



2 Channel EMI Filter with ESD Protection for Headsets/Speakers

CM1682

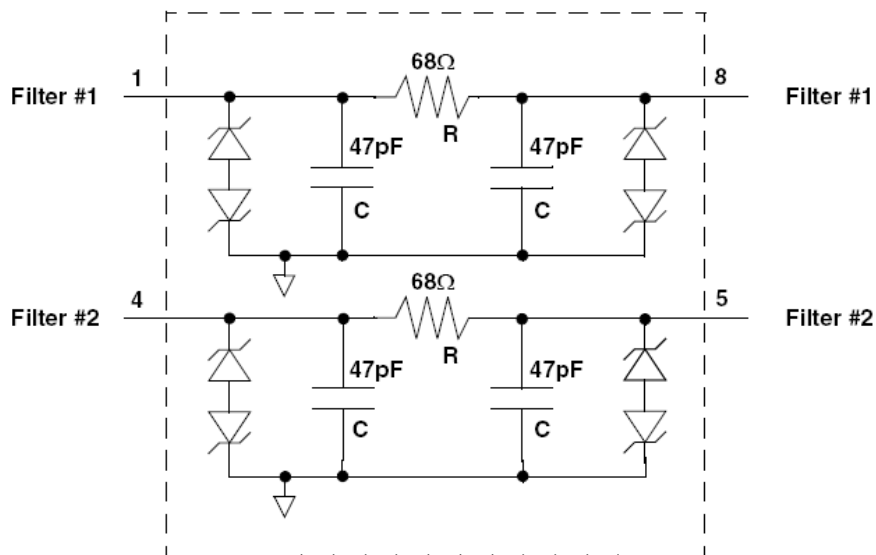
Features

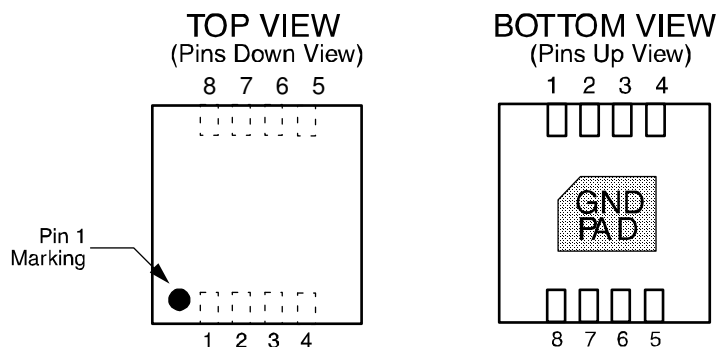
- Two channels of EMI filtering
- Pi-style filters in a capacitor-resistor-capacitor (C-R-C) network
- $\pm 8\text{kV}$ ESD protection (IEC 61000-4-2, contact discharge)
- $\pm 15\text{kV}$ ESD protection (HBM)
- Supports AC signals - ideal for audio applications
- Greater than 40dB of attenuation at 1GHz
- 8-lead, 2.00mm x 2.00mm footprint uDFN Package
- Low profile height of 0.5mm
- Lead-free finishing

Applications

- Headset microphone 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.

Electrical Schematic





8-Lead uDFN Package

Note: This drawing is not to scale.

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
GND PAD	GND	Ground

CM1682

Ordering Information

PART NUMBERING INFORMATION			
Pins	Package	Lead-free Finish	
		Ordering Part Number ¹	Part Marking
8	uDFN	CM1682-02DE	P82

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		61	68	75	Ω
R_{MATCH}	Resistor-to-Resistor Matching	Note 3			5	%
C_{TOT}	Total Channel Capacitance	2.5V DC; 1MHz, 30mV AC	74	94	114	pF
C	Capacitance C			47		pF
I_{LEAK}	Diode Leakage Current	$V_{IN} = \pm 5.0V$		0.1	1.0	μA
V_{SIG}	Signal Clamp Voltage Positive Clamp Negative Clamp	$I_{LOAD} = 10mA$ $I_{LOAD} = -10mA$	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 ± 8			kV kV
f_c	Cut-off frequency $Z_{SOURCE} = 50\Omega$, $Z_{LOAD} = 50\Omega$	$R = 68\Omega$, $C = 47pF$		60		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)

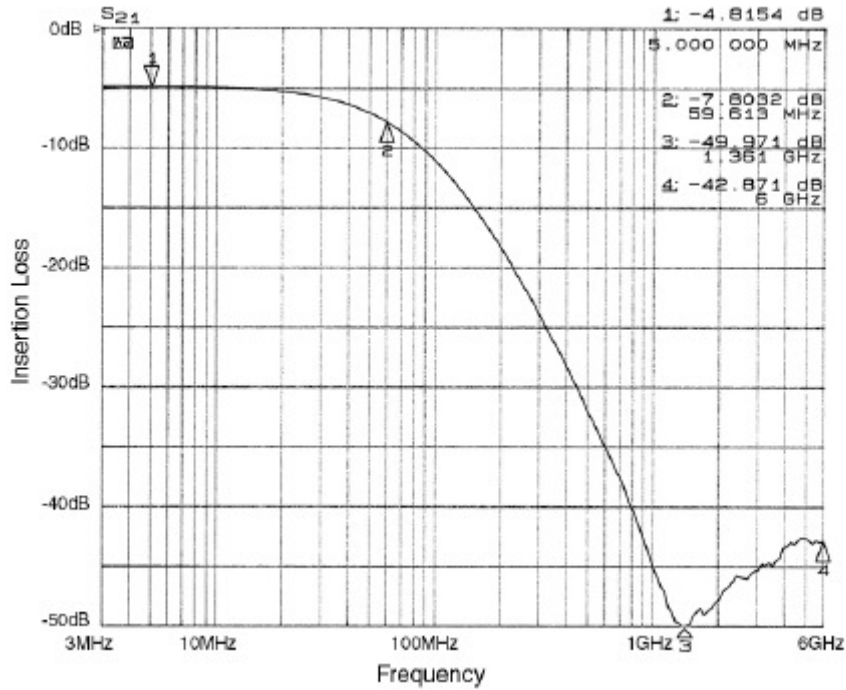


Figure 1. Insertion Loss vs. Frequency (Filter #1 to GND)

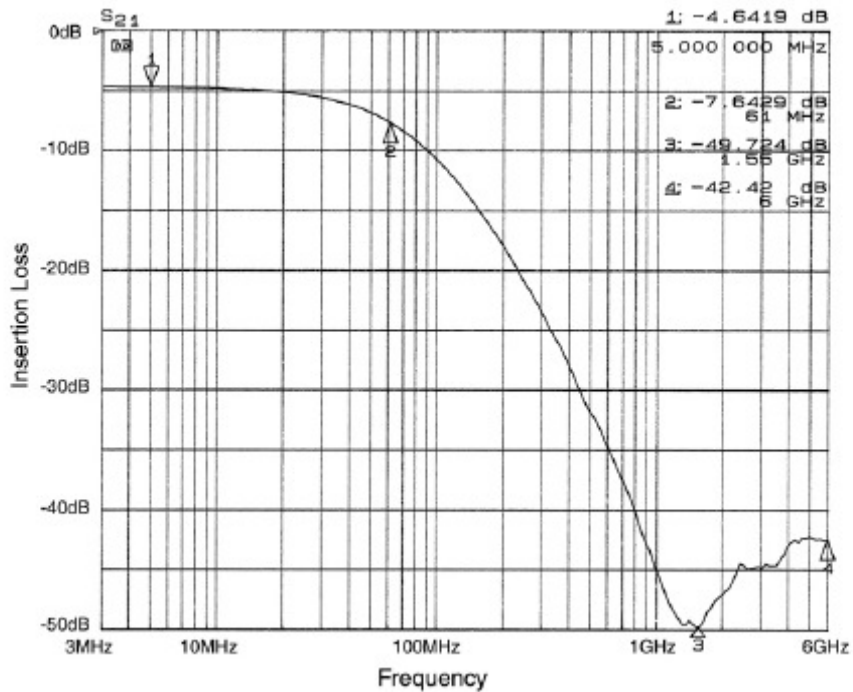


Figure 2. Insertion Loss vs. Frequency (Filter #2 to GND)

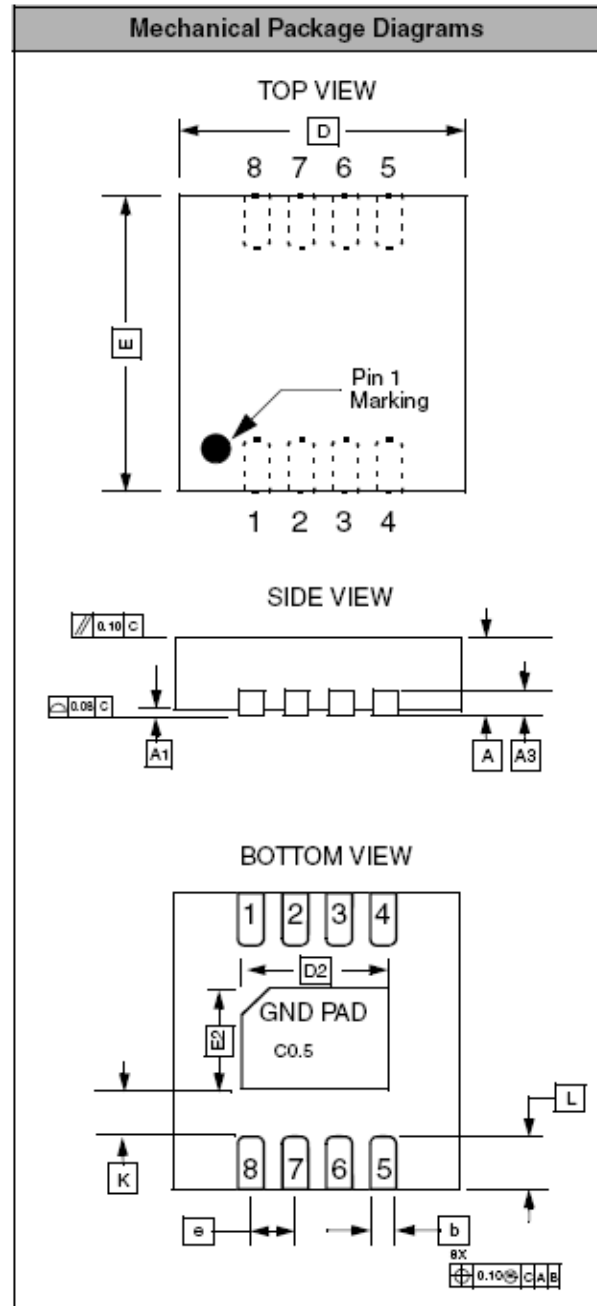
Mechanical Details

uDFN-08 Mechanical Specifications, 0.5mm

Dimensions for the CM1682 supplied in a 2mmx2mm, 8-lead, 0.5mm pitch uDFN package are presented below.

PACKAGE DIMENSIONS						
Package	uDFN					
JEDEC No.	MO-229C*					
Leads	8					
Dim.	Millimeters			Inches		
	Min	Nom	Max	Min	Nom	Max
A	0.45	0.50	0.55	0.018	0.020	0.022
A1	0.00	0.02	0.05	0.000	0.001	0.002
A3	0.127 REF			0.005 REF		
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	0.060	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
e	0.50 BSC			0.020 BSC		
K	0.25 REF			0.010 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-229C with the exception of the D, D2, E, E2, and L dimensions as called out in the table above.

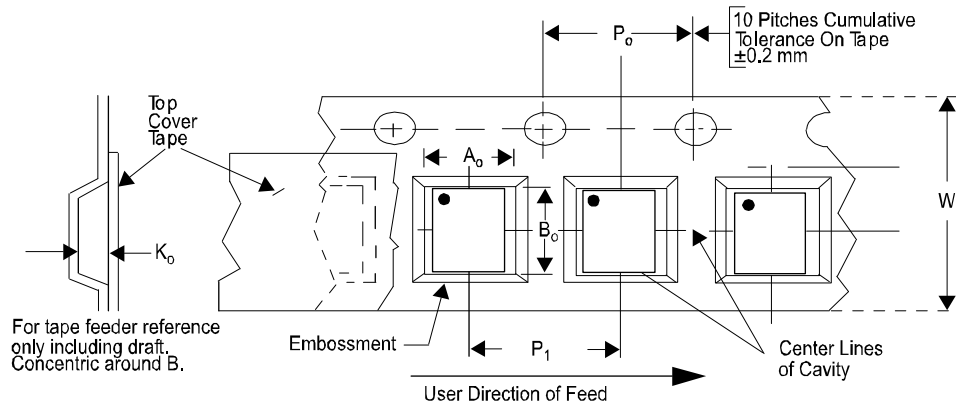



Dimensions for 8-Lead, 0.5mm pitch uDFN package

CM1682

Tape and Reel Specifications

PART NUMBER	PACKAGE SIZE (mm)	POCKET SIZE (mm) $B_0 \times A_0 \times K_0$	TAPE WIDTH W	REEL DIAMETER	QTY PER REEL	P_0	P_1
CM1682	2.00 X 2.00 X 0.55	2.20 X 2.20 X 0.75	8mm	178mm (7")	3000	4mm	4mm



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