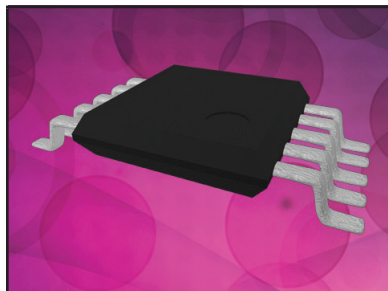


ULTRA LOW CAPACITANCE STEERING DIODE/TVS ARRAY



MSOP-10 PACKAGE

DESCRIPTION

The PLR4045 is an ultra low capacitance steering diode/TVS array. This device is designed to protect networking applications such as 2.5GBASE-T, T3/E3 chip-side protection as well as DVI and USB interfaces. The PLR4045 is available in a MSOP-10 package configuration and is rated at 600 Watts peak pulse power (8/20 μ s waveform).

The PLR4045 meets and exceeds the IEC 61000-4-2, 61000-4-4 and IEC 61000-4-5 requirements. At higher operating frequencies or faster edge rates, insertion loss and signal integrity are a major concern. This device in conjunction with passive components integrated into a TVS/filter network can be used for EMI/RFI protection.

FEATURES

- Compatible with IEC 61000-4-2 (ESD): Air \pm 15kV, Contact \pm 8kV
- Compatible with IEC 61000-4-4 (EFT)
- Compatible with IEC 61000-4-5 (Surge)
- 600 Watts Peak Pulse Power per Line ($t_p = 8/20\mu s$)
- ESD Protection > 25 kilovolts
- Unidirectional Configuration
- Low Clamping Voltage: 20V (Max.) @ $I_{PPM} = 30A$
- Protects 4 I/O ports & Power Supply
- Ultra Low Capacitance: 1.6pF (Typ.)
- RoHS Compliant
- REACH Compliant

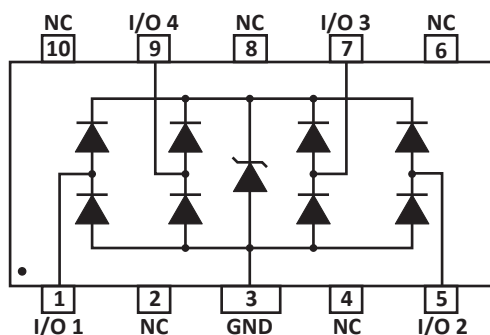
APPLICATIONS

- 2.5GBASE-T
- T1/E1 & T3/E3 Chip-side Protection
- DVI Interface
- USB 2.0 Interface

MECHANICAL CHARACTERISTICS

- Molded JEDEC MSOP-10 Package
- Approximate Weight: 24 milligrams
- Lead-Free Pure-Tin Plating (Annealed)
- Solder Reflow Temperature:
Pure-Tin - Sn, 100: 260-270°C
- 12mm Tape and Reel Per EIA Standard 481
- Flammability Rating UL 94V-0

PIN CONFIGURATION



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

| PARAMETER | SYMBOL | VALUE | UNITS |
|---|-----------|------------|-------|
| Operating Temperature | T_L | -55 to 150 | °C |
| Storage Temperature | T_{STG} | -55 to 150 | °C |
| Peak Pulse Power ($t_p = 8/20\mu s$) - See Figure 1 | P_{PP} | 600 | Watts |
| Peak Pulse Current (8/20 μs) | I_{PP} | 24 | A |

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

| PART NUMBER | RATED STAND-OFF VOLTAGE V_{WM} VOLTS | MINIMUM BREAKDOWN VOLTAGE @1mA $V_{(BR)}$ VOLTS | MAXIMUM CLAMPING VOLTAGE (Fig. 2) @ $I_p = 1A$ V_c VOLTS | MAXIMUM CLAMPING VOLTAGE (Fig. 2) @ $I_p = 30A$ V_c VOLTS | MAXIMUM LEAKAGE CURRENT @ V_{WM} I_D μA | TYPICAL CAPACITANCE I/O - GND @0V, 1MHz C pF | MAXIMUM CAPACITANCE I/O - GND @0V, 1MHz C pF |
|-------------|--|--|---|--|---|---|---|
| PLR4045 | 3.3 | 4 | 6.2 | 20 | 0.1 | 1.6 | 2.0 |

TYPICAL DEVICE CHARACTERISTICS

FIGURE 1
PEAK PULSE POWER VS PULSE TIME

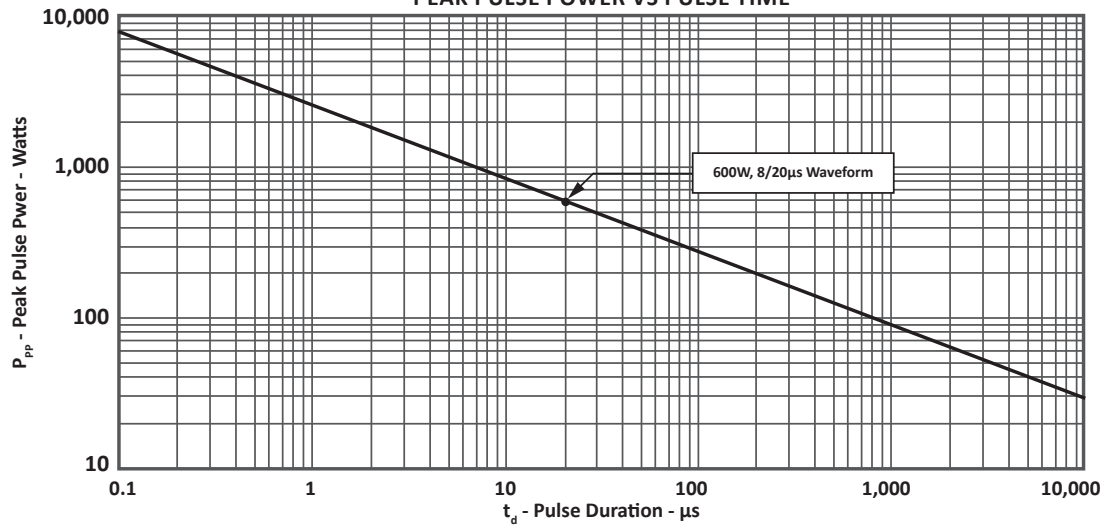
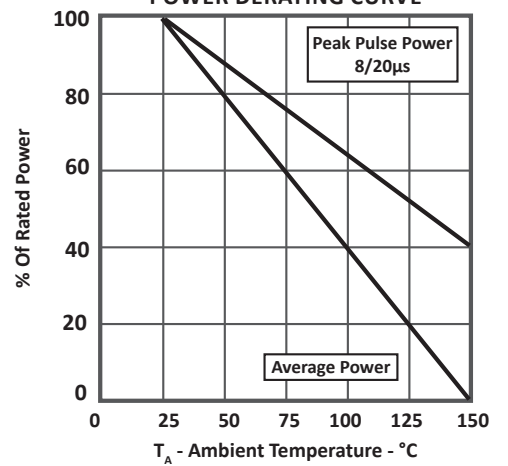


FIGURE 2
PULSE WAVE FORM



FIGURE 3
POWER DERATING CURVE



TYPICAL DEVICE CHARACTERISTICS

FIGURE 4
TYPICAL CLAMPING VOLTAGE - 8/20 μ s

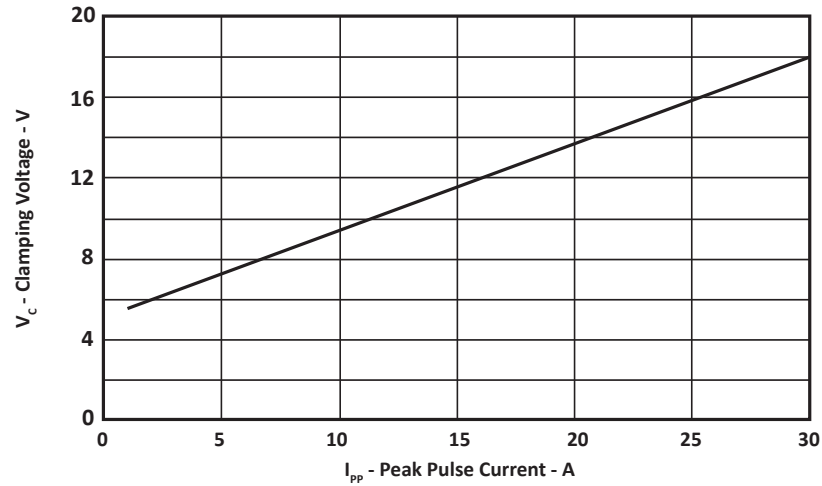
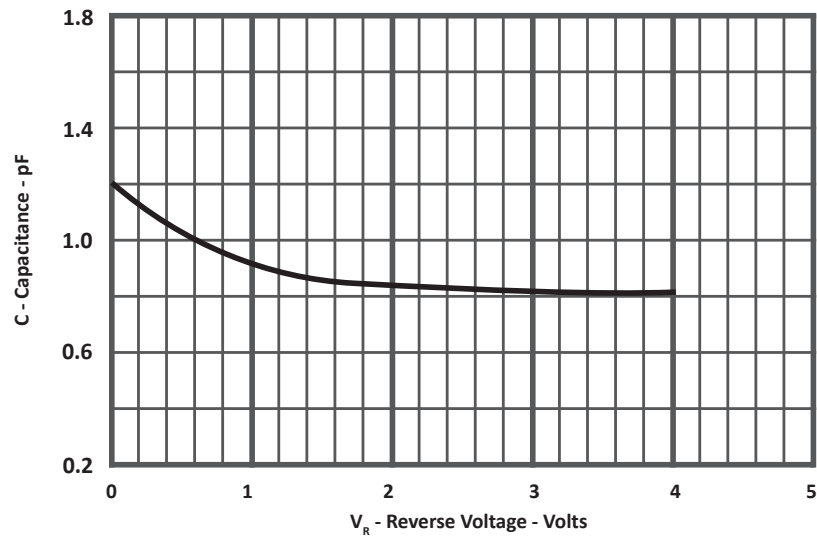


FIGURE 5
TYPICAL REVERSE VOLTAGE VS CAPACITANCE



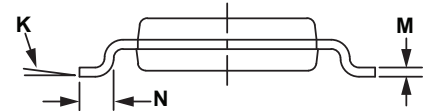
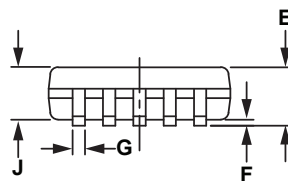
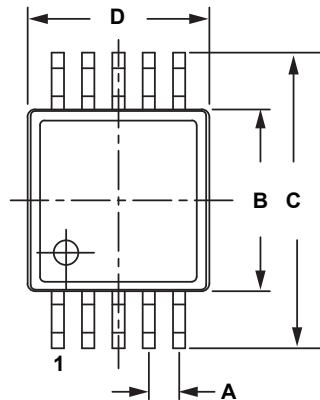
PACKAGE INFORMATION

OUTLINE DIMENSIONS

| DIM | MILLIMETERS | | INCHES | |
|-----|-------------|------|--------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.500 | | 0.0197 | |
| B | 2.90 | 3.10 | 0.114 | 0.122 |
| C | 4.67 | 5.08 | 0.184 | 0.200 |
| D | 2.90 | 3.10 | 0.114 | 0.122 |
| E | 0.81 | 0.91 | 0.032 | 0.036 |
| F | 0.15 | | 0.006 | |
| G | 0.18 | 0.28 | 0.007 | 0.011 |
| J | 0.71 | | 0.028 | |
| K | 0° | 6° | 0° | 6° |
| M | 0.09 | 0.20 | 0.004 | 0.008 |
| N | 0.43 | 0.64 | 0.017 | 0.025 |

NOTES

- Dimensions are exclusive of mold flash and metal burrs.

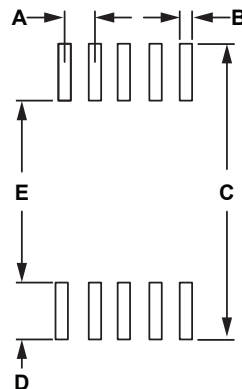


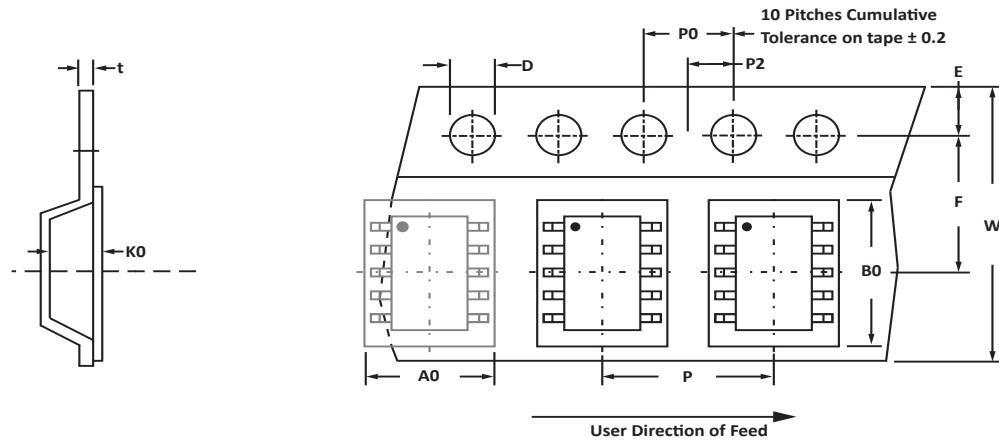
PAD LAYOUT DIMENSIONS

| DIM | MILLIMETERS | | INCHES | |
|-----|-------------|------|-----------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.66 BSC | | 0.026 BSC | |
| B | 0.41 | 0.51 | 0.016 | 0.020 |
| C | 5.84 | - | 0.230 | - |
| D | 1.02 | 1.27 | 0.040 | 0.050 |
| E | 3.56 | - | 0.140 | - |

NOTES

- Controlling dimension: inches.



TAPE AND REEL

SPECIFICATIONS

| REEL DIA. | TAPE WIDTH | A0 | B0 | K0 | D | E | F | W | P0 | P2 | P | tmax |
|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|-------------|-------------|-------------|------|
| 178mm (7") | 12mm | 5.30 ± 0.20 | 3.40 ± 0.10 | 1.40 ± 0.10 | 1.50 ± 0.10 | 1.75 ± 0.10 | 5.50 ± 0.05 | 12.00 ± 0.30 | 4.00 ± 0.12 | 2.00 ± 0.10 | 8.00 ± 0.10 | 0.25 |

NOTES

- Dimensions are in millimeters.
- Surface mount product is taped and reeled in accordance with EIA-481.
- Suffix - T71 = 7" Reel - 1,000 pieces or -T13 = 13" Reel - 2,500 pieces per 12mm tape.
- Bulk product shipped in tubes of 100 pieces per tube.
- Marking on Part - part number, date code, logo and pin one defined by dot on top of package.

ORDERING INFORMATION

| BASE PART NUMBER | LEADFREE SUFFIX | TAPE SUFFIX | QTY/REEL | REEL SIZE | TUBE QTY |
|------------------|-----------------|-------------|----------|-----------|----------|
| PLR4045 | N/A | -T71 | 1,000 | 7" | N/A |
| PLR4045 | N/A | -T13 | 2,500 | 13" | N/A |

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

COMPANY INFORMATION

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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