

2-Channel EMI Filter with ESD Protection for Headsets/Speakers

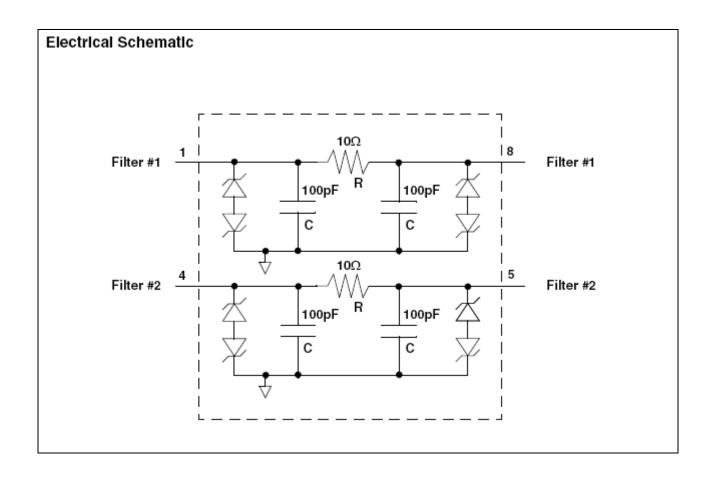
CM1481

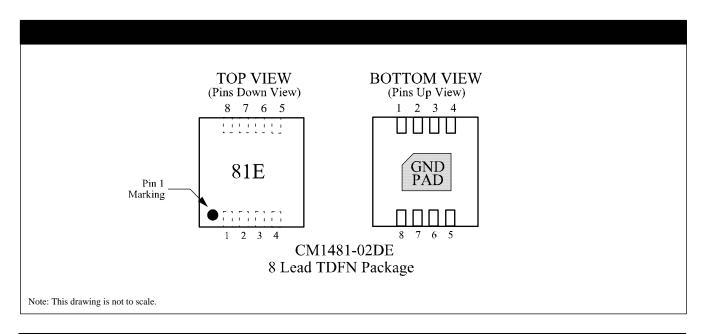
Features

- · Two channels of EMI filtering
- Pi-style filters in a capacitor-resistor-capacitor (C-R-C) network
- ±8kV ESD protection (IEC 61000-4-2, contact discharge)
- ±15kV ESD protection (HBM)
- Supports AC signals ideal for audio applications
- Greater than 40dB of attenuation at 1GHz
- 8-lead, 2.00mm x 2.00mm footprint TDFN Package
- Low profile maximum height of 0.8mm
- RoHS-compliant, lead-free finishing

Applications

- Headset speaker port in mobile handsets
- I/O port protection for mobile handsets, notebook computers, PDAs etc.
- EMI filtering for data ports in cell phones, PDAs or notebook computers.





PIN DESCRIPTIONS				
PIN	NAME	DESCRIPTION		
1	Filter #1	Filter #1		
2	NC	No connect		
3	NC	No connect		
4	Filter #2	Filter #2		
5	Filter #2	Filter #2		
6	NC	No connect		
7	NC	No connect		
8	Filter #1	Filter #1		
DAP	GND	Ground		

Ordering Information

PART NUMBERING INFORMATION					
		Lead-free Finish			
Pins	Package	Ordering Part Number ¹	Part Marking		
8	TDFN	CM1481 -02DE	81E		

Note 1: Parts are shipped in Tape & Reel form unless otherwise specified.

Specifications

ABSOLUTE MAXIMUM RATINGS					
PARAMETER	RATING	UNITS			
Storage Temperature Range	-65 to +150	°C			
DC package power rating	0.5	W			

STANDARD OPERATING CONDITIONS					
PARAMETER	RATING	UNITS			
Operating Temperature Range	-40 to +85	°C			

	ELECTRICAL OPERATING CHARACTERISTICS (NOTE 1)							
SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS		
R	Resistance R		8	10	12	Ω		
R _{MATCH}	Resistor-to-Resistor Matching				5	%		
C _{тот}	Total Channel Capacitance	2.5V DC; 1MHz, 30mV AC	160	200	240	pF		
С	Capacitance C			100		pF		
I _{LEAK}	Diode Leakage Current	V _{IN} = ±5.0V		0.1	1.0	μΑ		
V _{SIG}	Signal Clamp Voltage Positive Clamp Negative Clamp	$I_{LOAD} = 10\text{mA}$ $I_{LOAD} = -10\text{mA}$	5 –15	7 -10	15 -5	V V		
V _{ESD}	In-system ESD Withstand Voltage Human Body Model, MIL-STD-883, Method 3015 Contact Discharge per IEC 61000-4-2 Level 4	Note 2	±15			kV kV		
f _c	Cut-off frequency $Z_{\text{SOURCE}} = 50\Omega, Z_{\text{LOAD}} = 50\Omega$	R = 10Ω, C = 100pF		31		MHz		

Note 1: $T_A = 25^{\circ}C$ unless otherwise specified.

Note 2: ESD applied to input and output pins with respect to GND, one at a time. Clamping voltage is measured at the opposite side of the EMI filter to the ESD pin (i.e. if ESD is applied to pin 1 then clamping voltage is measured at pin 8).

Performance Information

Typical Filter Performance (nominal conditions unless specified otherwise, 50 ohm environment)

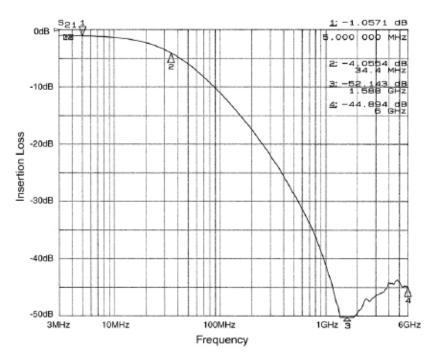


Figure 1. Insertion Loss vs. Frequency (Filter #1 to GND B2)

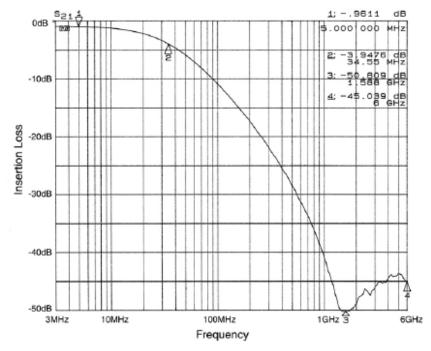


Figure 2. Insertion Loss vs. Frequency (Filter #2 to GND B2)

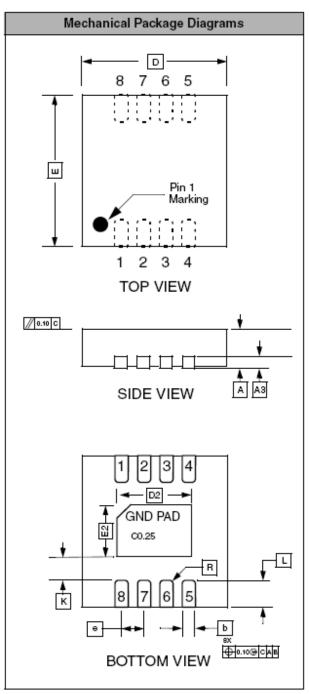
Mechanical Details

TDFN-08 Mechanical Specifications, 0.5mm

The CM1481 is supplied in an 8-lead 0.5mm TDFN package. Dimensions are presented below.

	PAC	KAGE	DIME	NSIO	NS		
Package	TDFN						
JEDEC No.	MO-229 (Var. VCCD-3)*						
Leads		8					
Dim.	Millimeters			Inches			
D	Min	Nom	Max	Min	Nom	Max	
Α	0.70	0.75	0.80	0.028	0.030	0.031	
А3	(0.20 RE	20 REF 0.008 REF			F	
b	0.20	0.25	0.30	0.008	0.010	0.012	
D	1.90	2.00	2.10	0.075	0.079	0.083	
D2	1.50	1.60	1.70	0.059	0.063	0.067	
E	1.90	2.00	2.10	0.075	0.079	0.083	
E2	0.80	0.90	1.00	0.031	0.035	0.039	
е	(0.50 BS	0 BSC 0.020 BSC			С	
К	0.25 REF			0.10 REF			
L	0.20	0.30	0.40	0.008	0.012	0.016	
# per tape and reel	3000 pieces						
Controlling dimension: millimeters							

This package is compliant with JEDEC standard MO-229, variation VCCD-3 with exception of the D2 and E2 dimensions as called out in the table above which are not specified in the MO-229 standard.



Package Dimensions for 8-Lead, 0.5mm pitch TDFN package

CM1481

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