

## 2-Channel EMI-Filter with ESD-Protection

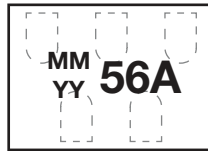


### FEATURES

- Ultra compact CLP1007-5M package
- 2-channel EMI-filter and ESD-protection
- Low leakage current
- Line resistance  $R_S = 60 \Omega$
- Typical cut off frequency  $f_{3dB} = 60 \text{ MHz}$
- ESD-protection acc. IEC 61000-4-2  
 $\pm 25 \text{ kV}$  contact discharge  
 $\pm 25 \text{ kV}$  air discharge
- e4 - precious metal (e.g. Ag, Au, NiPd, NiPdAu) (no Sn)
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



### MARKING (example only)



Pin 1

56A = type code  
 MM = date code month  
 YY = date code year

### LINKS TO ADDITIONAL RESOURCES



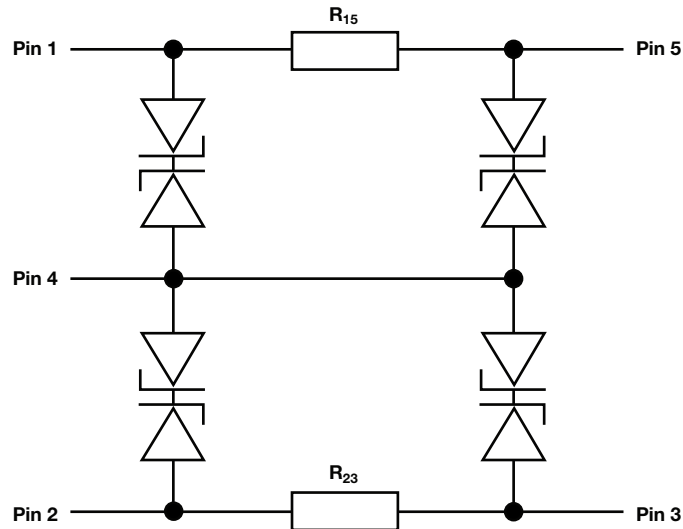
ORDERING INFORMATION			
DEVICE NAME	ORDERING CODE	TAPED UNITS PER REEL (8 mm TAPE ON 7" REEL)	MINIMUM ORDER QUANTITY
VEMI256A-SD2	VEMI256A-SD2-G4-08	10 000	10 000

PACKAGE DATA						
DEVICE NAME	PACKAGE NAME	TYPE CODE	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
VEMI256A-SD2	CLP1007-5M	56A	0.45 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	Peak temperature max. 260 °C

ABSOLUTE MAXIMUM RATINGS				
PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT
Peak pulse current	All I/O pin to pin 4; acc. IEC 61000-4-5; $t_p = 8/20 \mu\text{s}$ ; single shot	$I_{PPM}$	8.5	A
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	$V_{ESD}$	$\pm 25$	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses		$\pm 25$	
Operating temperature	Junction temperature	$T_J$	-40 to +150	°C
Storage temperature		$T_{STG}$	-55 to +150	°C

**APPLICATION NOTE**

With the VEMI256A-SD2 two different signal or data lines can be filtered and clamped to ground.



<b>ELECTRICAL CHARACTERISTICS</b> All inputs (pin 1, 2) to ground (pin 4) ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)						
PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of channels which can be protected	$N_{channel}$	-	-	2	channel
Reverse stand off voltage	Max. reverse working voltage	$V_{RWM}$	-	-	5.5	V
Reverse voltage	at $I_R = 0.5\text{ }\mu\text{A}$	$V_R$	5.5	-	-	V
Reverse current	at $V_R = 5.5\text{ V}$	$I_R$	-	-	0.5	$\mu\text{A}$
Reverse break down voltage	$I_R = 1\text{ mA}$	$V_{BR}$	6	-	-	V
Pos. clamping voltage	at $I_{PP} = 1\text{ A}$ applied at the input, measured at the output; acc. IEC 61000-4-5	$V_{C-out}$	-	8	10	V
	at $I_{PP} = I_{PPM} = 8.5\text{ A}$ applied at the input, measured at the output; acc. IEC 61000-4-5	$V_{C-out}$	-	9	11	V
Input capacitance	at $V_R = 0\text{ V}$ ; $f = 1\text{ MHz}$	$C_{IN}$	-	116	-	pF
	at $V_R = 2.5\text{ V}$ ; $f = 1\text{ MHz}$	$C_{IN}$	-	90	-	pF
ESD-clamping voltage	at $\pm 30\text{ kV}$ ESD-pulse acc. IEC 61000-4-2	$V_{CESD}$	-	7.5	-	V
Line resistance	Measured between input and output; $I_S = 10\text{ mA}$	$R_S$	54	60	66	$\Omega$
Cut-off frequency	$V_{IN} = 0\text{ V}$ ; measured in a $50\text{ }\Omega$ system	$f_{3dB}$	-	60	-	MHz

**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)

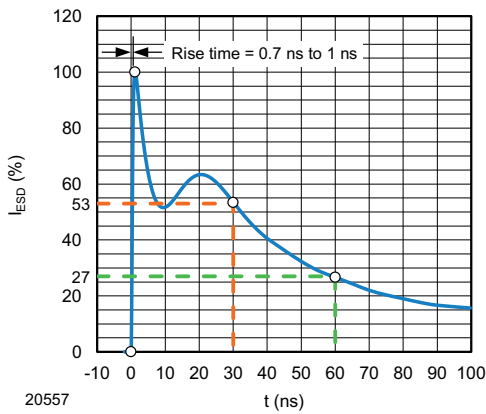


Fig. 1 - ESD Discharge Current Wave Form acc. IEC 61000-4-2 (330  $\Omega$ /150 pF)

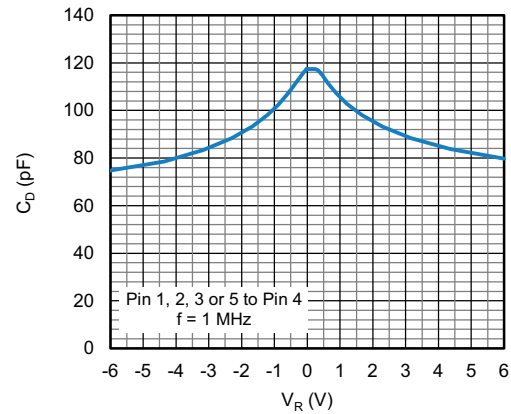


Fig. 4 - Typical Capacitance  $C_D$  vs. Reverse Voltage  $V_R$

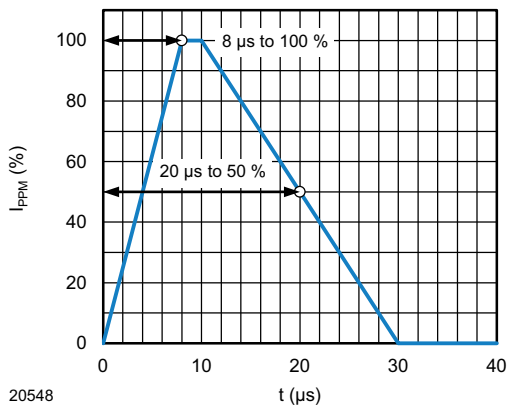


Fig. 2 - 8/20  $\mu\text{s}$  Peak Pulse Current Wave Form acc. IEC 61000-4-5

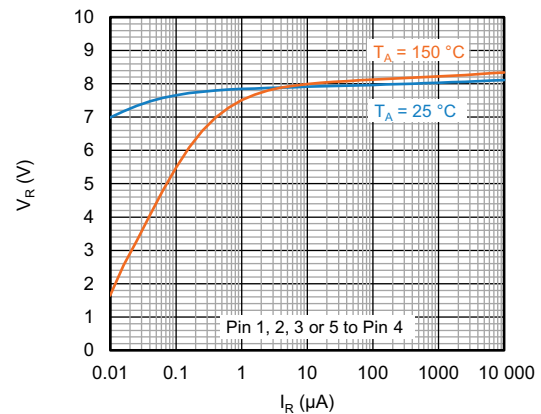


Fig. 5 - Typical Reverse Voltage  $V_C$  vs. Reverse Current  $I_R$

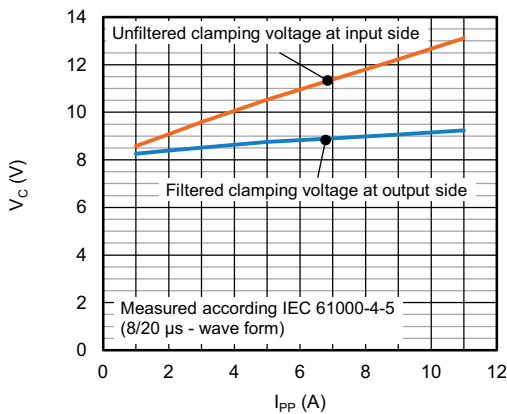


Fig. 3 - Typical Peak Clamping Voltage  $V_C$  vs. Peak Pulse Current  $I_{PP}$

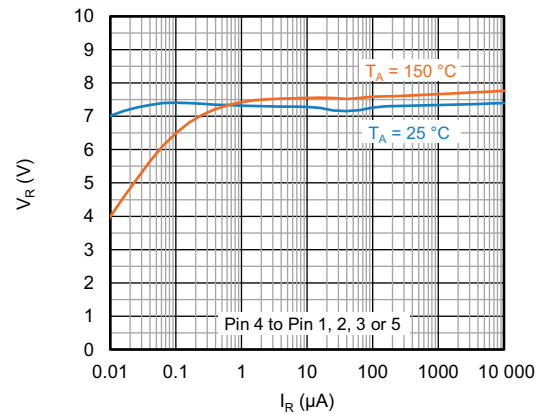


Fig. 6 - Typical Reverse Voltage  $V_R$  vs. Reverse Current  $I_R$

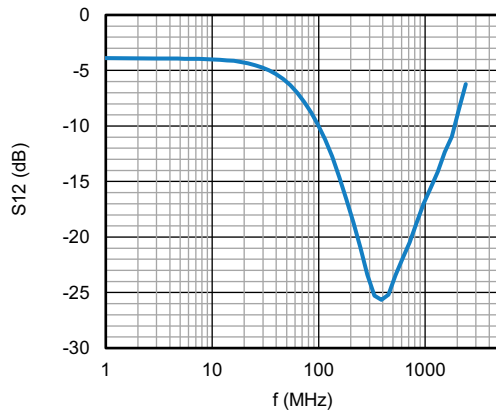
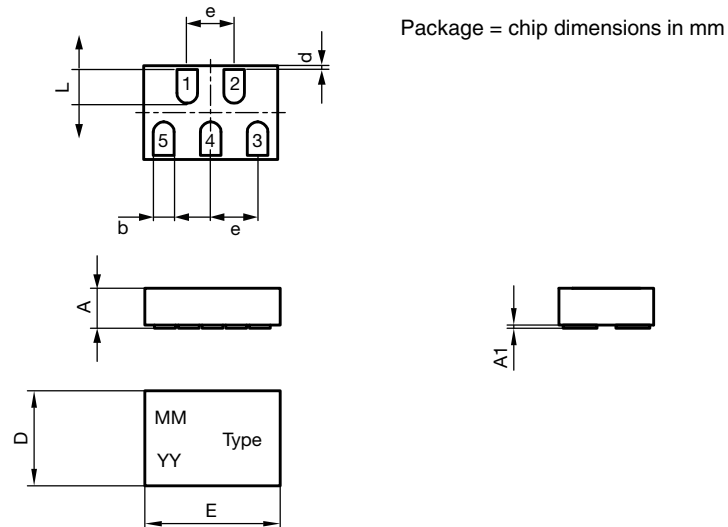


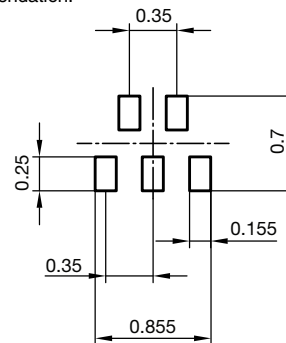
Fig. 7 - Typical Small Signal Transmission (S21)  
at  $Z_O = 50 \Omega$

**PACKAGE DIMENSIONS** in millimeters: **CLP1007-5M**



	Millimeters	
	min.	max.
A	0.25	0.29
A1	-	0.02
b	0.13	0.17
D	0.68	0.73
E	0.98	1.03
e	0.35	
L	0.23	0.27
Radius	0.075	
d	0.03	

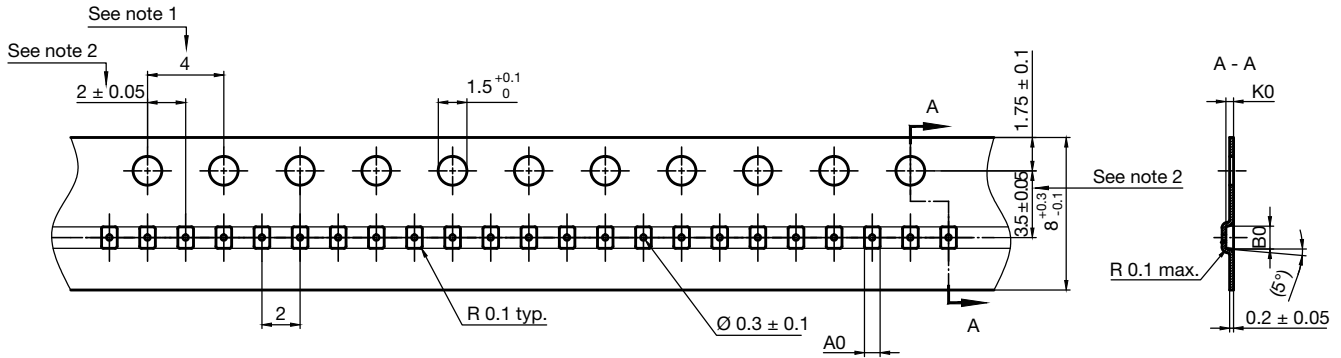
foot print recommendation:



**Footprint and soldering recommendation:**

please see Application Note: [www.vishay.com/doc?85917](http://www.vishay.com/doc?85917)

**CARRIER TAPE** in millimeters: **CLP1007-5M**



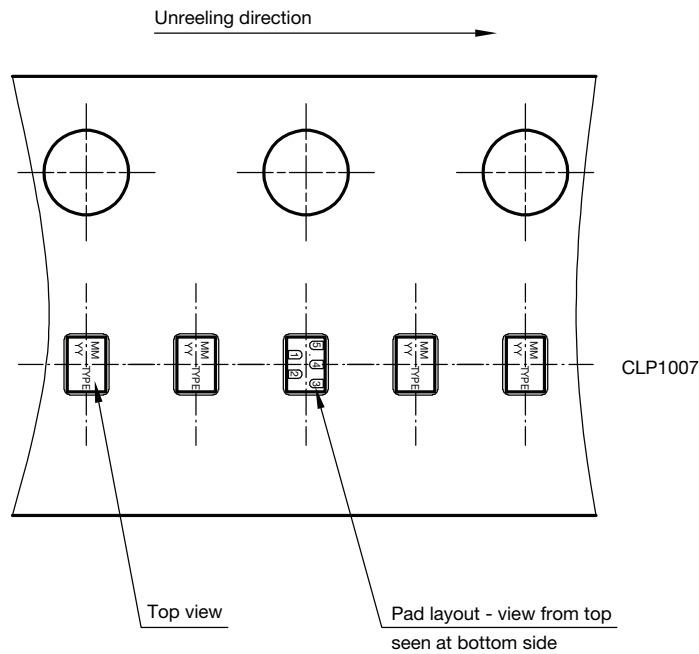
$A0 = 0.82 \pm 0.05$   
 $B0 = 1.12 \pm 0.05$   
 $K0 = 0.40 \pm 0.05$

**Notes:**

1. 10 Sprocket hole pitch cumulative tolerance  $\pm 0.2$
2. Pocket position relative to sprocket hole measured as true position of pocket, not pocket hole
3. A0 and B0 are calculated on a plane at a distance "R" above the bottom of the pocket

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 22858

**ORIENTATION IN CARRIER TAPE** in millimeters: **CLP1007-5M**





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