CM1481

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

ON Semiconductor®

http://onsemi.com



WDFN8
DE SUFFIX
CASE 511BE

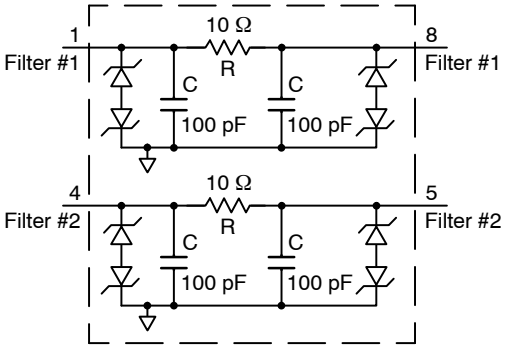
Features

- Two Channels of EMI Filtering
- Pi−Style Filters in a Capacitor−Resistor−Capacitor (C−R−C) Network
- ±8 kV ESD Protection (IEC 61000−4−2, Contact Discharge)
- ±15 kV ESD Protection (HBM)
- Supports AC Signals − Ideal for Audio Applications
- Greater than 40 dB of Attenuation at 1 GHz
- 8−lead, 2.00 mm x 2.00 mm Footprint WDFN Package
- Low Profile Maximum Height of 0.8 mm
- These Devices are Pb−Free and are RoHS Compliant

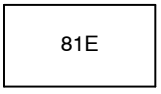
Applications

- 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

ELECTRICAL SCHEMATIC



MARKING DIAGRAM



81E = CM1481−02DE

ORDERING INFORMATION

Device	Package	Shipping†
CM1481−02DE	WDFN (Pb−Free)	3000/Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

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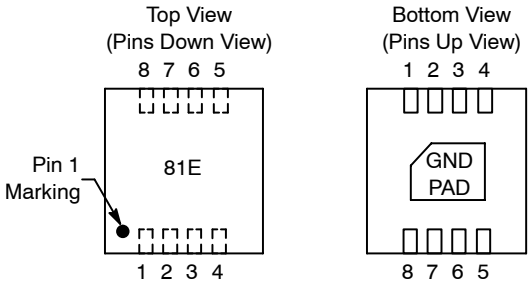
Table 1. PIN DESCRIPTIONS

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

PACKAGE / PINOUT DIAGRAMS



CM1481−02DE
8 Lead WDFN Package

SPECIFICATIONS

Table 2. ABSOLUTE MAXIMUM RATINGS

Parameter	Rating	Units
Storage Temperature Range	−65 to +150	°C
DC Package Power Rating	0.5	W

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Table 3. STANDARD OPERATING CONDITIONS

Parameter	Rating	Units
Operating Temperature Range	−40 to +85	°C

Table 4. 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_{TOT}	Total Channel Capacitance	2.5 V DC, 1 MHz, 30 mV AC	160	200	240	pF
C	Capacitance C			100		pF
I_{LEAK}	Diode Leakage Current	V_{IN} = +5.0 V		0.1	1.0	μA
V_{SIG}	Signal Clamp Voltage Positive Clamp Negative Clamp	 I_{LOAD} = 10 mA I_{LOAD} = −10 mA	 5 −15	 7 −10	 15 −5	V
V_{ESD}	In−system ESD Withstand Voltage a) Human Body Model, MIL−STD−883, Method 3015 b) Contact Discharge per IEC 61000−4−2 Level 4	(Note 2)	 ±15 ±8			kV
f_C	Cut−off Frequency Z_{SOURCE} = 50 Ω, Z_{LOAD} = 50 Ω	R = 10 Ω, C = 100 pF		31		MHz

1. T_A = 25°C unless otherwise specified.
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 Ω Environment)

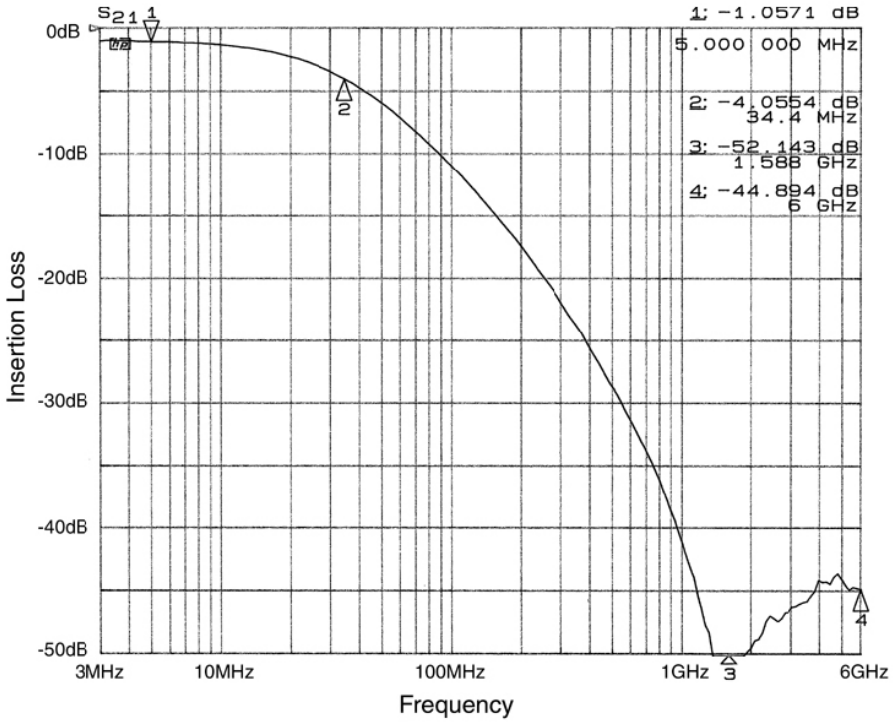


Figure 1. Insertion Loss vs. Frequency (Filter #1 to GND B2)

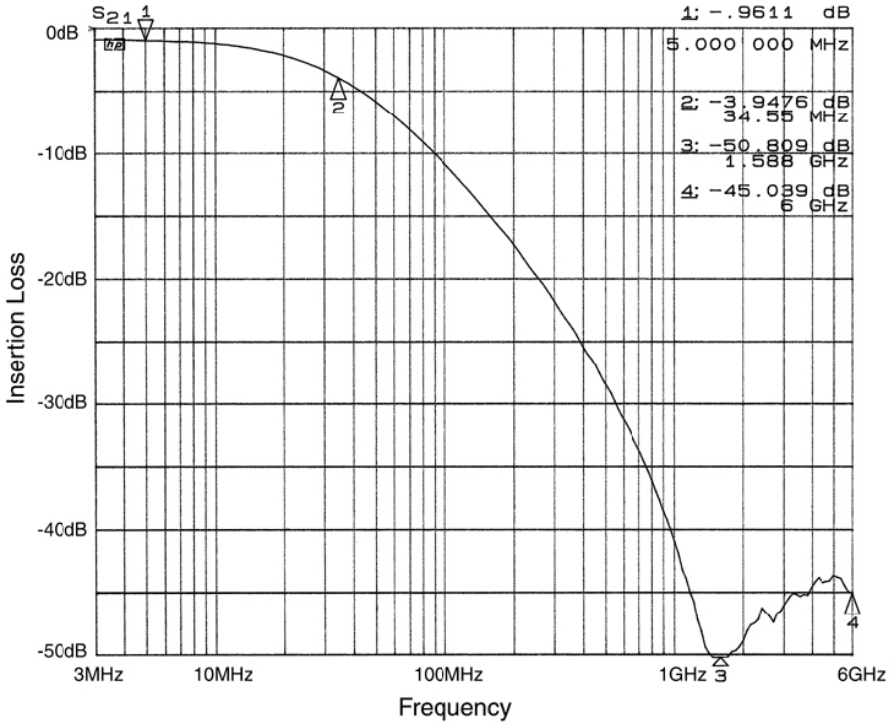
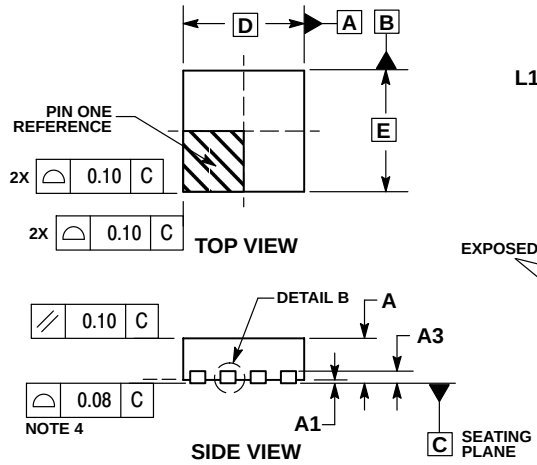


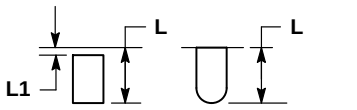
Figure 2. Insertion Loss vs. Frequency (Filter #2 to GND B2)

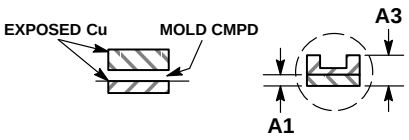
WDFN8 2x2, 0.5P
CASE 511BE
ISSUE A

DATE 27 MAY 2011

SCALE 2:1

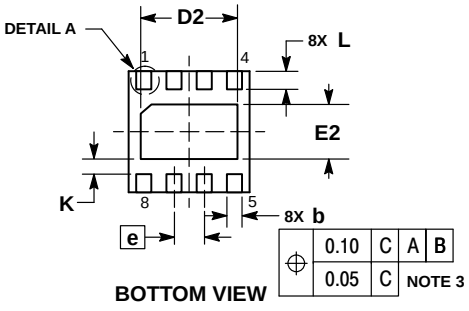




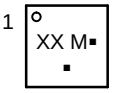


NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSION b APPLIES TO PLATED TERMINAL AND IS MEASURED BETWEEN 0.15 AND 0.30 MM FROM TERMINAL TIP.
4. COPLANARITY APPLIES TO THE EXPOSED PAD AS WELL AS THE TERMINALS.

	MILLIMETERS	
DIM	MIN	MAX
A	0.70	0.80
A1	0.00	0.05
A3	0.20 REF	
b	0.20	0.30
D	2.00 BSC	
D2	1.50	1.70
E	2.00 BSC	
E2	0.80	1.00
e	0.50 BSC	
K	0.25 REF	
L	0.20	0.40
L1	−−−	0.15



GENERIC MARKING DIAGRAM*

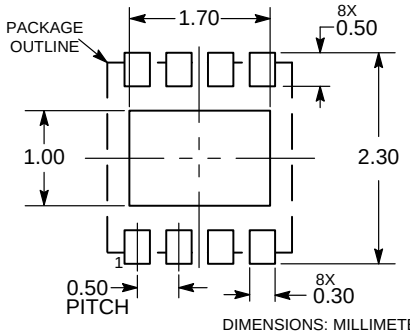


XX = Specific Device Code
M = Date Code
▪ = Pb−Free Package

(Note: Microdot may be in either location)

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “ ▪”, may or may not be present.

RECOMMENDED SOLDERING FOOTPRINT*



DIMENSIONS: MILLIMETERS

*For additional information on our Pb−Free strategy and soldering details, please download the **onsemi** Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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DESCRIPTION:	**WDFN8, 2X2, 0.5P**	**PAGE 1 OF 1**

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