

CM1481

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

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



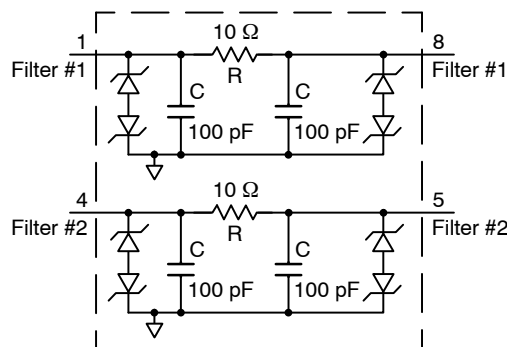
ON Semiconductor®

<http://onsemi.com>

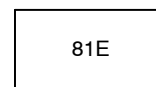


WDFN8
DE SUFFIX
CASE 511BE

ELECTRICAL SCHEMATIC



MARKING DIAGRAM



81E = CM1481-02DE

ORDERING INFORMATION

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

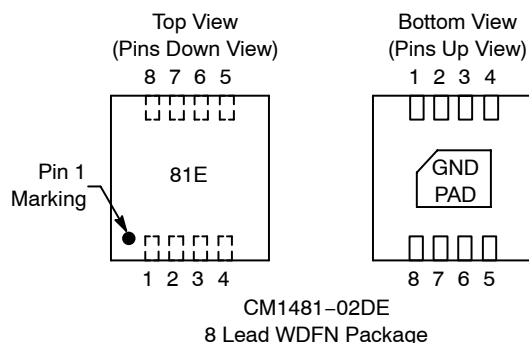
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

CM1481

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



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)

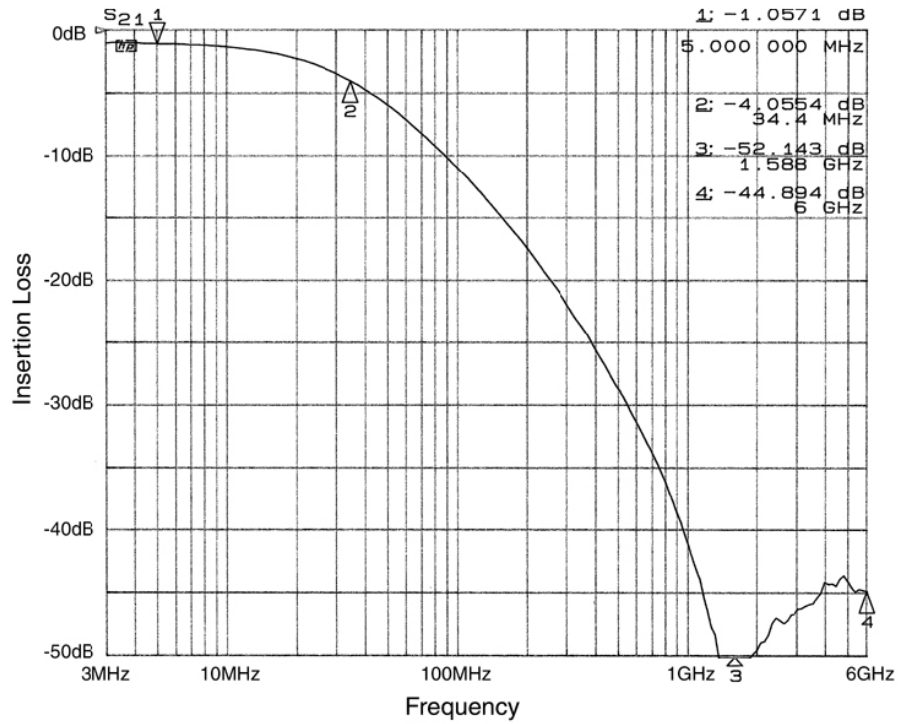


Figure 1. Insertion Loss vs. Frequency (Filter #1 to GND B2)

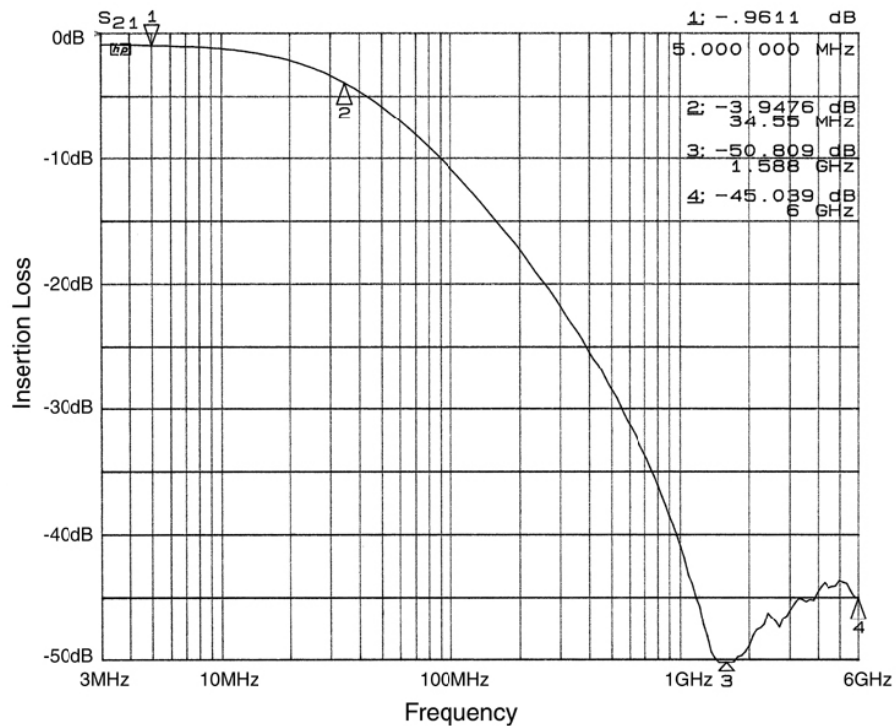


Figure 2. Insertion Loss vs. Frequency (Filter #2 to GND B2)

MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS

ON Semiconductor®

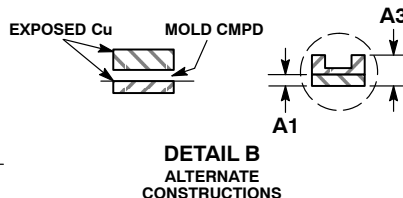
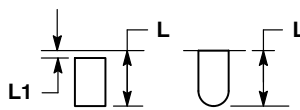
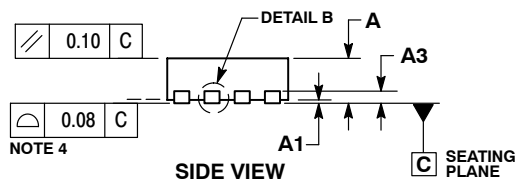
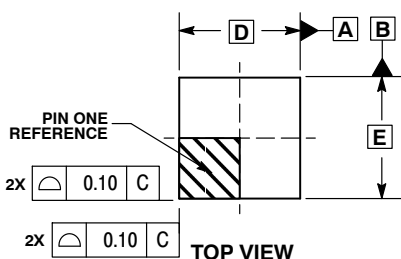
ON



SCALE 2:1

WDFN8 2x2, 0.5P
CASE 511BE-01
ISSUE A

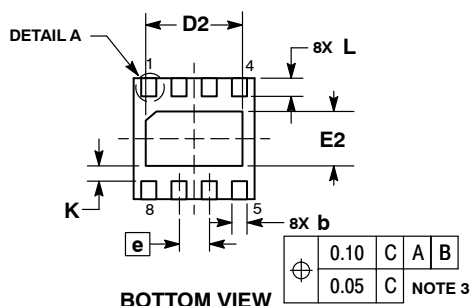
DATE 27 MAY 2011



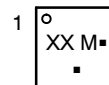
NOTES:

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.

DIM	MILLIMETERS	
	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



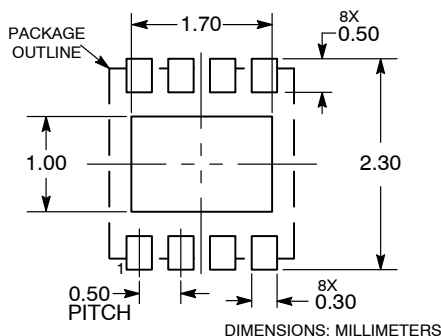
GENERIC MARKING DIAGRAM*



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*



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

DOCUMENT NUMBER:	98AON48936E	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.
DESCRIPTION:	WDFN8, 2X2, 0.5P	PAGE 1 OF 1

ON Semiconductor and ON are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. ON Semiconductor does not convey any license under its patent rights nor the rights of others.

onsemi, **Onsemi**, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi**'s product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using **onsemi** products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by **onsemi**. "Typical" parameters which may be provided in **onsemi** data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. **onsemi** does not convey any license under any of its intellectual property rights nor the rights of others. **onsemi** products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:

Email Requests to: orderlit@onsemi.com

onsemi Website: www.onsemi.com

TECHNICAL SUPPORT

North American Technical Support:

Voice Mail: 1 800-282-9855 Toll Free USA/Canada

Phone: 011 421 33 790 2910

Europe, Middle East and Africa Technical Support:

Phone: 00421 33 790 2910

For additional information, please contact your local Sales Representative