

## EMI FILTER/TVS ARRAY

## APPLICATIONS

- ✓ Cellular Phones
- ✓ Color LCD Display Panel
- ✓ Notebooks
- ✓ Personal Digital Assistant (PDA)
- ✓ Ground Positioning System (GPS)
- ✓ SMART Cards

## IEC COMPATIBILITY (EN61000-4)

- ✓ 61000-4-2 (ESD): Air - 15kV, Contact - 8kV
- ✓ 61000-4-4 (EFT): 40A - 5/50ns

## FEATURES

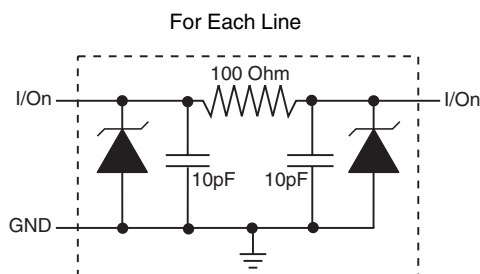
- ✓ ESD Protection > 25 kilovolts
- ✓ EMI Filtering/TVS Low Pass Filters
- ✓ Blocking Rectifier
- ✓ > 25db Attenuation from 800MHz to 3GHz
- ✓ Protects up to Four(4) Data Lines
- ✓ RoHS Compliant in Lead-Free Versions

## MECHANICAL CHARACTERISTICS

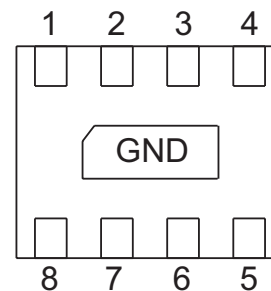
- ✓ DFN-8 Package
- ✓ Available in Tin-Lead or Lead-Free Pure-Tin Plating(Annealed)
- ✓ Solder Reflow Temperature:
  - Tin-Lead - Sn/Pb, 85/15: 240-245°C
  - Pure-Tin - Sn, 100: 260-270°C
- ✓ Flammability Rating UL 94V-0
- ✓ Device Marking: Marking Code
- ✓ 8mm Tape and Reel Per EIA Standard 481



## PIN CONFIGURATION



**Note:** I/O connected from pins 1-12, 2-11, 3-10, 4-9, 5-8 and 6-7.



BOTTOM VIEW

## DEVICE CHARACTERISTICS

### MAXIMUM RATINGS @ 25°C Unless Otherwise Specified

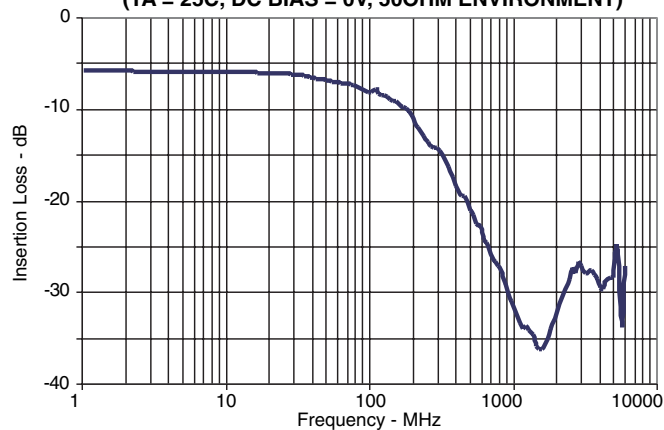
PARAMETER	SYMBOL	VALUE	UNITS
Operating Temperature	$T_j$	-40°C to 85°C	°C
Storage Temperature	$T_{STG}$	-55°C to 150°C	°C
DC Power Per Resistor	P	400	mW
Typical Resistance @ ± 20%	R	100	OHMS
Soldering Temperature for 10 seconds	$T_L$	265	°C

### ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER	DEVICE MARKING CODE	RATED STAND-OFF VOLTAGE $V_{WM}$ VOLTS	MINIMUM BREAKDOWN VOLTAGE @ 1mA $V_{(BR)}$ VOLTS	MAXIMUM REVERSE LEAKAGE CURRENT @ 3V $I_b$ $\mu A$	TYPICAL FORWARD VOLTAGE @ 10mA $V_F$ VOLTS	MINIMUM ATTENUATION @ 800-3000 MHz dB	CUT-OFF FREQUENCY (50 OHMS I/O) ZERO BIAS fC MHz	TYPICAL CAPACITANCE (See Note 1) @ 2.5V, 1MHz C pF
EM4D-100L	M4D10L	5.0	6.0	0.1	0.8	25	150	20

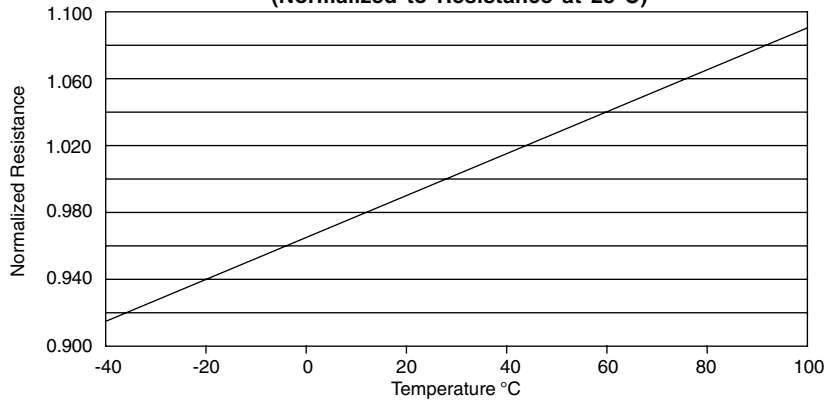
**Note 1:** 30pF @ 0V, 1MHz, ± 20% tolerance.

**FIGURE 1**  
**TYPICAL FILTER PERFORMANCE**  
**(TA = 25C, DC BIAS = 0V, 50OHM ENVIRONMENT)**

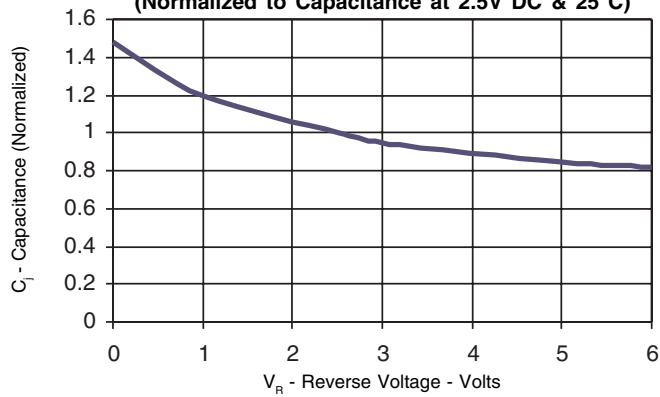


## GRAPHS

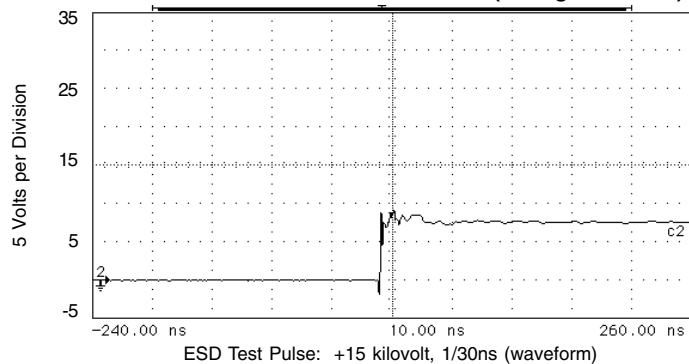
**FIGURE 1**  
**RESISTANCE VS TEMPERATURE**  
**(Normalized to Resistance at 25°C)**



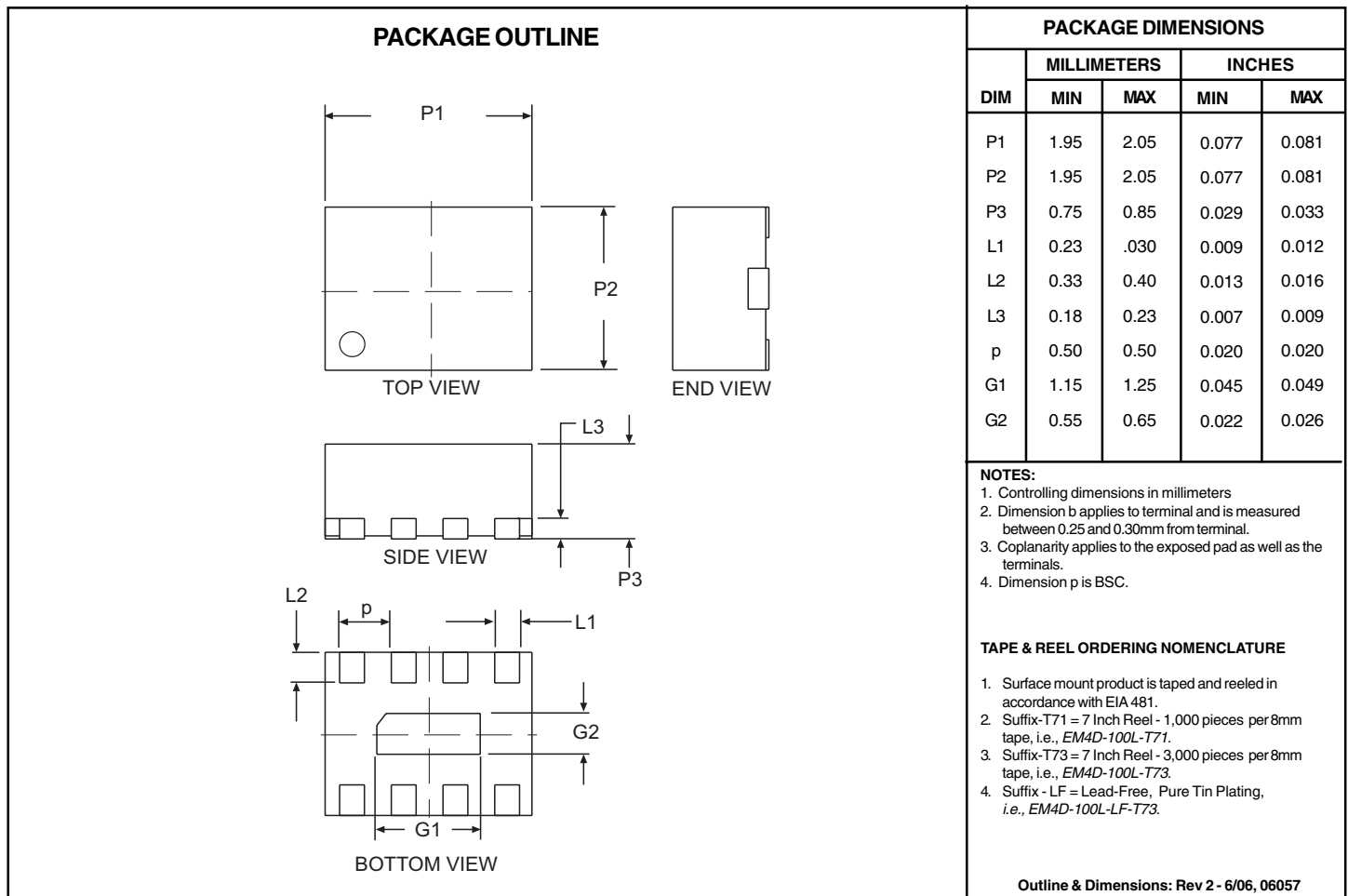
**FIGURE 3**  
**CAPACITANCE VS REVERSE VOLTAGE**  
**(Normalized to Capacitance at 2.5V DC & 25°C)**



**FIGURE 4**  
**OVERSHOOT & CLAMPING VOLTAGE (through the filter)**

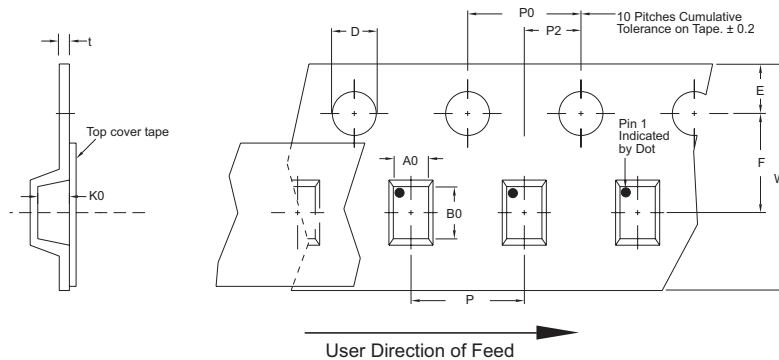


## DFN-8 PACKAGE OUTLINE & DIMENSIONS



Tape & Reel Specifications (Dimensions in millimeters)

Reel Dia.	Tape Width	A0	B0	K0	D	E	F	W	P0	P2	P	tmax
178mm (7")/330mm(13")	8mm	1.90± 0.10	2.30± 0.10	1.05 ± 0.10	1.50 ± 0.10	1.75 ± 0.10	3.50 ± 0.05	8.00 ± 0.30	4.00 ± 0.10	2.00 ± 0.05	4.00 ± 0.10	0.25



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**ProTek Devices**  
 2929 South Fair Lane, Tempe, AZ 85282  
 Tel: 602-431-8101 Fax: 602-431-2288  
 E-Mail: [sales@protekdevices.com](mailto:sales@protekdevices.com)  
 Web Site: [www.protekdevices.com](http://www.protekdevices.com)