

CUSTOMER customer

ESD-EMI Series of Surface Mount Multilayer Varistors ESD-EMI 保护器件系列	Date	2011-1-13
	Revision	1

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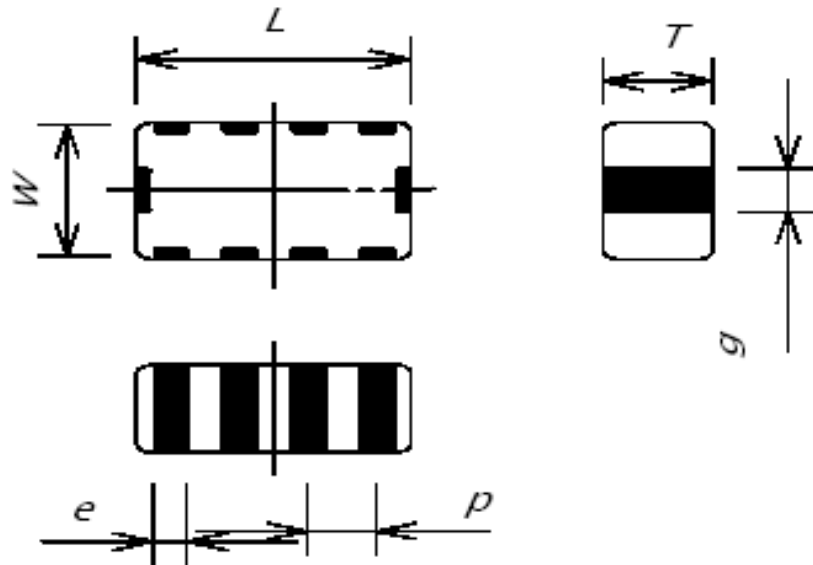
1 Operating Temperature Range

-55°C to +85°C

2 Electrical Requirements

Part Number	Working Voltage (Max)	Breakdown Voltage (V)	Clamping Voltage (Max)	Cut Off Frequency	Attenuation at 800~2000MHz	Typical Capacitance Value (1MHz)
	DC(V)	(V)	(V)	(MHz)	(dB)	(pF)
MVF0508L4V005F100MT	5	20~34	55	100	<-25	57.5
MVF0508L4V005F200MT	5	20~34	65	200	<-25	30
MVF0508L4V005F300MT	5	34~44	80	300	<-20	15

3 Shape and Dimensions



Size	L (mm)	W (mm)	T (mm)	e (mm)	p (mm)	g (mm)
0508	$2.00 \pm 0.20$	$1.25 \pm 0.20$	$0.75 \pm 0.15$	$0.25 \pm 0.10$	0.50	$0.25 \pm 0.15$

Prepared by	Checked by	Approved by	Accepted by customer
Ling Ling Li	Yan Ma	Yan Ma	

Signature			

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4 Product Identification :

MVF 0508 L4 V005 F100 M I

(1) (2) (3) (4) (5) (6) (7)

.(1) SeriesCode:

MVF – ESD-EMI Filter

.(2) Size Code: Standard EIA Chip Size

.(3) Application Code:

L4 – 4 lines

.(4) Max. Working Voltage:

005V – 5V

.(5) Cut -off Frequency

100 – 100MHz

.(6) Tolerance: 20%

.(7) Packaging Code:

T – Tape & Reel

B – Bulk

5 Features:

5.1 • ESD Protection and Perfect Filter Performance

5.2 • Low Leakage Current

5.3 • Low Leakage Inductance and Fast Response

5.4 • High Density in Integrated Design and Simplifying

Circuits Design

6 Typical Applications:

6.1 • ESD protection

6.2 • ECU protection

6.3 • I/O Protection

6.4 • LCD Display

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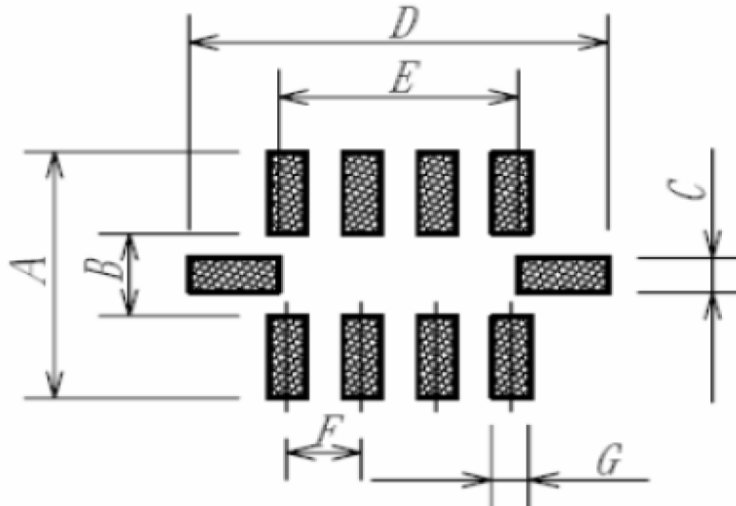
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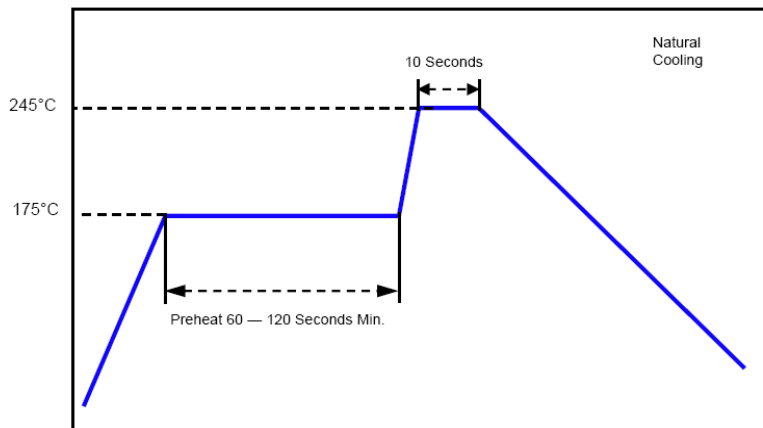
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### 7 Recommended PC Board Land Pattern

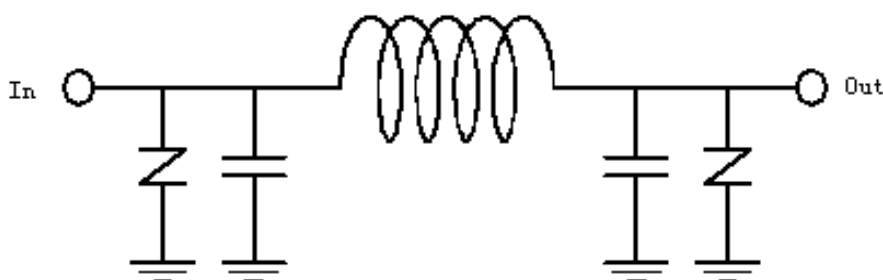
Size	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
0508	2.00	0.60	0.25	2.50	1.60	0.50	0.25



### 8 Recommended Temperature Profiles for Soldering



### 9 Equivalent Circuit



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### 10. Reliability Tests

No.	Test	Requirement	Test condition	Test reference
1	Soldering heat resistance	BDV change $\leq \pm 10\%$ No mechanical damage	One dip at 260 for 5 sec.	MIL-STD-202 Method 210 IEC 60068-2-20
2	Solderability	New solder coverage 80%	One dip at 255 for 5 sec. Non-active flux	MIL-STD-202 Method 208 IEC 60068-2-20
3	Maximum surge current	BDV change $\leq \pm 10\%$ No mechanical damage	100 pulses of 8/20 $\mu\text{s}$ with maximum surge current and 30 sec. interval at 25 and 30~65% RH	CECC 42000 IEC 1051-1 Test 4.5
4	Maximum surge energy	BDV change $\leq \pm 10\%$ No mechanical damage	100 pulses of 10/1000 $\mu\text{s}$ with maximum surge current and 90 sec. interval at 25 and 30~65% RH	CECC 42000
5	Thermal cycling	BDV change $\leq \pm 10\%$ No mechanical damage Leakage current $\leq 200 \mu\text{A}$	5 cycles between -40 and 125 with 30 min. dwell time at the temperature extremes and 60 min. dwell time at 25	CECC 42000 IEC 60068-2-14
6	Low temperature resistance	BDV change $\leq \pm 10\%$ No mechanical damage Leakage current $\leq 200 \mu\text{A}$	1000 hr at -50	IEC 60068-2-1
7	Low temperature load resistance	BDV change $\leq \pm 10\%$ No mechanical damage Leakage current $\leq 200 \mu\text{A}$	1000 hr at -50 with working voltage applied	IEC 60068-2-1
8	High temperature resistance	BDV change $\leq \pm 10\%$ No mechanical damage Leakage current $\leq 200 \mu\text{A}$	1000 hr at 150	MIL-STD-202 Method 108 CECC 42000
9	High temperature load resistance	BDV change $\leq \pm 10\%$ No mechanical damage Leakage current $\leq 200 \mu\text{A}$	1000 hr at 85 with working voltage applied	CECC 42000
10	Humidity resistance	BDV change $\leq \pm 10\%$ No mechanical damage Leakage current $\leq 200 \mu\text{A}$	500 hr at 40 and 90~95% RH	MIL-STD-202 Method 103 IEC 60068-2-3 CECC 42000;
11	Humidity load resistance	BDV change $\pm 10\%$ No mechanical damage Leakage current $\leq 200 \mu\text{A}$	500 hr at 40°C and 90~95% RH with working voltage applied	MIL-STD-202 Method 103 IEC 60068-2-3 CECC 42000
12	ESD contact test	Varistor voltage change $> 115\%$ working voltage	Contact electrostatic discharge 100 times with 1 second intervals at 8KV (Level 4) and polarity: +,-	IEC 61000-4-2
13	ESD air test	Varistor voltage change $> 115\%$ working voltage	Air contact electrostatic discharge 100 times with 1 second intervals at 15KV (Level 4) and polarity: +,-	IEC 61000-4-2

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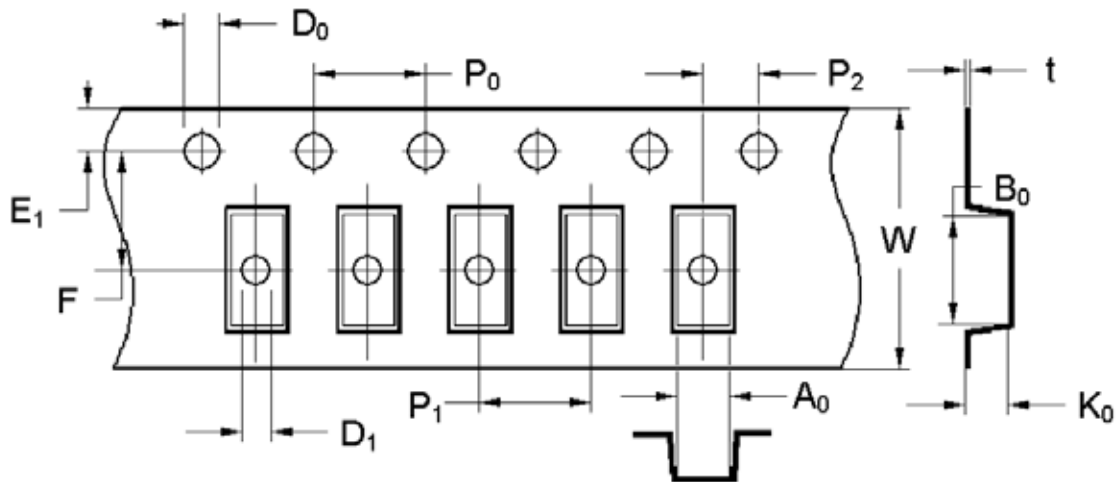
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## 11 Packaging

11.1 AEM's multilayer components are provided on tape-and-reel for use in pick-and-place machines or in bulk for special applications. Both tape-and-reel and bulk products are sealed in plastic bags with desiccant. The reel size is 7 inches.

11.2 Tape Dimensions: Inch (mm)



Size	$A_0$	$A_0$	$A_0$	Type
0508	$0.063 \pm 0.004$ ( $1.60 \pm 0.10$ )	$0.093 \pm 0.004$ ( $2.40 \pm 0.10$ )	$0.047 \pm 0.004$ ( $1.20 \pm 0.10$ )	Plastic

E1	F	W	P1	P0	P2	D0	D1	t
$0.069 \pm 0.004$ ( $1.75 \pm 0.10$ )	$0.138 \pm 0.002$ ( $3.50 \pm 0.05$ )	$0.318 \pm 0.004$ ( $8.00 \pm 0.10$ )	$0.157 \pm 0.004$ ( $4.00 \pm 0.10$ )	$0.157 \pm 0.004$ ( $4.00 \pm 0.10$ )	$0.079 \pm 0.002$ ( $2.00 \pm 0.05$ )	$0.059 \pm 0.004$ ( $1.50 \pm 0.10 / -0.00$ )	$0.039 \text{max}$ ( $1.00 \text{max}$ )	$0.009 \pm 0.001$ ( $0.23 \pm 0.02$ )

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### 11.3 Quantity Per Reel

Chip Size	Parts on 7 inch (178 mm) Reel
0508	4,000

Other sizes and chip quantities can be provided upon customer's request.

## 12 Storage

12.1 The maximum ambient temperature shall not exceed 40 °C.

Storage temperature higher than 40 °C could result in the deformation of packaging materials.

12.2 The maximum relative humidity recommended for storage is 70%.

High humidity with high temperature could accelerate the oxidation of the solder plating on the termination and reduce the solderability of the components.

12.3 Sealed plastic bags with desiccant shall be used to reduce the oxidation of the termination and shall only be opened prior to use.

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