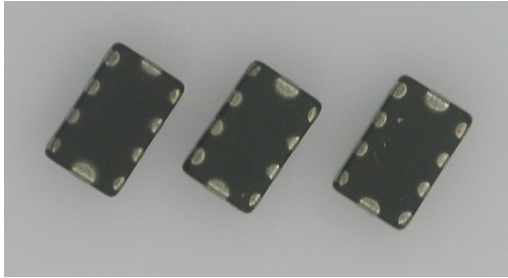


## Surface Mount Multilayer Varistors

### ESD-EMI Series



#### Features:

- ESD protection and perfect filter performance (4 lines)
- Low leakage current
- Low leakage Inductance and fast response
- High density in integrated design and simplifying circuits design
- 100% lead-free and RoHS compliant

#### Physical Specifications:

- Body material: Zinc Oxide (ZnO)
- Terminations material: Ag / Ni / Sn
- Reflow parameters: 260°C, 10 seconds max.
- Operating temperature range: -50°C to +85°C
- Store temperature range: -50°C to +150°C

#### Application Fields:

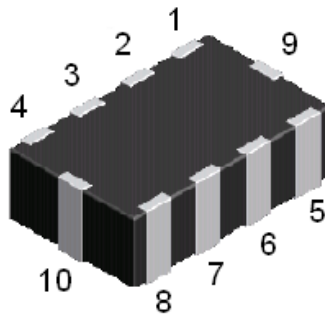
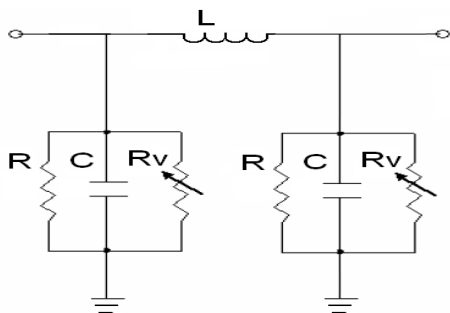
- ESD protection
- ECU protection
- I/O protection
- LCD display

#### Electrical Characteristics:

Part Number	Working Voltage (Max.)	Breakdown Voltage <sup>1</sup>	Clamping Voltage (Max.) <sup>2</sup>	Cut Off Frequency <sup>3</sup>	Attenuation at 800~2000 MHz	Typical Capacitance Value (1 MHz)
	(VDC)	(V)	(V)	(MHz)	(dB)	(pF)
MVF0508L4V005F100M	5	20 ~ 34	55	100	< -25	57.5
MVF0508L4V005F200M	5	20 ~ 34	65	200	< -25	30
MVF0508L4V005F300M	5	34 ~ 44	80	300	< -20	15

1. The breakdown voltage was measured at 1 mA
2. The Clamping Voltage was measured at 8/20  $\mu$ s waveform, 1 A current.
3. The Cut-off Frequency was measured at -3 dB, tolerance  $\pm$ 25%.

#### Channel Equivalent Circuit:

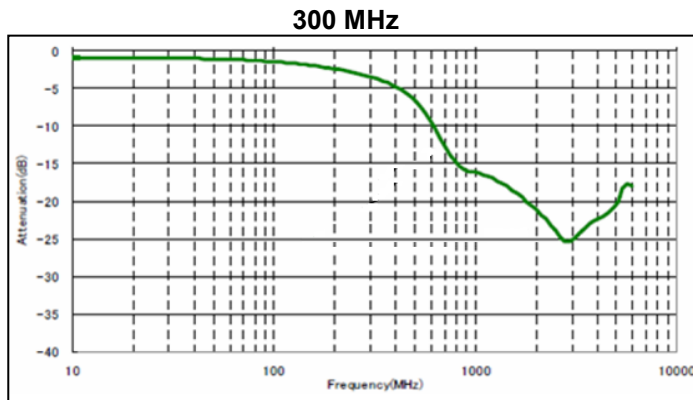
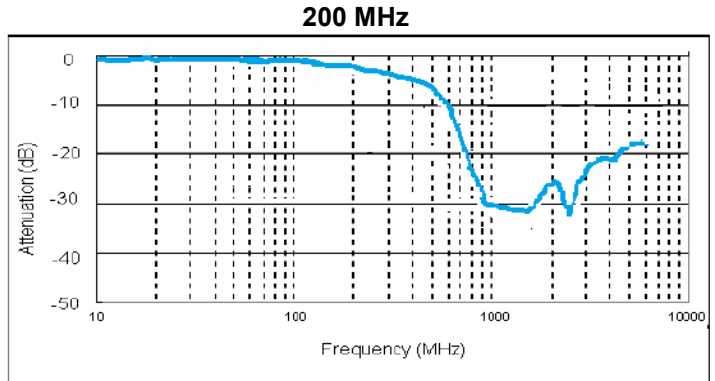
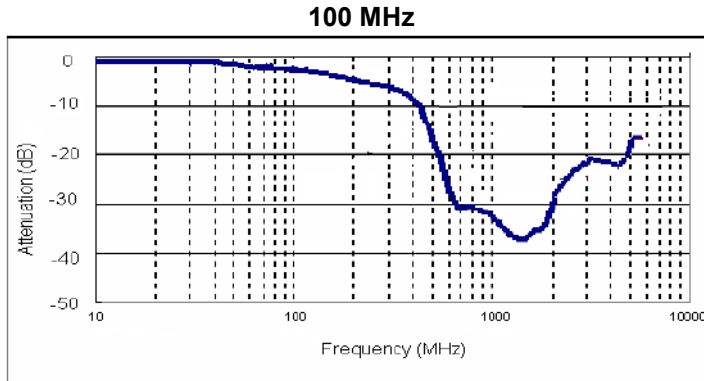


Pin#	Function	Description
1 / 5	I/O	Channel 1
2 / 6	I/O	Channel 2
3 / 7	I/O	Channel 3
4 / 8	I/O	Channel 4
9 / 10	Common	Ground

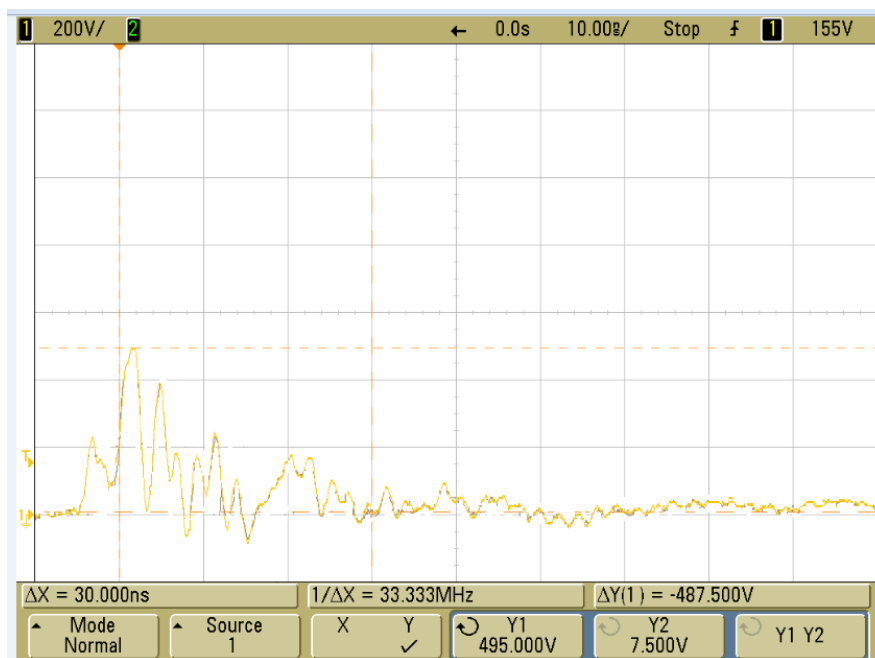
# Surface Mount Multilayer Varistors

## ESD-EMI Series

### Attenuation Characteristics:



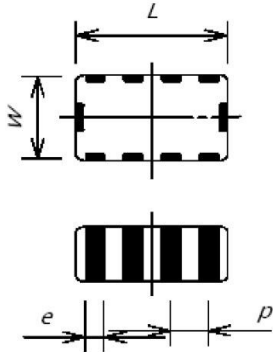
### ESD Characteristics per IEC61000-4-2 Level 4, 8kV:



## Surface Mount Multilayer Varistors

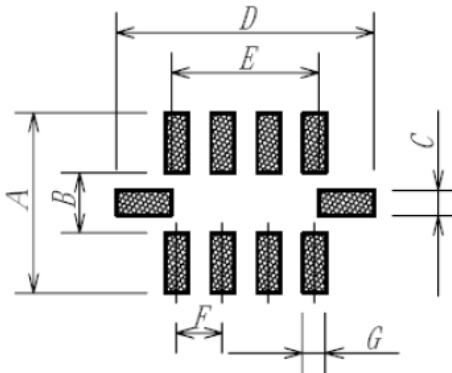
### ESD-EMI Series

#### Shape and Dimensions:



Size	L (mm)	W (mm)	T (mm)	e (mm)	p (mm)	g (mm)
0508	2.00 ± 0.15	1.20 ± 0.15	0.72 ± 0.10	0.25 ± 0.12	0.50 ± 0.12	0.25 ± 0.12

#### 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

#### Product Identification:

MVF 0508 L4 V005 F100 M  
 (1) (2) (3) (4) (5) (6)

- (1) Series code: MVF -- ESD-EMI Filter
- (2) Size code: Standard EIA Chip Size
- (3) Application code: L4 -- 4 lines
- (4) Max. working voltage: V005 – 5 VDC
- (5) Cut-off frequency: F100 – 100 MHz
- (6) Tolerance: M – ±20%

## Surface Mount Multilayer Varistors

### ESD-EMI Series

#### Environmental Reliability Tests:

Characteristic	Test method and description			
High Temperature Storage	The specimen shall be subjected to $150 \pm 2^\circ\text{C}$ for $1000 \pm 12$ hours in a thermostatic bath without load and then stored at room temperature and normal humidity for 1 to 2 hours. The change of varistor voltage shall be within 10%.			
Temperature Cycle	The temperature cycle of specified temperature shall be repeated five times and then stored at room temperature and normal humidity for one or two hours. The change of varistor voltage shall be within 10% and mechanical damage shall be examined.	Step	Temperature	Period
		1	$-40 \pm 3^\circ\text{C}$	$30 \pm 3$ minutes
		2	Room Temperature	1 hour
		3	$125 \pm 3^\circ\text{C}$	$30 \pm 3$ minutes
4	Room Temperature	1 hour		
High Temperature Load	After being continuously applied the maximum allowable voltage at $85 \pm 2^\circ\text{C}$ for $1000 \pm 2$ hours, the specimen shall be stored at room temperature and normal humidity for one or two hours, the change of varistor voltage shall be within 10%.			
Damp Heat Load/ Humidity Load	The specimen should be subjected to $40 \pm 2^\circ\text{C}$ , 90 to 95%RH environment, and the maximum allowable voltage applied for 1000 hours, then stored at room temperature and normal humidity for one or two hours. The change of varistor voltage shall be within 10%.			
Low Temperature Storage	The specimen should be subjected to $-50 \pm 2^\circ\text{C}$ , without load for 1000 hours and then stored at room temperature for one or two hours. The change of varistor voltage shall be within 10%.			

#### Soldering Temperature Profile:

Recommended Temperature Profile  
for Reflow Soldering

