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 Ω
- Typical cut off frequency f_{3dB} = 60 MHz
- ESD-protection acc. IEC 61000-4-2
  ± 25 kV contact discharge
  ± 25 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

Pb-free

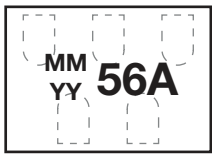
e4

RoHS COMPLIANT

HALOGEN FREE

GREEN (5-2008)

MARKING (example only)



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

LINKS TO ADDITIONAL RESOURCES

3D Models

Footprints

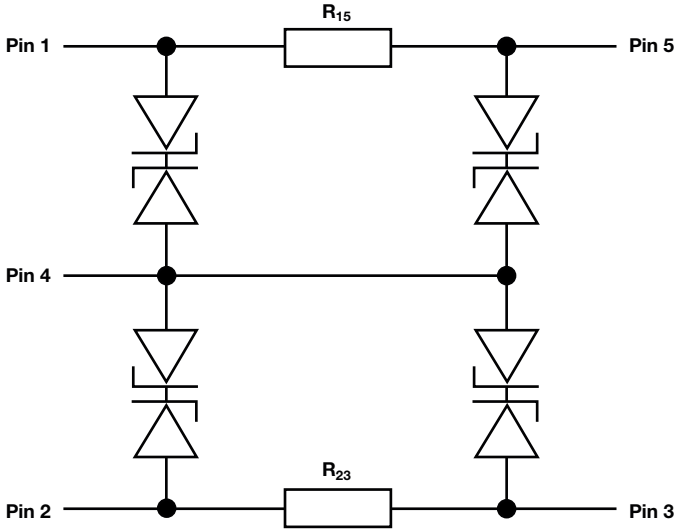
ORDERING INFORMATION			
DEVICE NAME	ORDERING CODE	TAPED UNITS PER REEL (8 mm TAPE ON 7" REEL)	MINIMUM ORDER QUANTITY
VEMI256A-SD2	VEMI256A-SD2-G4-08	10 000	10 000

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 µs; single shot	I_{PPM}	8.5	A
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 25	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses		± 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.



ELECTRICAL CHARACTERISTICS All inputs (pin 1, 2) to ground (pin 4)
(T_{amb} = 25 °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 µA	V_R	5.5	-	-	V
Reverse current	at V_R = 5.5 V	I_R	-	-	0.5	µA
Reverse break down voltage	I_R = 1 mA	V_{BR}	6	-	-	V
Pos. clamping voltage	at I_{PP} = 1 A applied at the input, measured at the output; acc. IEC 61000-4-5	$V_{C\text{-}out}$	-	8	10	V
	at I_{PP} = I_{PPM} = 8.5 A applied at the input, measured at the output; acc. IEC 61000-4-5	$V_{C\text{-}out}$	-	9	11	V
Input capacitance	at V_R = 0 V; f = 1 MHz	C_{IN}	-	116	-	pF
	at V_R = 2.5 V; f = 1 MHz	C_{IN}	-	90	-	pF
ESD-clamping voltage	at ± 30 kV ESD-pulse acc. IEC 61000-4-2	V_{CESD}	-	7.5	-	V
Line resistance	Measured between input and output; I_S = 10 mA	R_S	54	60	66	Ω
Cut-off frequency	V_{IN} = 0 V; measured in a 50 Ω system	f_{3dB}	-	60	-	MHz

TYPICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

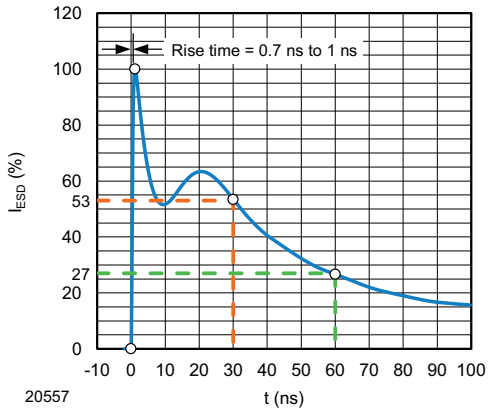


Fig. 1 - ESD Discharge Current Wave Form acc. IEC 61000-4-2 (330 Ω/150 pF)

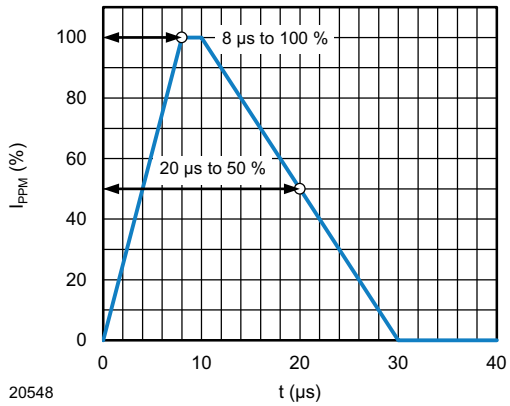


Fig. 2 - 8/20 µs Peak Pulse Current Wave Form acc. IEC 61000-4-5

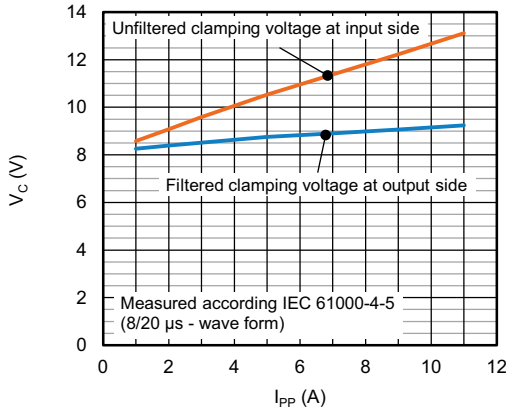


Fig. 3 - Typical Peak Clamping Voltage V_C vs. Peak Pulse Current I_{PP}

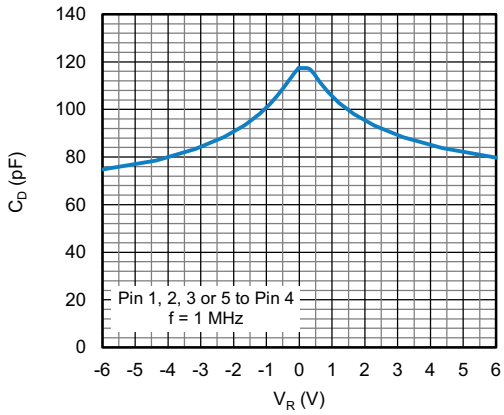


Fig. 4 - Typical Capacitance C_D vs. Reverse Voltage V_R

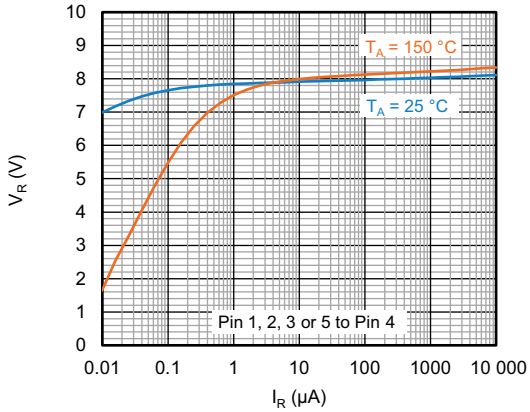


Fig. 5 - Typical Reverse Voltage V_C vs. Reverse Current I_R

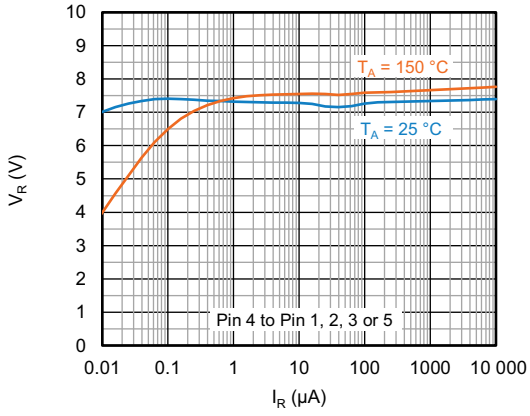


Fig. 6 - Typical Reverse Voltage V_R vs. Reverse Current I_R

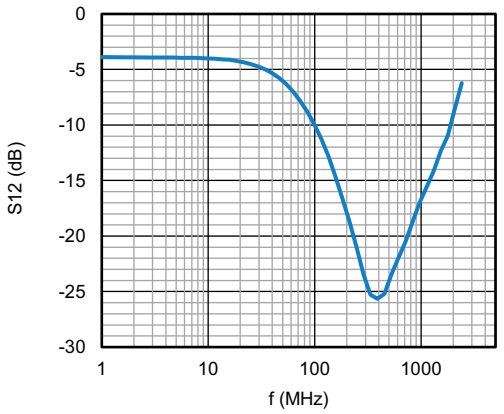
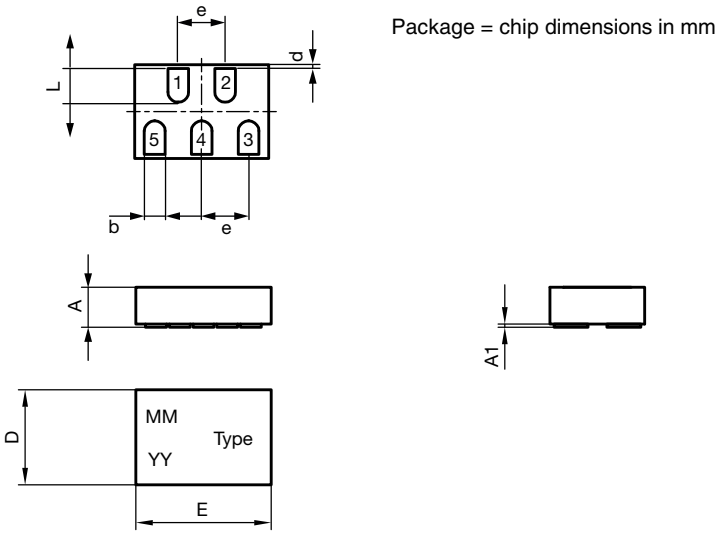


Fig. 7 - Typical Small Signal Transmission (S21)
at Z_O = 50 Ω

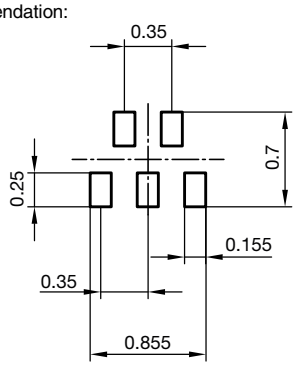
PACKAGE DIMENSIONS in millimeters: **CLP1007-5M**



Package = chip dimensions in mm

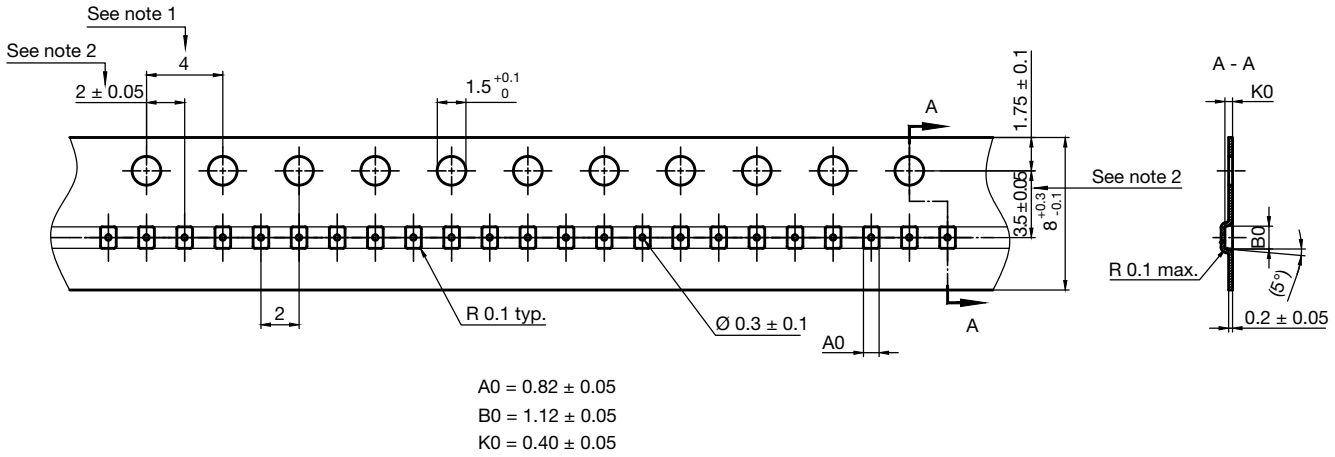
	Millimeters	
	min.	max.
A	0.25	0.29
A1	-	0.02
b	0.13	0.17
D	0.68	0.73
E	0.98	1.03
e	0.35	
L	0.23	0.27
Radius	0.075	
d	0.03	

foot print recommendation:



Footprint and soldering recommendation:
please see Application Note: www.vishay.com/doc?85917

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



A0 = 0.82 ± 0.05
B0 = 1.12 ± 0.05
K0 = 0.40 ± 0.05

Notes:
1. 10 Sprocket hole pitch cumulative tolerance ± 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

Document no.: S8-V-3906.04-042 (3)
Created - Date: 23. November 2015
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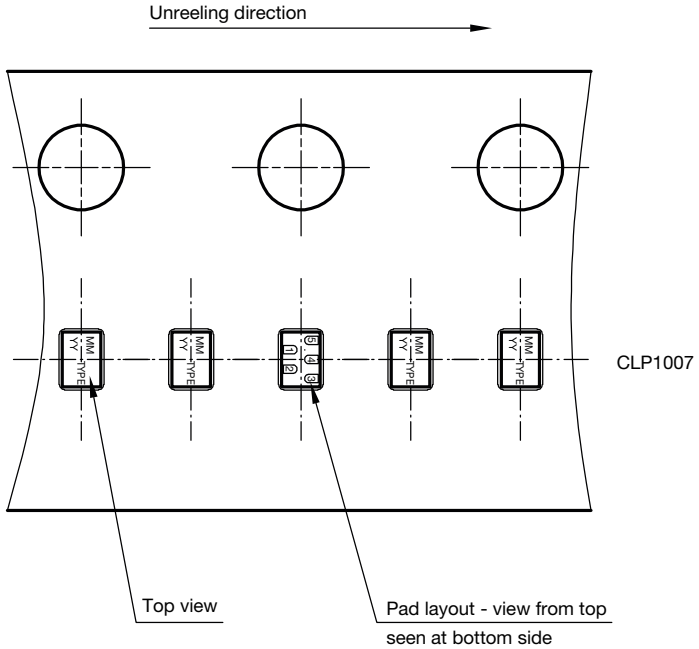
ORIENTATION IN CARRIER TAPE in millimeters: **CLP1007-5M**



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