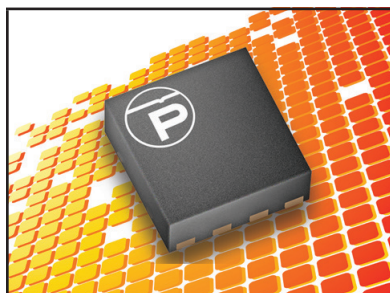


**EMI FILTER/TVS ARRAY****DFN-8 PACKAGE****DESCRIPTION**

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**

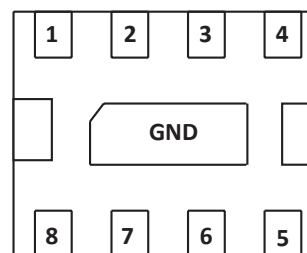
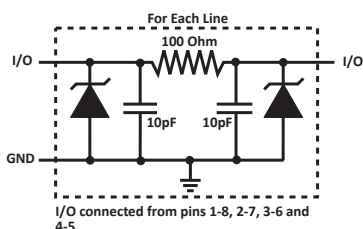
- Compatible with IEC 61000-4-2 (ESD): Air - 15kV, Contact - 8kV
- Compatible with IEC 61000-4-4 (EFT): 40A - 5/50ns
- ESD Protection > 25 kilovolts
- EMI Filtering/TVS Low Pass Filters
- >25dB Attenuation from 800MHz to 3GHz
- Protects up to 4 Data Lines
- RoHS Compliant
- REACH Compliant

**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

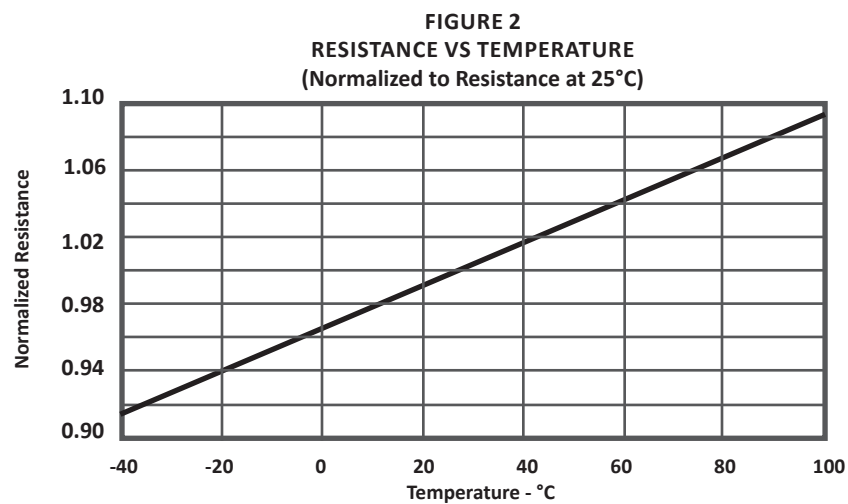
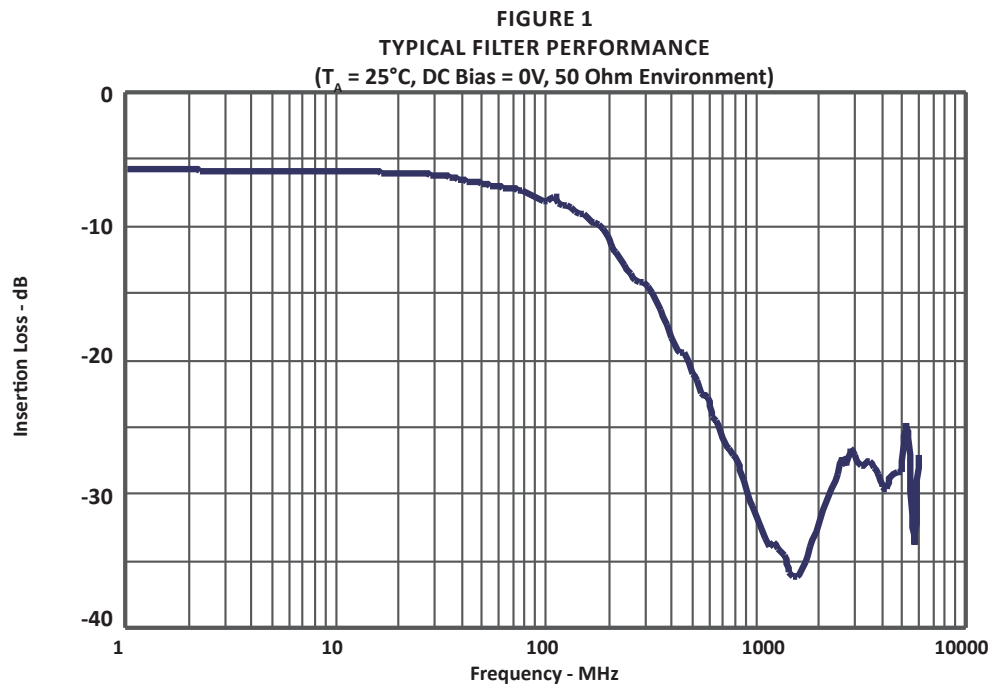
| PARAMETER                            | SYMBOL    | VALUE      | UNITS |
|--------------------------------------|-----------|------------|-------|
| Operating Temperature                | $T_A$     | -40 to 85  | °C    |
| Storage Temperature                  | $T_{STG}$ | -55 to 150 | °C    |
| DC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

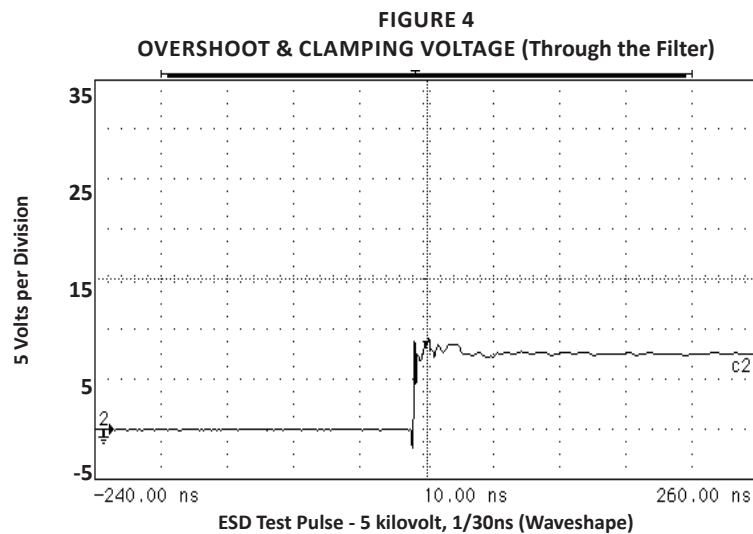
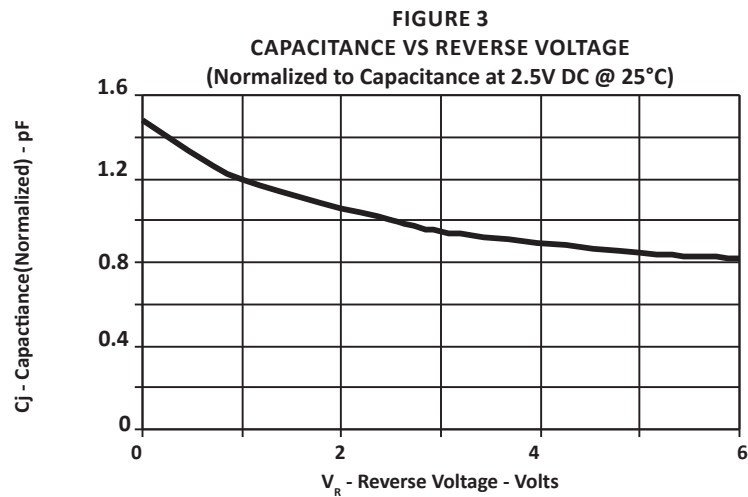
### ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

| PART NUMBER | DEVICE MARKING | RATED STAND-OFF VOLTAGE<br><br>$V_{WM}$<br>VOLTS | MINIMUM BREAKDOWN VOLTAGE<br><br>@ 1mA<br>$V_{(BR)}$<br>VOLTS | MAXIMUM REVERSE LEAKAGE CURRENT<br><br>@ 3V<br>$I_D$<br>$\mu A$ | TYPICAL FORWARD VOLTAGE<br><br>@ 10mA<br>$V_F$<br>VOLTS | MINIMUM ATTENUATION<br><br>@<br>800-3000 MHz<br>dB | CUT-OFF FREQUENCY<br>(50 OHMS I/O)<br>ZERO BIAS<br><br>fC<br>MHz | TYPICAL CAPACITANCE<br>(Note 1)<br><br>@2.5V, 1MHz<br>C<br>pF |
|-------------|----------------|--------------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------|----------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------|
| EM4DLP-100L | 4L             | 5.0                                              | 6.0                                                           | 0.1                                                             | 0.8                                                     | 25                                                 | 150                                                              | 20                                                            |

#### NOTES

1. 30pF @ 0V, 1MHz,  $\pm 20\%$  tolerance.

**TYPICAL DEVICE CHARACTERISTICS**

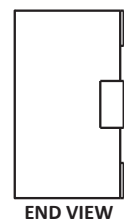
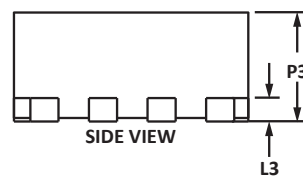
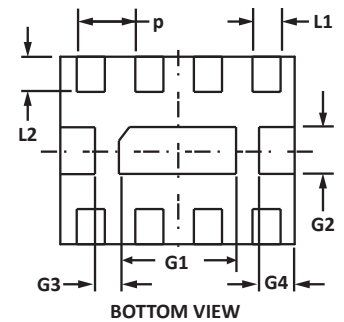
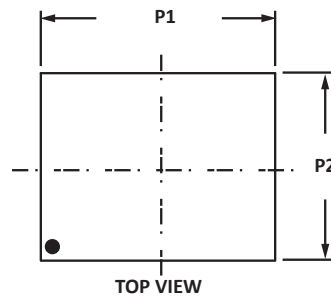
**TYPICAL DEVICE CHARACTERISTICS**

**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  | 0.45        | 0.55 | 0.018     | 0.022 |
| L1  | 0.23        | 0.30 | 0.009     | 0.012 |
| L2  | 0.30        | 0.40 | 0.012     | 0.016 |
| L3  | 0.104       | 0.18 | 0.004     | 0.007 |
| p   | 0.50 BSC    |      | 0.020 BSC |       |
| G1  | 1.15        | 1.25 | 0.045     | 0.050 |
| G2  | 0.35        | 0.45 | 0.014     | 0.018 |
| G3  | 0.15        | 0.25 | 0.006     | 0.010 |
| G4  | 0.25        | 0.35 | 0.010     | 0.014 |

**NOTES**

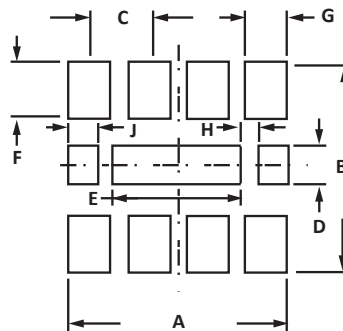
1. Controlling dimension: millimeters.
2. Dimensioning and tolerances per ANSI Y14.M, 1985.
3. Coplanarity applies to the exposed pad as well as the terminals.


**PAD LAYOUT DIMENSIONS**

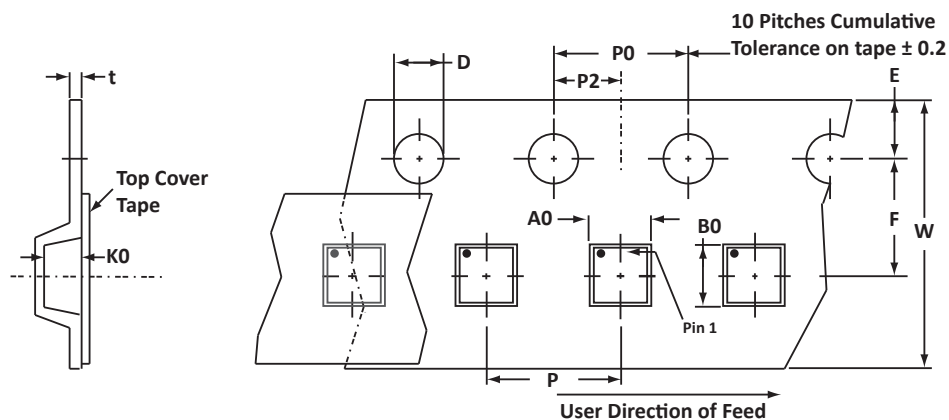
| DIM | MILLIMETERS | INCHES    |
|-----|-------------|-----------|
|     | NOMINAL     | NOMINAL   |
| A   | 2.20        | 0.087     |
| B   | 1.90        | 0.075     |
| C   | 0.50 BSC    | 0.020 BSC |
| D   | 0.50        | 0.020     |
| E   | 1.45        | 0.057     |
| F   | 0.40        | 0.016     |
| G   | 0.35        | 0.014     |
| H   | 0.14        | 0.006     |
| J   | 0.50        | 0.020     |

**NOTES**

1. 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.

## 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 25 years, ProTek Devices™ is a privately held semiconductor company. The company offers a product line of overvoltage protection and overcurrent protection components. These include transient voltage suppressor array (TVS arrays) avalanche breakdown diode, steering diode TVS array and electronics SMD chip fuses. These components deliver circuit protection in electronic systems from numerous overvoltage and overcurrent events. They include lightning; electrostatic discharge (ESD); nuclear electromagnetic pulses (NEMP); inductive switching; and electromagnetic interference (EMI) / radio frequency interference (RFI). ProTek Devices also offers LED wafer die for ESD protection and related high frequency products. ProTek Devices is ISO 9001:2015 certified.

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