# C 1408-04D

# 4-C CD d C m
F A y FSD
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**Features**

- Four 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 −35 dB Attenuation (Typical) at 1 GHz



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**Table 4. ELECTRICAL OPERATING CHARACTERISTICS** (Note 1)

| Symbol | Parameter | Conditions | Min | Typ | Max | Units |
|---|---|---|---|---|---|---|
| R | Resistance | | 80 | 100 | 120 | Ω |
| $C_{TOTAL}$ | Total Channel Capacitance | At 2.5 VDC Reverse Bias, 1 MHz, 30 mVAC | 14 | 17 | 22 | pF |
| C | Capacitance C | At 2.5 VDC Reverse Bias, 1 MHz, 30 mVAC | | 8.5 | | pF |
| $V_{DIODE}$ | Standoff Voltage | $I_{DIODE}$ = 10 μA | | 6.0 | | V |
| $I_{LEAK}$ | Diode Leakage Current (reverse bias) | $V_{DIODE}$ = 3.3 V | | 0.1 | 1.0 | μA |
| $V_{SIG}$ | Signal Clamp Voltage<br>Positive Clamp<br>Negative Clamp | <br>$I_{LOAD}$ = 10 mA<br>$I_{LOAD}$ = −10 mA | <br>5.6<br>−1.5 | <br>6.8<br>−0.8 | <br>9.0<br>−0.4 | V |
| $V_{ESD}$ | In−system ESD Withstand Voltage<br>a) Human Body Model, MIL−STD−883, Method 3015<br>b) Contact Discharge per IEC 61000−4−2 Level 4 | (Notes 2 and 3) | <br>30<br>15 | | | kV |
| $R_{DYN}$ | Dynamic Resistance<br>Positive<br>Negative | | | <br>2.3<br>0.9 | | Ω |
| $f_C$ | Cut−off Frequency<br>$Z_{SOURCE}$ = 50 Ω, $Z_{LOAD}$ = 50 Ω | Channel R = 100 Ω,<br>Channel $C_{SINGLE}$ = 8.5 pF | | <br>200 | | 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.
3. These parameters are guaranteed by design and characterization.

## 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)**

## PERFORMANCE INFORMATION (Cont'd)

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

**Figure 3. Insertion Loss vs. Frequency (FILTER3 Input to GND)**

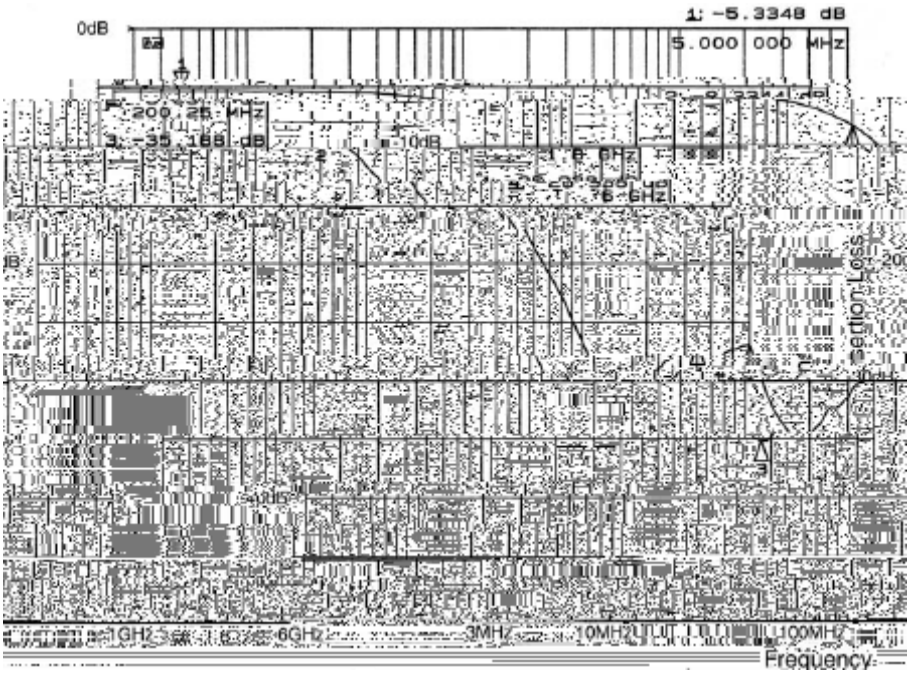


**Figure 4. Insertion Loss vs. Frequency (FILTER4 Input to GND)**

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