

## EMI FILTER/TVS ARRAY



### DESCRIPTION

The EM4DLP-100L is a 2mm square DFN-8, 4 line low pass filter array with integrated TVS diodes. The EM4DLP-100L is designed to suppress unwanted EMI/RFI signals and provide ESD protection for high-speed data interfaces such as LCD displays and camera imagers for SMART phones.

With a desired cutoff frequency of 150MHz, the EM4DLP-100L provides good EMI/RFI attenuation better than 35dB in the 800MHz - 3GHz bandwidth. This blocks RF noises from GSM, DCS or Bluetooth which can affect the baseband chipset and other blocks. Coupled with the integrated TVS diodes, this device is able to meet IEC 61000-4-2 (ESD) and 61000-4-4 (EFT) immunity requirements.

### FEATURES

- Compatible with IEC 61000-4-2 (ESD): Air - 15kV, Contact - 8kV
- Compatible with IEC 61000-4-4 (EFT): 40A - 5/50ns
- ESD Protection > 25 kilovolts
- EMI Filtering/TVS Low Pass Filters
- >25dB Attenuation from 800MHz to 3GHz
- Protects up to 4 Data Lines
- RoHS Compliant
- REACH Compliant

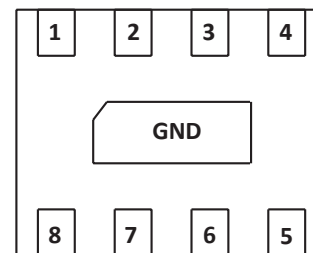
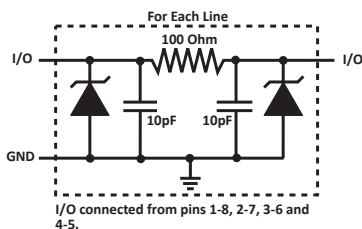
### APPLICATIONS

- SMART Phones
- LCD Display Panel
- Portable Electronics
- SMART Cards

### MECHANICAL CHARACTERISTICS

- Molded JEDEC DFN-8LP (Low Profile) Package
- Approximate Weight: 2 milligrams
- Lead-Free Pure-Tin Plating (Annealed)
- Solder Reflow Temperature:  
Pure-Tin - Sn, 100: 260-270°C
- 8mm Tape and Reel Per EIA Standard 481
- Flammability Rating UL 94V-0

## CIRCUIT DIAGRAM & PIN CONFIGURATION



**BOTTOM VIEW**

**TYPICAL DEVICE CHARACTERISTICS**
**MAXIMUM RATINGS @ 25°C Unless Otherwise Specified**

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

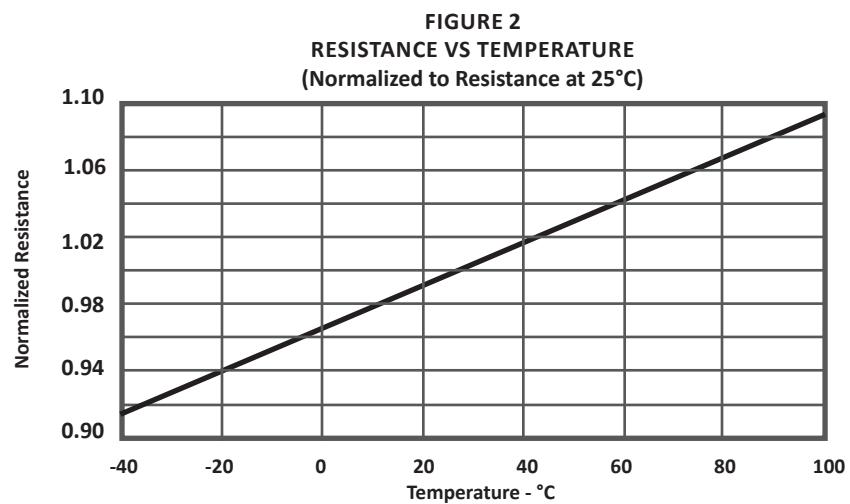
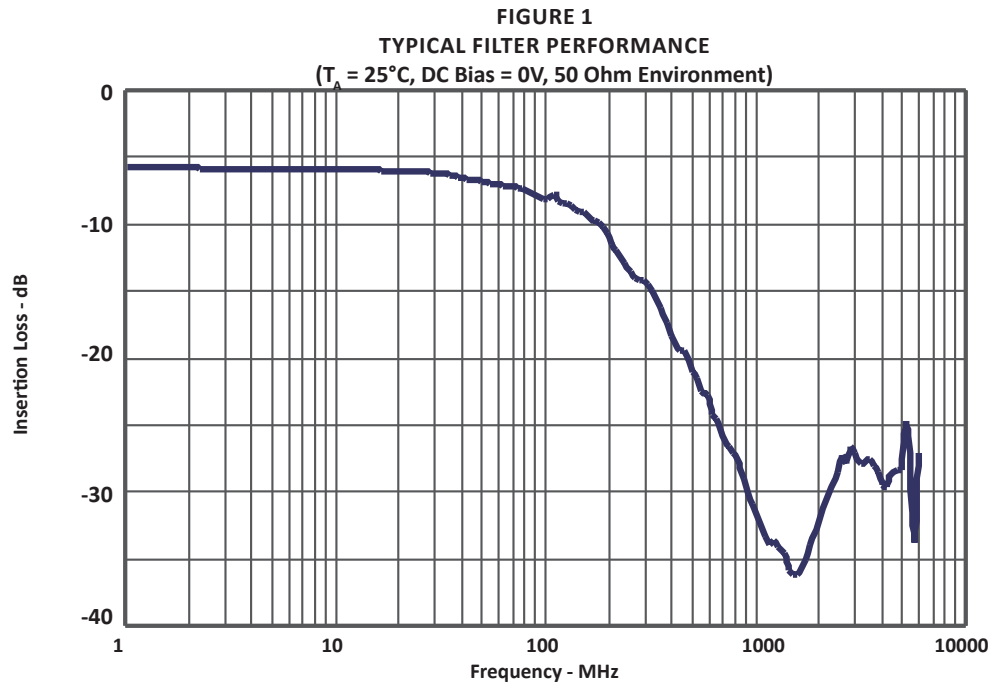
**ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified**

PART NUMBER	DEVICE MARKING	RATED STAND-OFF VOLTAGE  $V_{WM}$ VOLTS	MINIMUM BREAKDOWN VOLTAGE  @ 1mA $V_{(BR)}$ VOLTS	MAXIMUM REVERSE LEAKAGE CURRENT  @ 3V $I_D$ $\mu A$	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 (Note 1)  @2.5V, 1MHz C pF
EM4DLP-100L	4L	5.0	6.0	0.1	0.8	25	150	20

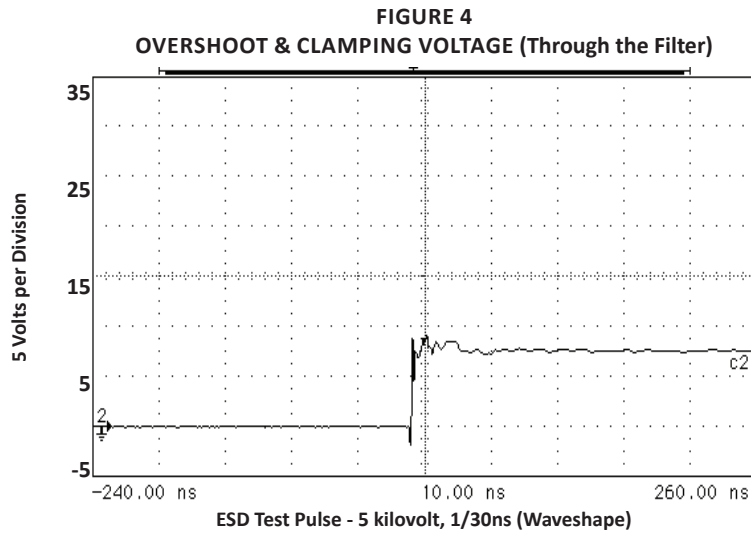
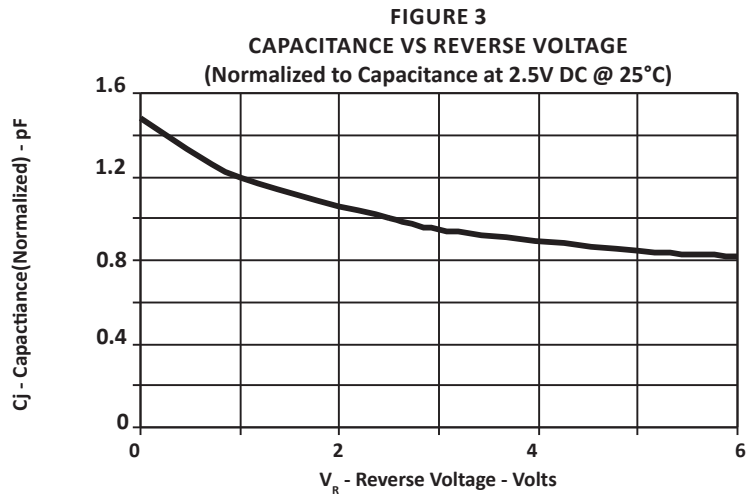
**NOTES**

1. 30pF @ 0V, 1MHz, ± 20% tolerance.

## TYPICAL DEVICE CHARACTERISTICS



## TYPICAL DEVICE CHARACTERISTICS



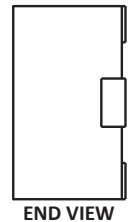
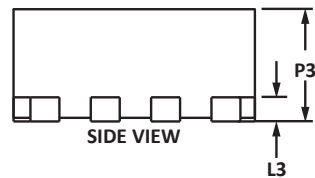
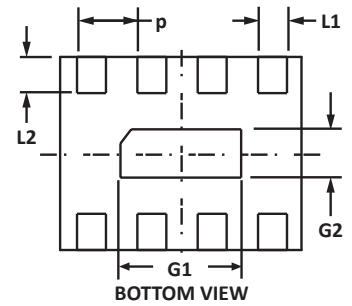
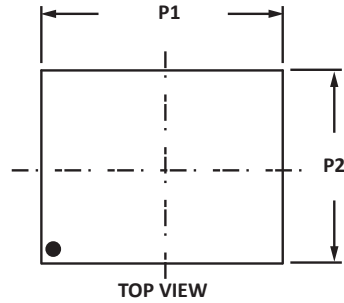
## DFN-8LP(LOW PROFILE) PACKAGE INFORMATION

## OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
P1	1.90	2.10	0.075	0.083
P2	1.50	1.70	0.059	0.067
P3	0.50	0.60	0.020	0.024
L1	0.23	0.30	0.009	0.012
L2	0.30	0.40	0.012	0.016
L3	0.13	0.18	0.005	0.007
p	0.50 BSC		0.020 BSC	
G1	1.30	1.40	0.051	0.055
G2	0.35	0.45	0.014	0.018

## NOTES

- Controlling dimension: millimeters.
- Dimensioning and tolerances per ANSI Y14.M, 1985.
- Coplanarity applies to the exposed pad as well as the terminals.

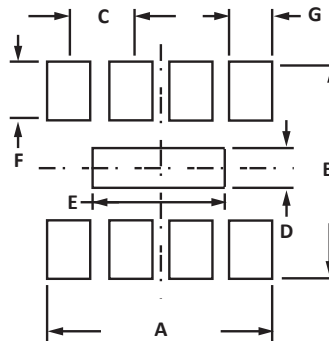


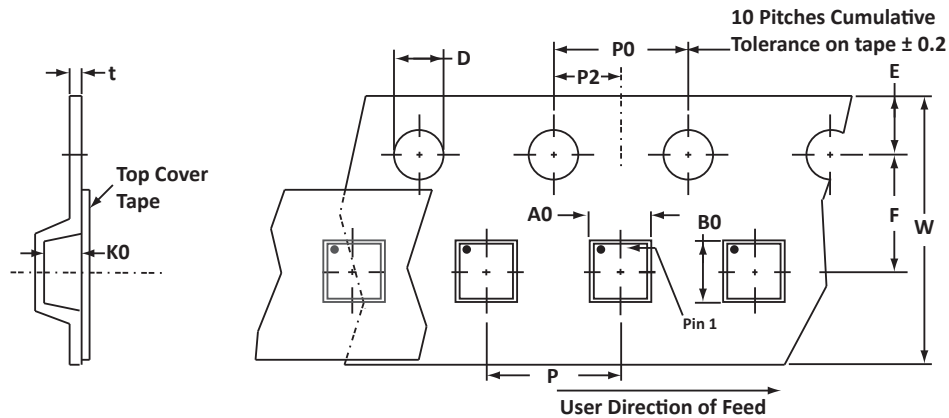
## PAD LAYOUT DIMENSIONS

DIM	MILLIMETERS	INCHES
	NOMINAL	NOMINAL
A	2.20	0.087
B	1.90	0.075
C	0.50 BSC	0.020 BSC
D	0.50	0.020
E	1.45	0.057
F	0.40	0.016
G	0.35	0.014

## NOTES

- Controlling dimension: millimeters.



**TAPE AND REEL**

**SPECIFICATIONS**

REEL DIA.	TAPE WIDTH	A0	B0	K0	D	E	F	W	P0	P2	P	tmax
178mm (7")	8mm	2.30 ± 0.10	1.90 ± 0.10	0.70 ± 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

**NOTES**

1. Dimensions are in millimeters.
2. Surface mount product is taped and reeled in accordance with EIA-481.
3. Suffix - T73 = 7" Reel - 3,000 pieces per 8mm tape.
4. Marking on Part - marking code (see page 2) and polarity dot.

Package outline, pad layout and tape specifications per document number 06057.R3 3/11.

**ORDERING INFORMATION**

BASE PART NUMBER	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
EM4DLP-100L	-LF	-T73	3,000	7"	n/a

This device is only available in a Lead-Free configuration.

## COMPANY INFORMATION

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### COMPANY PROFILE

In business more than 20 years, ProTek Devices™ is a privately-held company located in Tempe, Arizona, that offers a product line of transient voltage suppressors (TVS); avalanche breakdown diodes; steering diode TVS arrays and other surge suppressor component products. These TVS devices protect electronic systems from the effects of lightning, electrostatic discharge (ESD), nuclear electromagnetic pulses (NEMP), inductive switching and EMI / RFI. ProTek Devices also offers high performance interface and linear products that include analog switches; multiplexers; LED drivers; audio control ICs; RF and related high frequency products. The analog devices work in a host of consumer; industrial; automotive and other applications.

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