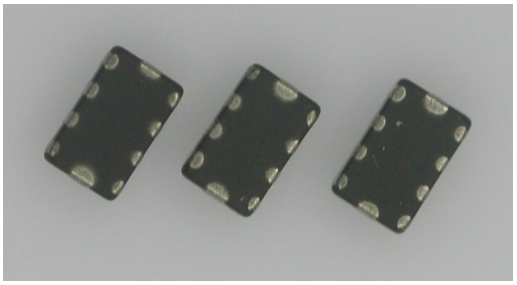
ESD-EMI Series of Surface Mount Multilayer Varistors

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

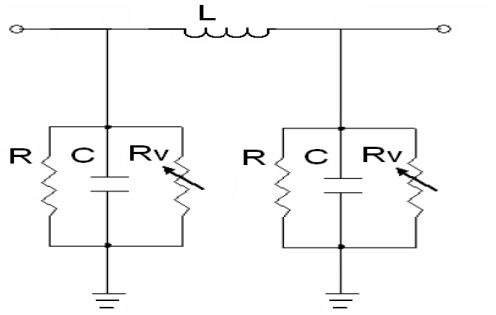


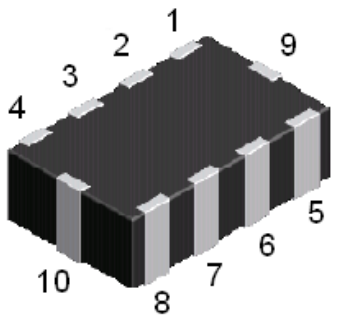
Electrical Characteristics:

Part Number	Working Voltage (Max.)	Breakdown Voltage[1]	Clamping Voltage (Max.)[2]	Cut Off Frequency[3]	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 μs waveform, 1 A current.
3. The Cut-off Frequency was measured at -3 dB, tolerance ±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

Applications:

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

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

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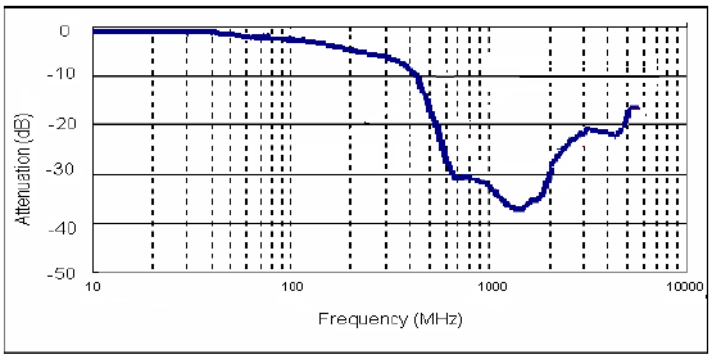
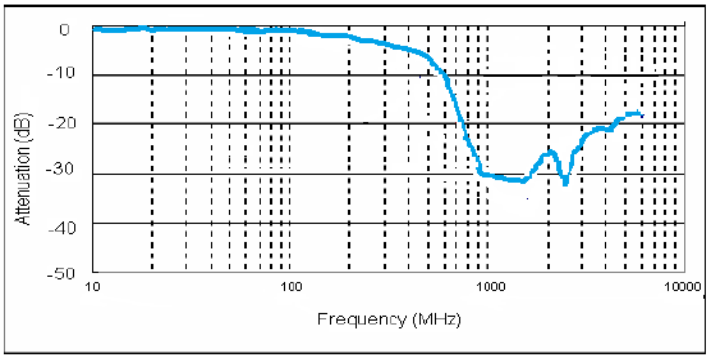
Attenuation Characteristics:

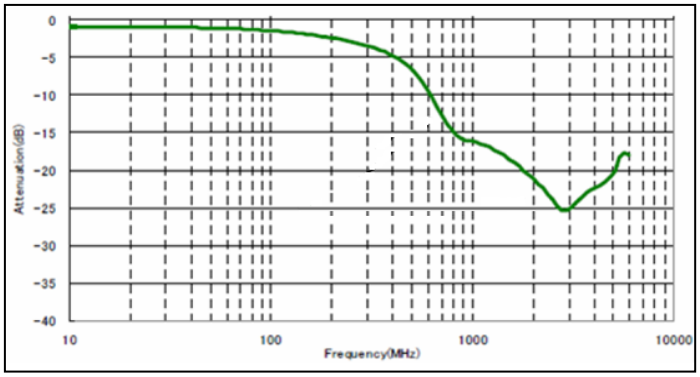
100 MHz



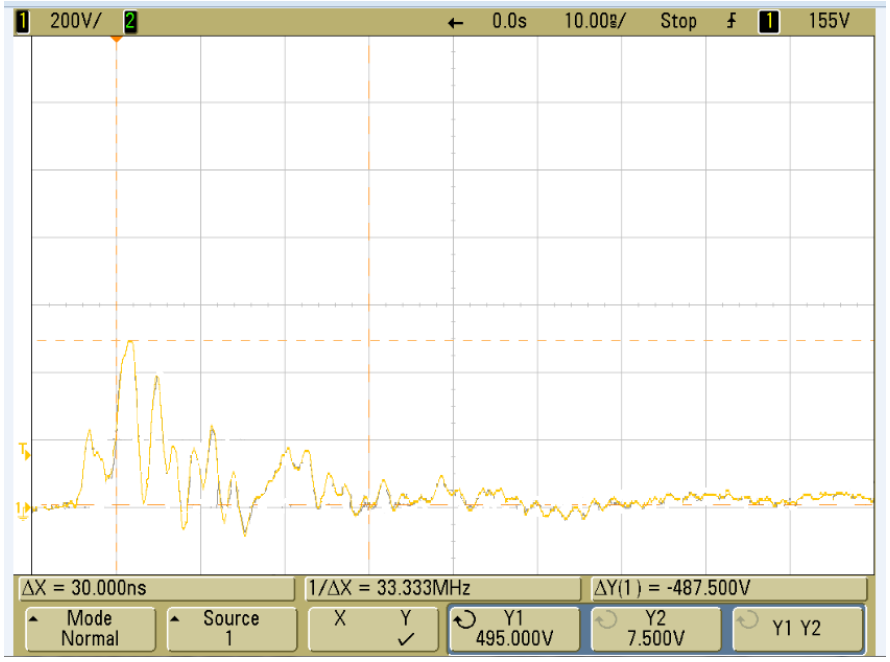
200 MHz



300 MHz



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



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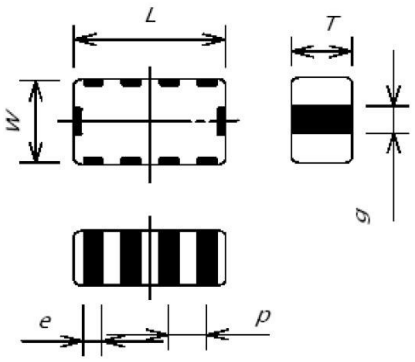
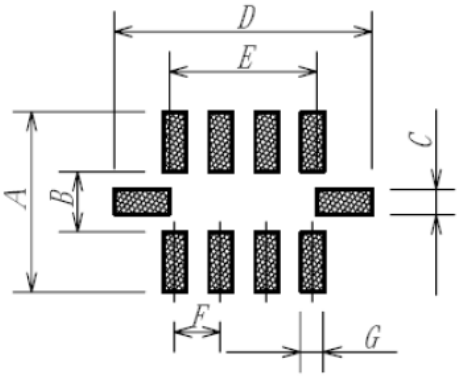
Shape and Dimensions:



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%

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Environmental Reliability Tests:

Characteristic	Test method and description			
High Temperature Storage	The specimen shall be subjected to 150 ± 2°C for 1000 ± 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 ± 3°C	30 ± 3 minutes
		2	Room Temperature	1 hour
		3	125 ± 3°C	30 ± 3 minutes
		4	Room Temperature	1 hour
High Temperature Load	After being continuously applied the maximum allowable voltage at 85 ± 2°C for 1000 ± 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 ± 2°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 ± 2°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