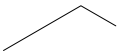
CM1401-03

4-Channel ESD/EMI Filter Array Plus 4-Channel ESD Array for USB

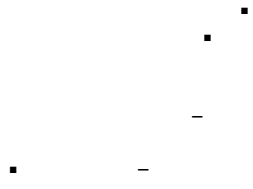
ON Semiconductor

http://onsemi.com



WLCSP15
CP SUFFIX
CASE 567BS

MARKING DIAGRAM



ORDERING INFORMATION

Device	Package	Shipping
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Product Description

The CM1401−03 is a multichannel array with four low−pass filter + ESD channels and four ESD−only channels. The CM1401−03 reduces EMI/RFI emissions on a data port and protects against ESD on a USB port. Each EMI/RFI channel integrates a high quality pi−style filter (C−R−C) that provides greater than 30 dB attenuation in the 800−2700 MHz range relative to the pass band attenuation. These pi−style filters are bidirectional, controlling EMI both to and from a data port connector.

The CM1401−03 provides a high−level of ESD protection on all eight channels for sensitive electronic components that may be subjected to electrostatic discharge (ESD). The input pins safely dissipate ESD strikes of ±15 kV, exceeding the maximum requirement of the IEC 61000−4−2 international standard. Using the MIL−STD−883 (Method 3015) specification for Human Body Model (HBM) ESD, the device provides protection for contact discharges to greater than ±30 kV.

The CM1401−03 is particularly well suited for portable electronics (e.g., cellular telephones, PDAs, notebook computers) because of its small package footprint and low weight.

The CM1401−03 incorporates *OptiGuard*™ coating for improved reliability at assembly and comes in a space−saving, low−profile Chip Scale Package with RoHS−compliant lead−free finishing.

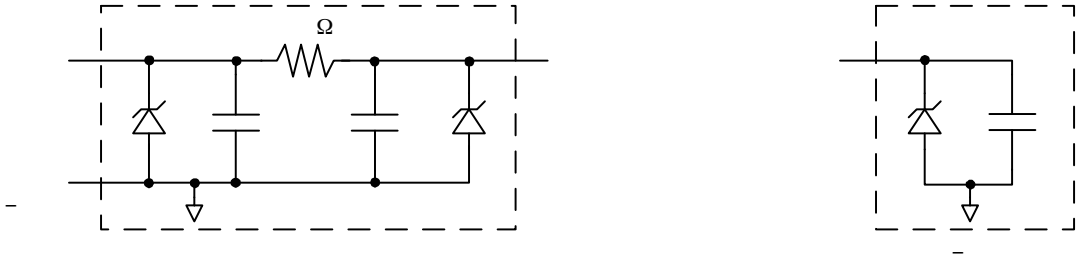
Features

- Functionally and Pin−Compatible with CSPEMI307A Device
- *OptiGuard*™ Coated for Improved Reliability at Assembly
- Four Channels of Combined EMI/RFI Filtering + ESD Protection
- Four Additional Channels of ESD−Only Protection
- 40 dB Absolute Attenuation (Typical) at 1 GHz
- 35 dB Attenuation (Typical) at 1 GHz Relative to Pass Band
- ±15 kV ESD Protection on All Channels (IEC 61000−4−2 Level 4, Contact Discharge)
- ±30 kV ESD Protection on All Channels (HBM)
- 15−Bump, 2.960 mm X 1.330 mm Footprint
- Chip Scale Package (CSP) Features Extremely Low Lead Inductance for Optimum Filter and ESD Performance
- These Devices are Pb−Free and are RoHS Compliant

Applications

- EMI Filtering and ESD Protection for Both Data and I/O Ports
- Outer Four Channels Provide ESD Protection for USB Lines and Other I/O Port Applications
- Wireless Handsets
- Handheld PCs / PDAs
- MP3 Players
- Notebooks
- Desktop PCs

BLOCK DIAGRAM



PACKAGE / PINOUT DIAGRAMS

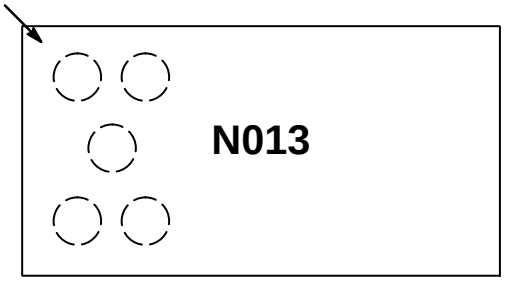


Table 1. PIN DESCRIPTIONS

15−bump CSP Package		
Pin	**Name**	**Description**

Table 4. ELECTRICAL OPERATING CHARACTERISTICS

Symbol	Parameter	Conditions	Min	Typ	Max	Units
						Ω
						°
				–		°
		μ				
			–		–	
	– – – – –		± ±			
	– –					
	– Ω Ω	Ω				

°

PERFORMANCE INFORMATION

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

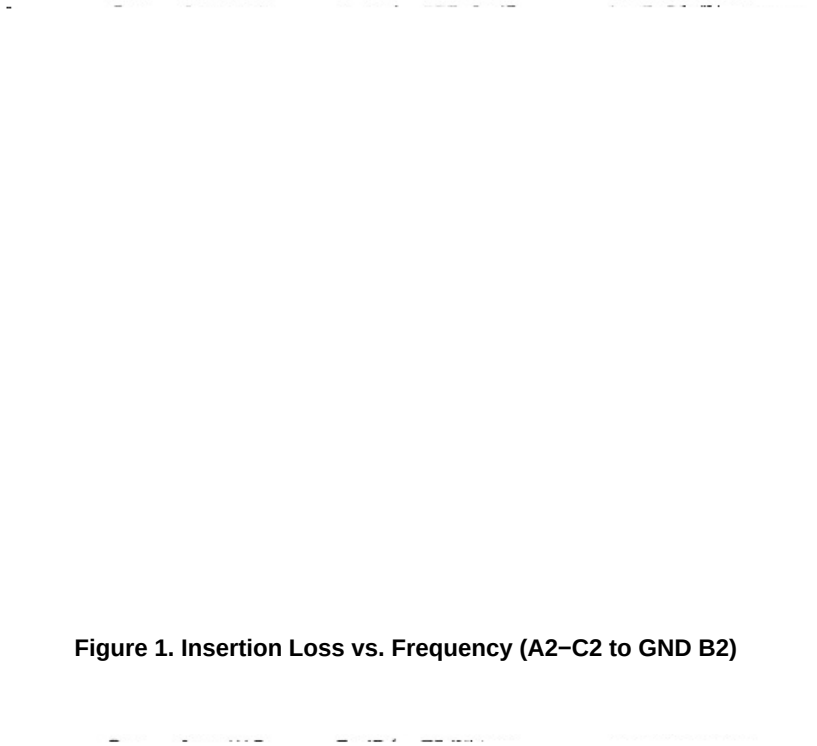


Figure 1. Insertion Loss vs. Frequency (A2−C2 to GND B2)

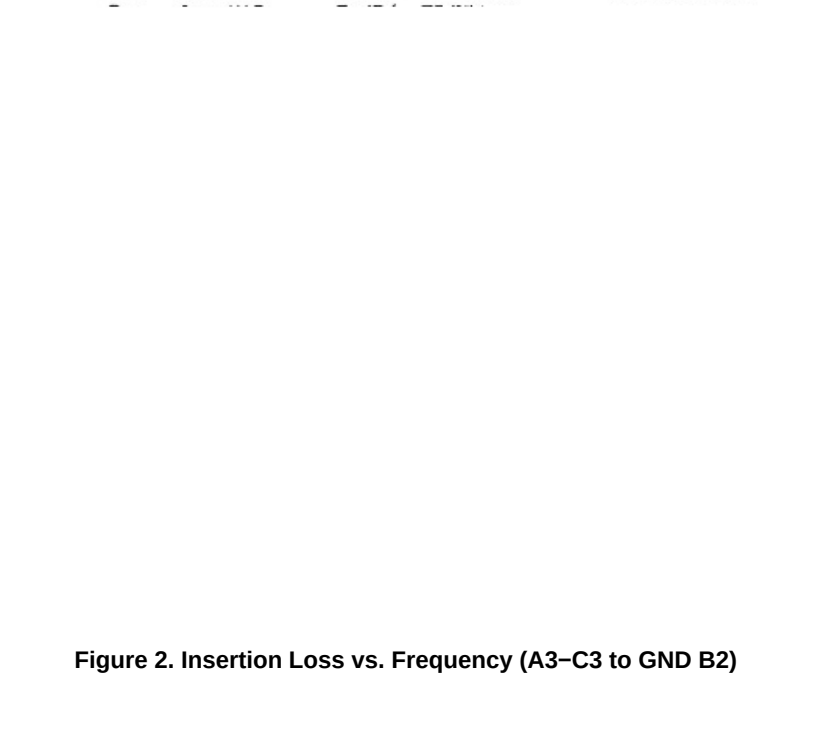


Figure 2. Insertion Loss vs. Frequency (A3−C3 to GND B2)

PERFORMANCE INFORMATION (Cont'd)

Typical Filter Performance (T_A = 25°C, 50 Ω Environment)

Figure 5. Comparison of Filter Response Curves for CM1401−03CS with DC Bias

PERFORMANCE INFORMATION (Cont'd)

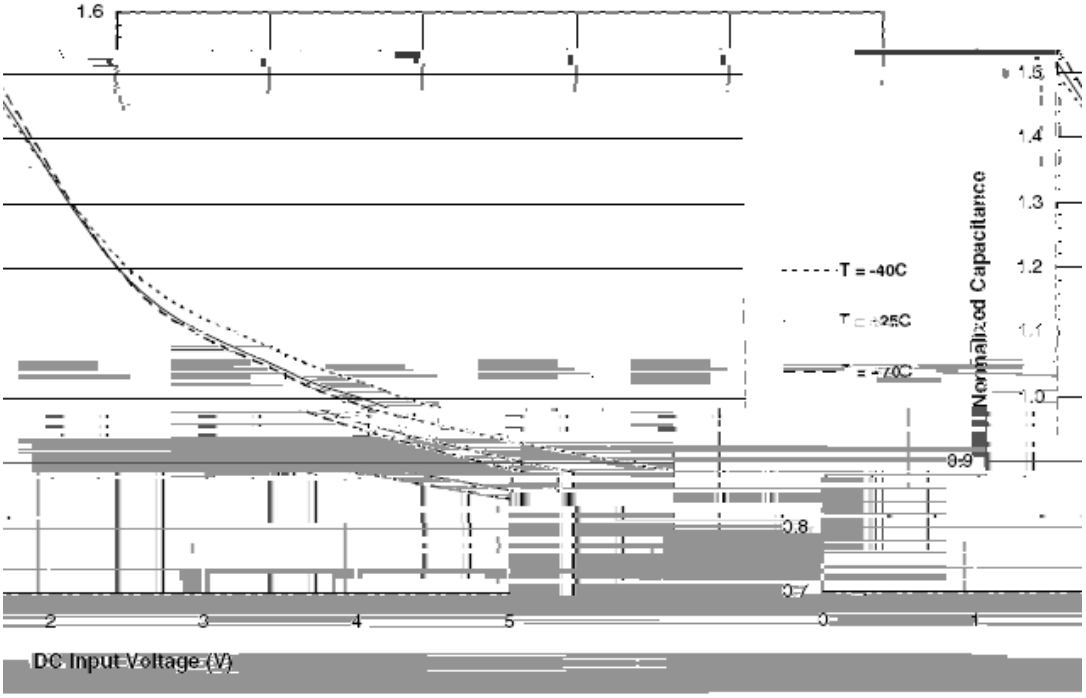


Figure 6. Filter Capacitance vs. Input Voltage over Temperature (normalized to capacitance at 2.5 VDC and 25°C)

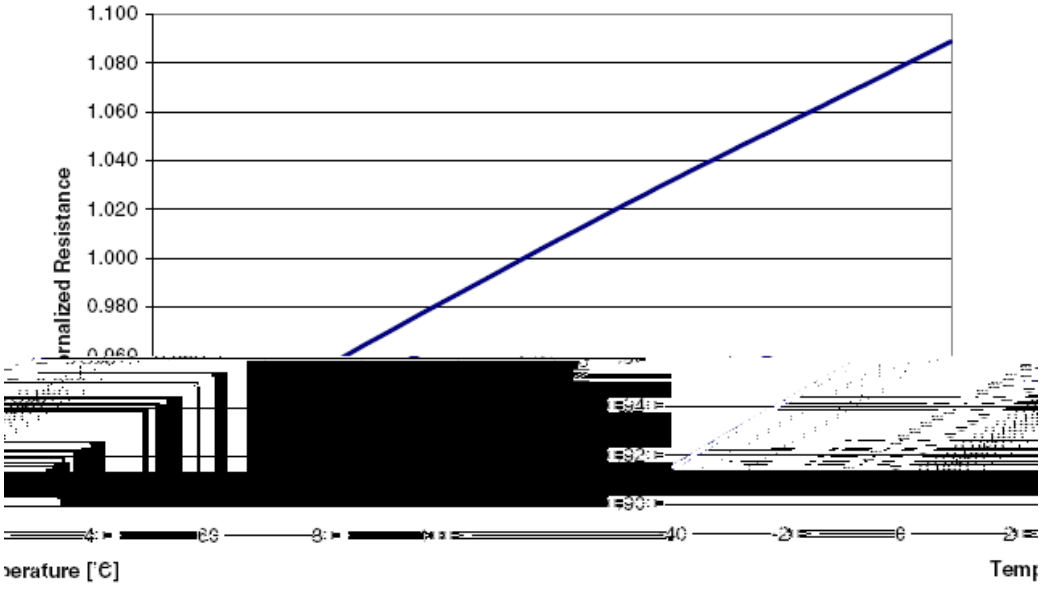


Figure 7. Resistance vs. Temperature (normalized to resistance at 25°C)

APPLICATION INFORMATION

Table 5. PRINTED CIRCUIT BOARD RECOMMENDATIONS

Parameter	Value
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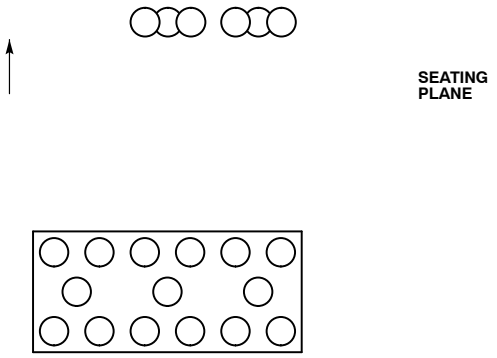
WLCSP15, 2.96x1.33
CASE 567BS
ISSUE O

DATE 26 JUL 2010



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