



Features

- Two channels of EMI filtering with integrated ESD protection
- Pi-style EMI filters in a capacitor-resistor-capacitor (C-R-C) network
- $\pm 15\text{kV}$ ESD protection on each channel (IEC 61000-4-2 Level 4, contact discharge)
- $\pm 30\text{kV}$ ESD protection on each channel (HBM)
- Greater than 30dB attenuation (typical) at 1GHz
- 6-lead SOT-563 package
- Available with lead-free finishing

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

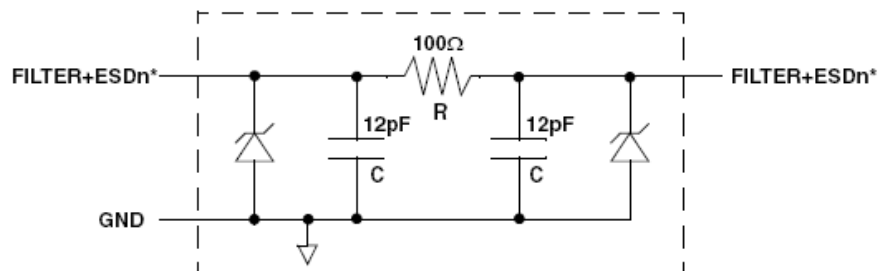
Product Description

The CM1485 is a 2 channel pi-style EMI filter array with ESD protection, housed in a 6-lead SOT-563 package. The CM1485 has component values of 12pF-100 Ω -12pF per channel. The CM1485 has a cut-off frequency of 125MHz and can be used in applications with data rates up to 48Mbps. 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 $\pm 15\text{kV}$, 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 $\pm 30\text{kV}$.

This device is particularly well-suited for portable electronics (e.g. wireless handsets, PDAs, notebook computers) because of its small package and easy-to-use pin assignments. In particular, the CM1485 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 CM1485 is housed in a small, 6-lead SOT-563 package and is available with lead-free finishing.

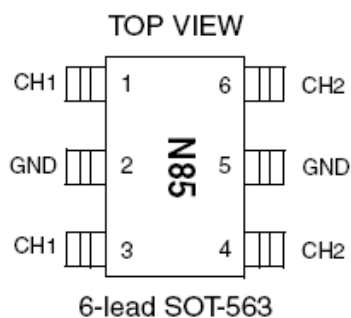
Electrical Schematic



1 of 2 EMI/RFI + ESD Channels

* See Package/Pinout Diagram for expanded pin information.

PACKAGE / PINOUT DIAGRAMS



Notes:

1) These drawings are not to scale.

PIN DESCRIPTIONS

Pin	NAME	DESCRIPTION
1	FILTER1	Filter + ESD Channel 1
2	GND	Ground ⁽¹⁾
3	FILTER1	Filter + ESD Channel 1
4	FILTER2	Filter + ESD Channel 2
5	GND	Ground ⁽¹⁾
6	FILTER2	Filter + ESD Channel 2

Note 1: Pin 2 and Pin 5 must be well grounded at the same time.

Ordering Information

PART NUMBERING INFORMATION			
Pins	Package	Lead-free Finish	
		Ordering Part Number ¹	Part Marking
6	SOT-563	CM1485 -02SE	N85

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 Power per Resistor	100	mW
DC Package Power Rating	0.15	W

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

ELECTRICAL OPERATING CHARACTERISTICS⁽¹⁾

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
R	Resistance		90	100	110	Ω
C _{TOTAL}	Total Channel Capacitance	At 2.5VDC Reverse Bias, 1MHz, 30mVAC	19.2	24	28.8	pF
I _{LEAK}	Diode Leakage Current (reverse bias)	V _{DIODE} = +3.0V			1.0	μ A
V _{BR}	Breakdown Voltage Positive Clamp	I _{LOAD} = 1mA	6.0	7.0		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	\pm 30			kV
R _{DYN}	Dynamic Resistance Positive Negative			2.3 0.9		Ω Ω
f _C	Cut-off Frequency Z _{SOURCE} = 50 Ω , Z _{LOAD} = 50 Ω			125		MHz
A _{1GHz}	Absolute Attenuation @ 1GHz from 0dB Level	Z _{SOURCE} = 50 Ω , Z _{LOAD} = 50 Ω , DC Bias = 0V; See Notes 1 and 3		35		dB
A _{800MHz - 6GHz}	Absolute Attenuation @ 800MHz to 6GHz from 0dB Level	Z _{SOURCE} = 50 Ω , Z _{LOAD} = 50 Ω , DC Bias = 0V; See Notes 1 and 3		30		dB

Note 1: T_A=25°C unless otherwise specified.

Note 2: ESD applied to input and output pins with respect to GND, one at a time.

Note 3: Attenuation / RF curves characterized by a network analyzer using microprobes.

Performance Information

Typical Filter Performance ($T_A = 25^\circ\text{C}$, DC Bias = 0V, 50 Ohm Environment)

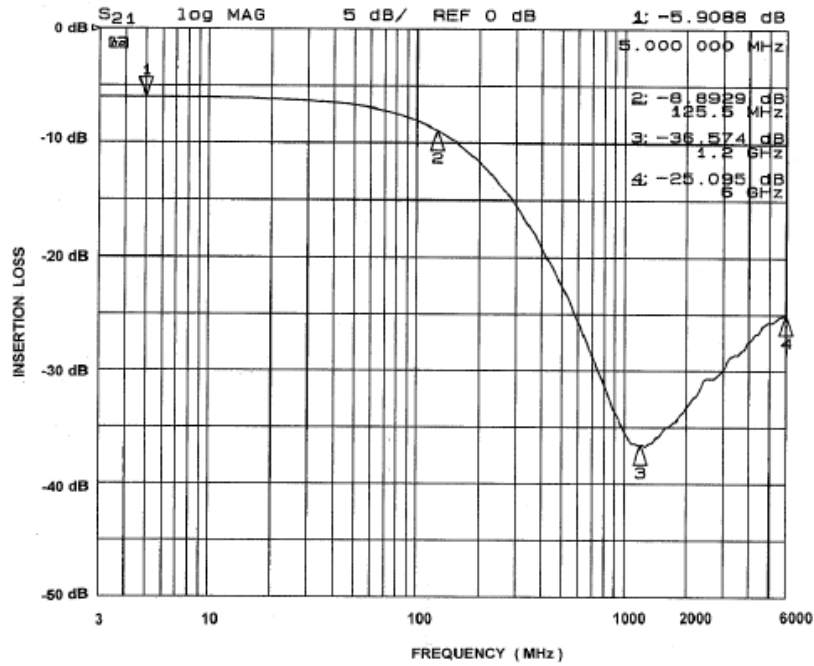


Figure 1. Insertion Loss vs. Frequency (FILTER1 Input to GND)

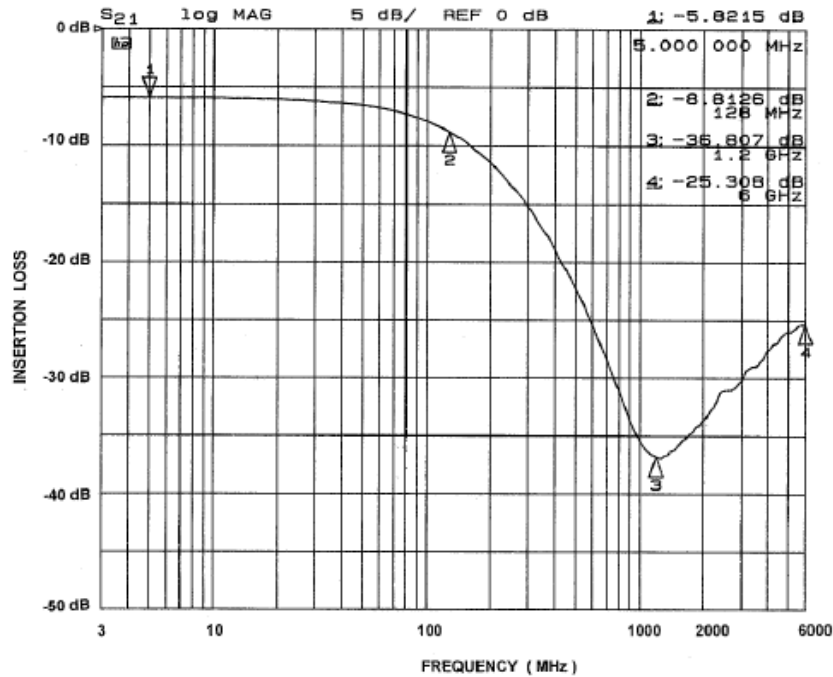
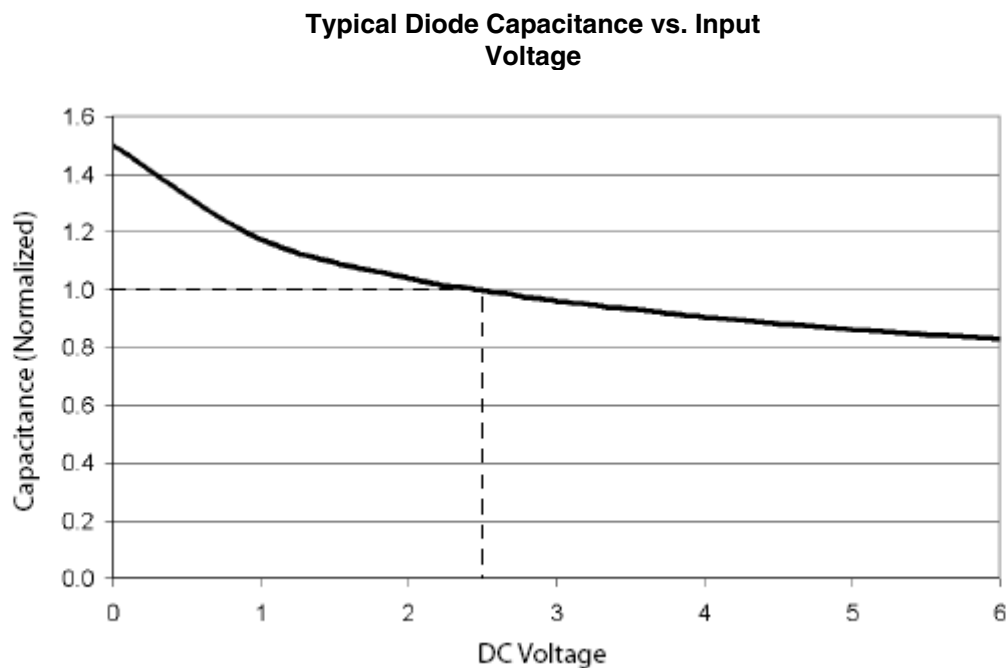


Figure 2. Insertion Loss vs. Frequency (FILTER2 Input to GND)

Performance Information (cont'd)



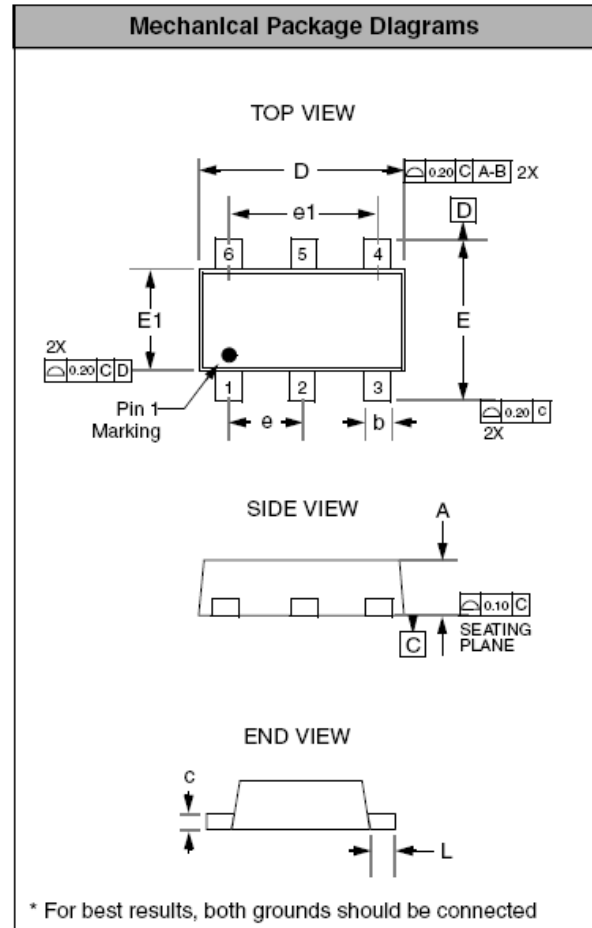
**Figure 3. Filter Capacitance vs. Input Voltage
(normalized to capacitance at 2.5VDC and 25°C)**

Mechanical Details


SOT-563 Mechanical Specifications

The CM1485 is supplied in a 6-pin SOT-563 package. Dimensions are presented below.

PACKAGE DIMENSIONS						
Package	SOT-563					
Leads	6					
Dim.	Millimeters			Inches		
	Min	Nom	Max	Min	Nom	Max
A	0.50	0.55	0.60	0.020	0.022	0.024
b	0.17		0.27	0.007		0.011
c	0.08		0.18	0.003		0.007
D	1.60 BSC			0.063 BSC		
E	1.50	1.60	1.70	0.059	0.063	0.067
E1	1.20 BSC			0.047 BSC		
e	0.50 BSC			0.020 BSC		
e1	1.00 BSC			0.040 BSC		
L	0.20 BSC			0.008 BSC		
# per tape and reel	5000 pieces					
Controlling dimension: millimeters						



Package Dimensions for SOT-563

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