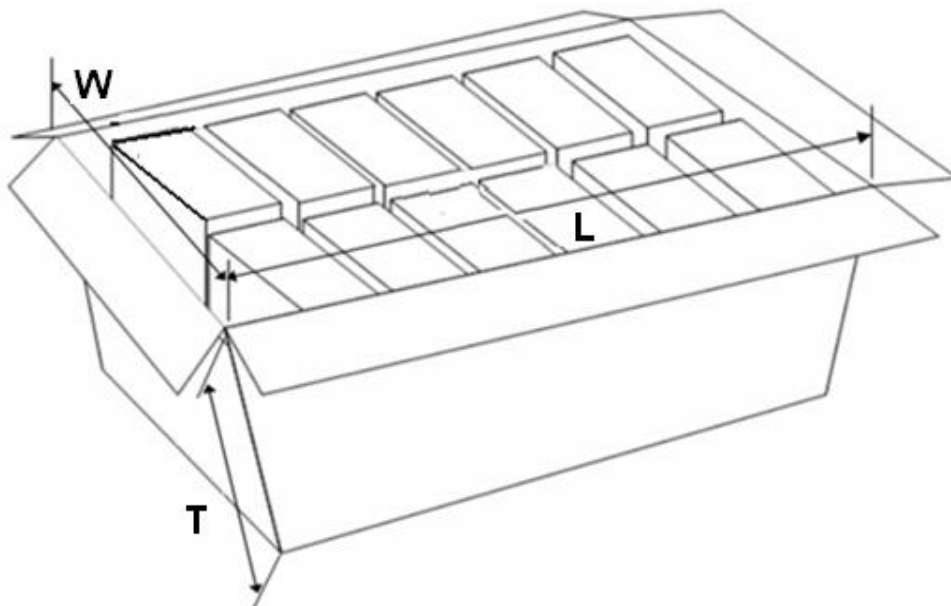
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23 Five reel will be put into a small box of 180x180x62mm.



24 Ten small boxes will be put into a large box of 375x370x205mm. (LxWxT)  
Five small boxes will be put into a large box of 375x195x205mm. (LxWxT)



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## 25 Storage

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

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