CM1484

Dual Channel EMI Filter with ESD Protection

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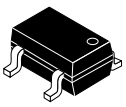


SC−70
S7 SUFFIX
CASE 419AC

Product Description

The CM1484 is a two channel pi-style EMI filter array with ESD protection, housed in a 5−lead SC−70 package. The CM1484 has component values of 11 pF − 100 Ω − 11 pF per channel. The CM1484 has a cut−off frequency of 220 MHz and can be used in applications with data rates up to 80 Mbps. The parts include ESD diodes on every pin, which provide a very high level of protection for sensitive electronic components that may be subjected to electrostatic discharge (ESD). The ESD protection diodes safely dissipate ESD strikes of ±15 kV, well beyond the maximum requirement of the IEC61000−4−2 international standard. Using the MIL−STD−883 (Method 3015) specification for Human Body Model (HBM) ESD, the pins are protected for contact discharges at greater than ±30 kV.

These devices are particularly well-suited for portable electronics (e.g. wireless handsets, PDAs, notebook computers) because of their small package and easy−to−use pin assignments. In particular, the CM1484 is ideal for EMI filtering and protecting data and control lines for the I/O data ports, LCD display and camera interface in mobile handsets.

The CM1484 is housed in a small, 5−lead SC−70 package and is available with lead-free finishing.

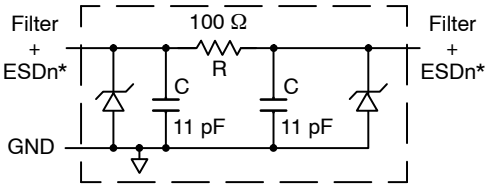
Features

- Two Channels of EMI Filtering with Integrated ESD Protection
- Pi−Style EMI Filters in a Capacitor−Resistor−Capacitor (C−R−C) Network
- ±15 kV ESD Protection on Each Channel (IEC 61000−4−2 Level 4, Contact Discharge)
- ±30 kV ESD Protection on Each Channel (HBM)
- Greater than 20 dB Attenuation (Typical) at 1 GHz
- 5−lead SC−70 Package
- These Devices are Pb−Free and are RoHS Compliant

Applications

- LCD and Camera Data Lines 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
- Wireless Handsets
- Handheld PCs/PDAs
- LCD and Camera Modules

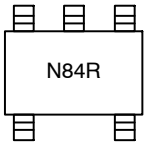
ELECTRICAL SCHEMATIC



1 of 2 EMI/RFI Filter Channels with Integrated ESD Protection

* See Package/Pinout Diagrams for expanded pin information.

MARKING DIAGRAM



N84R = CM1484−02S7

ORDERING INFORMATION

Device	Package	Shipping†
CM1484−02S7	SC−70 (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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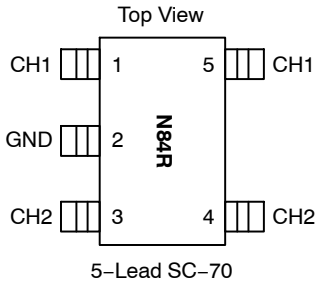
Table 1. PIN DESCRIPTIONS

5−Lead SC−70 Package		
Pin	**Name**	**Description**
1	FILTER1	Filter + ESD Channel 1
2	GND	Ground
3	FILTER2	Filter + ESD Channel 2
4	FILTER2	Filter + ESD Channel 2
5	FILTER1	Filter + ESD Channel 1

PACKAGE / PINOUT DIAGRAMS



5−Lead SC−70

SPECIFICATIONS

Table 2. ABSOLUTE MAXIMUM RATINGS

Parameter	Rating	Units
Storage Temperature Range	−65 to +150	°C
DC Power per Resistor	100	mW
DC Package Power Rating	500	mW

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		90	100	110	Ω
C_{TOTAL}	Total Channel Capacitance	At 0 V DC Reverse Bias, 1 MHz, 30 mV AC	17.6	22.0	26.4	pF
C	Capacitance C1	At 0 V DC Reverse Bias, 1 MHz, 30 mV AC	8.8	11.0	13.2	pF
I_{LEAK}	Diode Leakage Current (Reverse Bias)	V_{DIODE} = +3.0 V			1.0	μA
V_Z	Zener Breakdown Voltage Positive Clamp	I_{LOAD} = 1 mA	6.0		8.0	V
V_F	Zener Forward Voltage	I_F = 50 mA			1.5	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)	 ±30 ±15			kV
R_{DYN}	Dynamic Resistance Positive Negative			 2.3 0.9		Ω
f_C	Cut−off Frequency Z_{SOURCE} = 50 Ω, Z_{LOAD} = 50 Ω	Channel R = 100 Ω, Channel C = 22 pF at 0 V Reverse Bias		220		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.

PERFORMANCE INFORMATION

Typical Filter Performance (T_A = 25°C, DC Bias = 0 V, 50 Ω Environment)

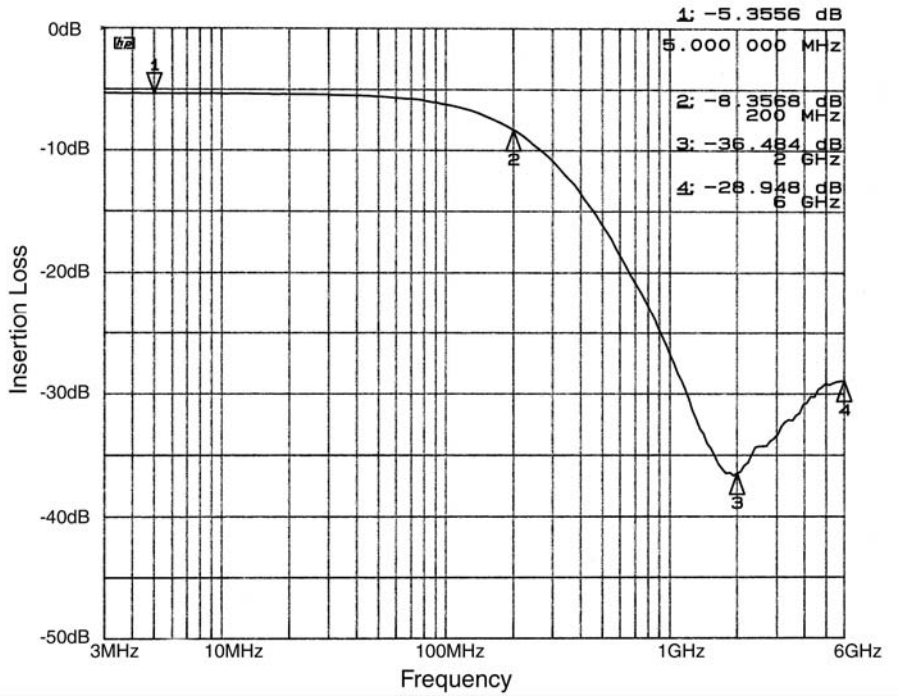


Figure 1. Insertion Loss vs. Frequency (FILTER1 Input to GND)

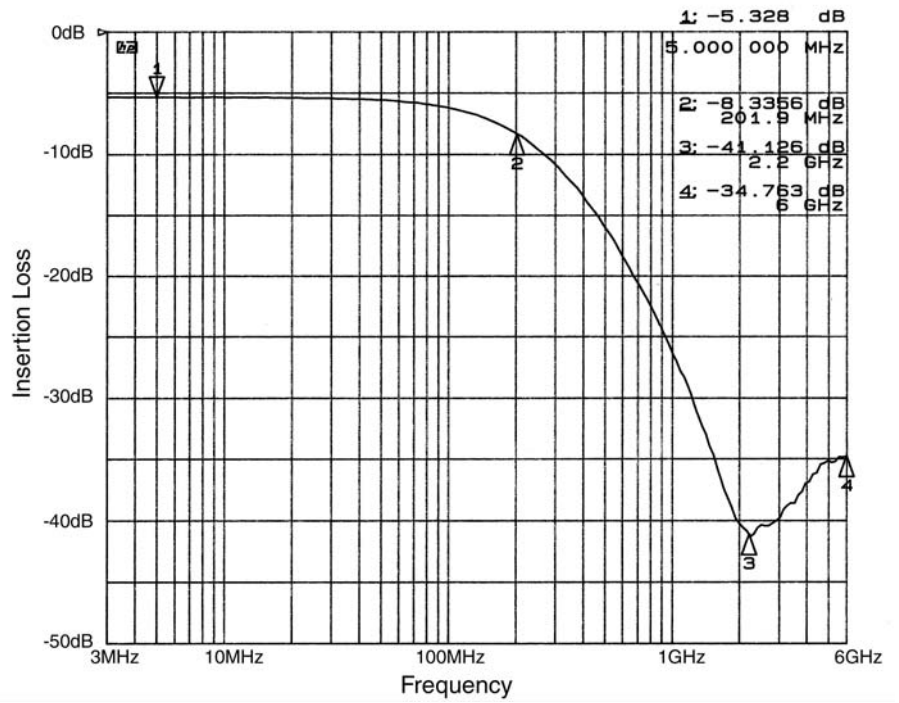
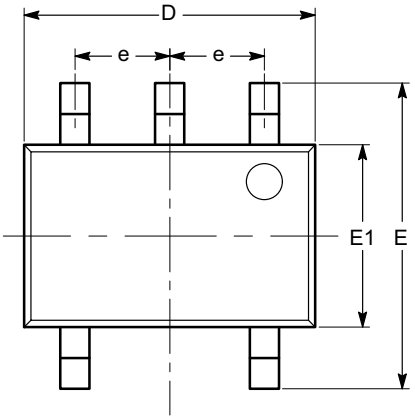


Figure 2. Insertion Loss vs. Frequency (FILTER2 Input to GND)

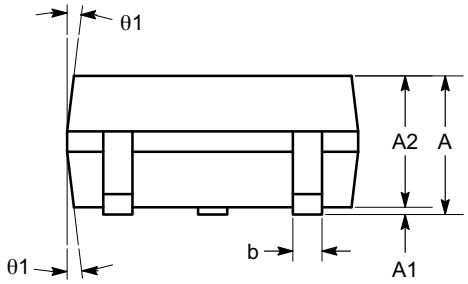
SC−88A (SC−70 5 Lead), 1.25x2
CASE 419AC−01
ISSUE A

DATE 29 JUN 2010

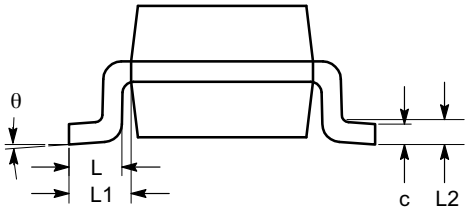


TOP VIEW

SYMBOL	MIN	NOM	MAX
A	0.80		1.10
A1	0.00		0.10
A2	0.80		1.00
b	0.15		0.30
c	0.10		0.18
D	1.80	2.00	2.20
E	1.80	2.10	2.40
E1	1.15	1.25	1.35
e		0.65 BSC	
L	0.26	0.36	0.46
L1		0.42 REF	
L2		0.15 BSC	
θ	0°		8°
θ1	4°		10°



SIDE VIEW



END VIEW

Notes:
(1) All dimensions are in millimeters. Angles in degrees.
(2) Complies with JEDEC MO-203.

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DESCRIPTION:	SC−88A (SC−70 5 LEAD), 1.25X2	PAGE 1 OF 1

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