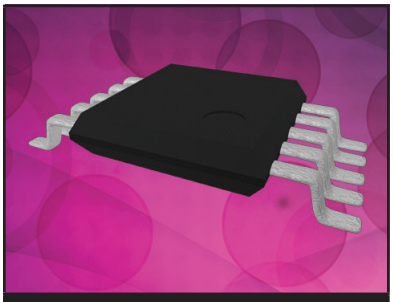
PROTEK DEVICES
Only One Name Means ProTek'Tion™

PLR4045

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 (8/20µs 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 ±15kV, Contact ±8kV
- Compatible with IEC 61000-4-4 (EFT)
- Compatible with IEC 61000-4-5 (Surge)
- 600 Watts Peak Pulse Power per Line (tp = 8/20µs)
- 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

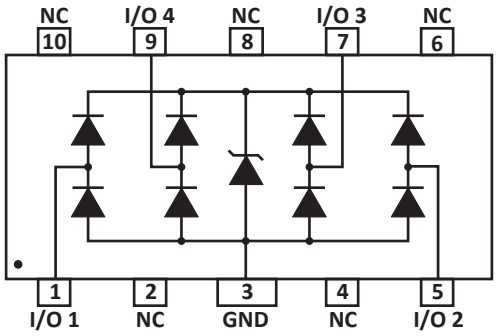
APPLICATIONS

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

MECHANICAL CHARACTERISTICS

- Molded JEDEC MSOP-10 Package
- 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 (tp = 8/20µs) - See Figure 1	P_{PP}	600	Watts
Peak Pulse Current (8/20µs)	I_{PP}	30	A

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified								
PART NUMBER	PART MARKING	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	445	3.3	4	6.2	20	0.1	1.6	2.0

TYPICAL DEVICE CHARACTERISTICS

FIGURE 1
PEAK PULSE POWER VS PULSE TIME

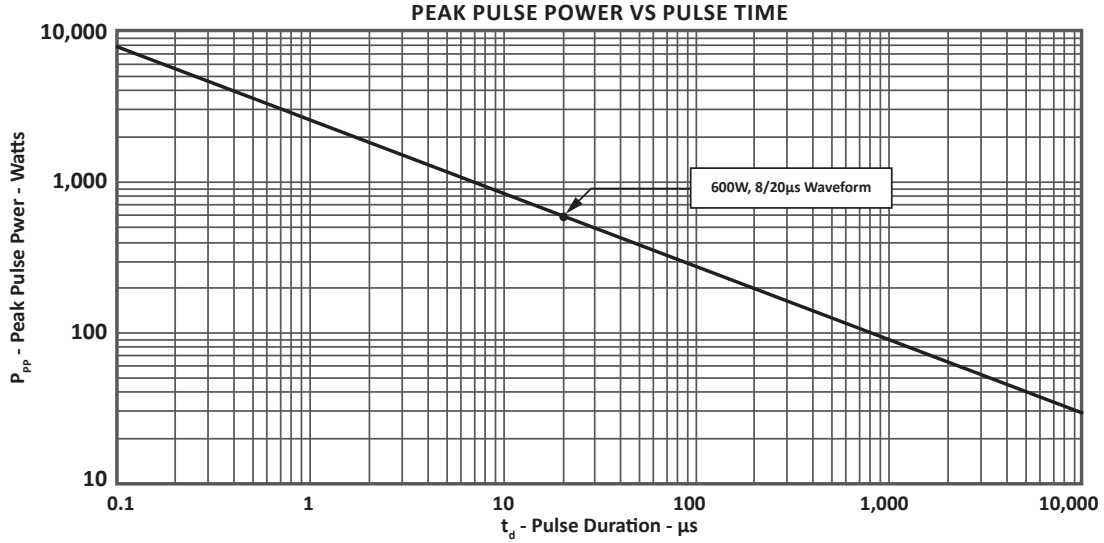


FIGURE 2
PULSE WAVE FORM

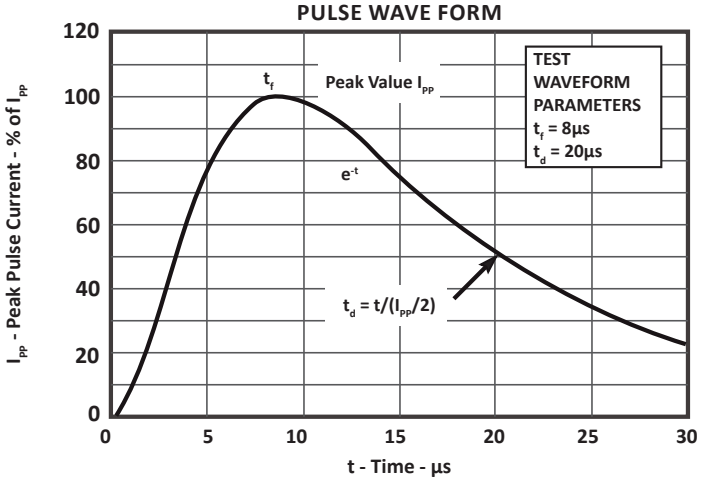
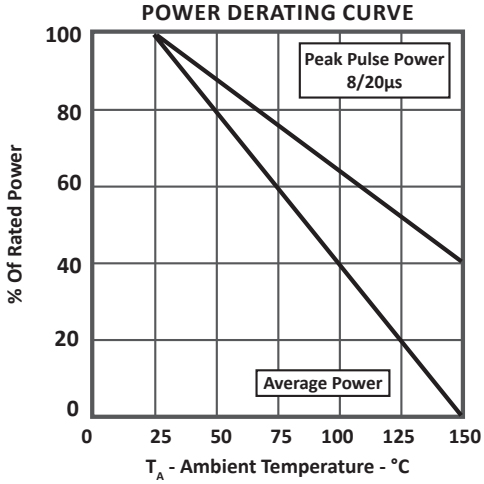


FIGURE 3
POWER DERATING CURVE



TYPICAL DEVICE CHARACTERISTICS

FIGURE 4
TYPICAL CLAMPING VOLTAGE - 8/20µs

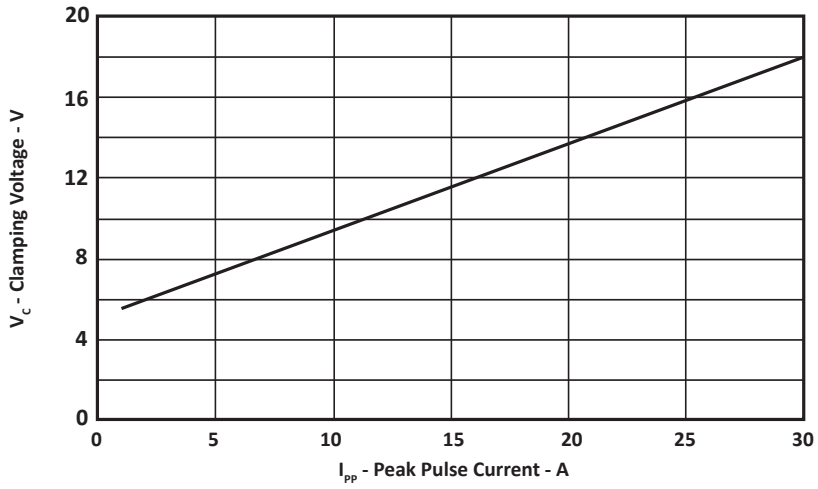
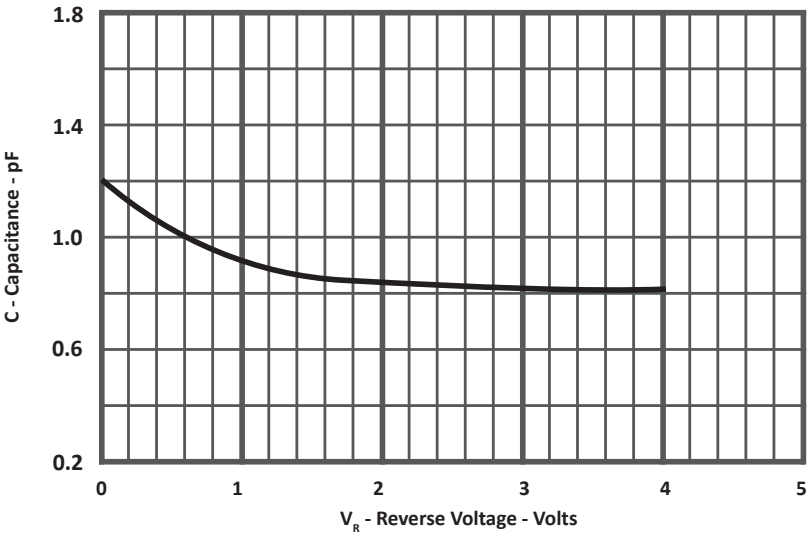


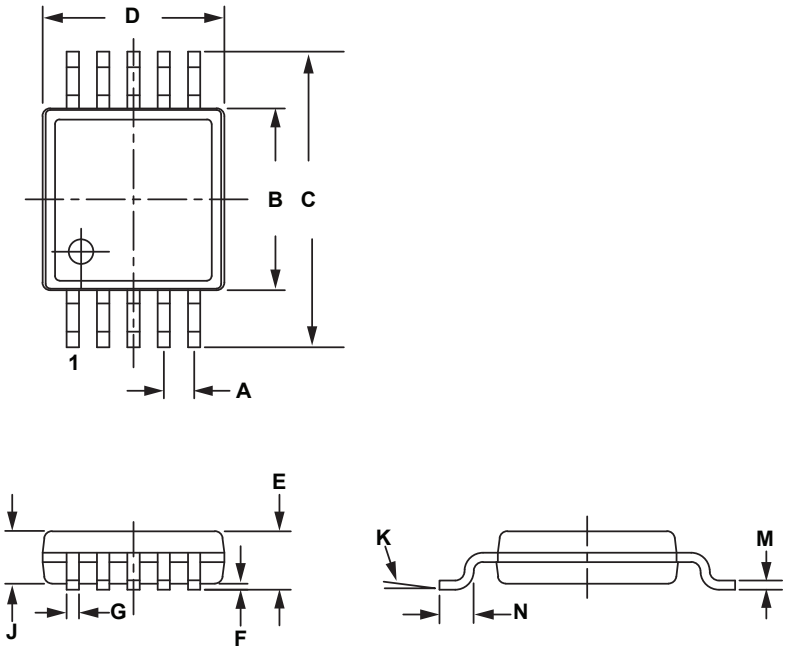
FIGURE 5
TYPICAL REVERSE VOLTAGE VS CAPACITANCE



PACKAGE INFORMATION

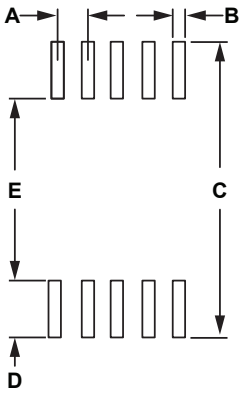
OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.500 BSC		0.0197 BSC	
B	2.90	3.10	0.114	0.122
C	4.67	5.10	0.184	0.201
D	2.90	3.10	0.114	0.122
E	-	1.10	1	0.043
F	0.05	0.15	0.002	0.006
G	0.18	0.28	0.007	0.011
J	0.75	0.95	0.030	0.037
K	0°	8°	0°	8°
M	0.102	0.203	0.004	0.008
N	0.40	0.70	0.016	0.028

NOTES
1. Dimensions are exclusive of mold flash and metal burrs.

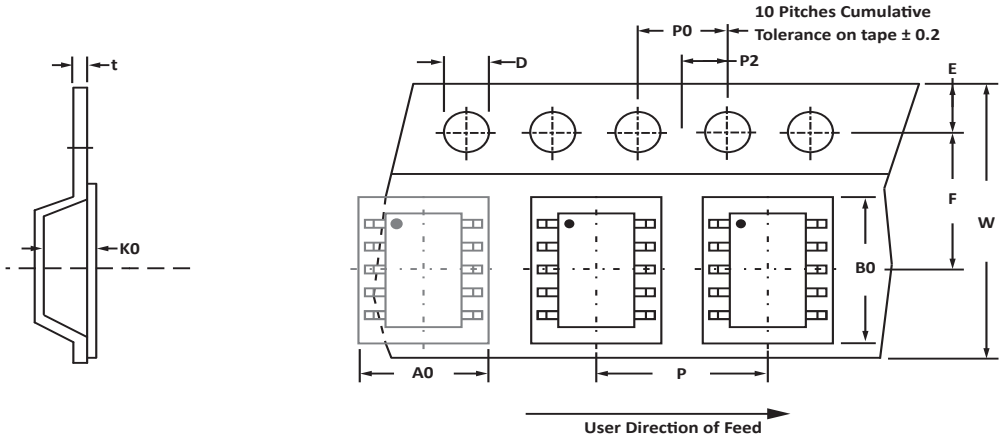


PAD LAYOUT DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.66 BSC		0.026 BSC	
B	0.41	0.51	0.016	0.020
C	5.84	-	0.230	-
D	1.02	1.27	0.040	0.050
E	3.56	-	0.140	-

NOTES
1. 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
1. Dimensions are in millimeters.
2. Surface mount product is taped and reeled in accordance with EIA-481.
3. Marking on Part - marking code, 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
This device is only available in a Lead-Free configuration.					

COMPANY INFORMATION

COMPANY PROFILE

In business more than 30 years, ProTek Devices™ is a privately held semiconductor company. The company offers a product line of overvoltage protection that include Transient Voltage Suppressor (TVS) Arrays, Steering Diode Array Hybrids, High-power Components and Modules, as well as Steering Diodes, EMI Filter/TVS Arrays and Thyristor Surge Suppressors. These components deliver circuit protection in electronic systems from numerous overvoltage events. They include lightning; electrostatic discharge (ESD); nuclear electromagnetic pulses (NEMP); inductive switching; and electromagnetic interference (EMI) / radio frequency interference (RFI). ProTek Devices is an ISO 9001 certified company.

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