

ULTRA LOW CAPACITANCE STEERING DIODE/TVS ARRAY



DESCRIPTION

The PSRV-2LC series are low capacitance steering diode TVS arrays. This series is designed to protect two line pair or four data/transmission lines from the effects of Electrostatic Discharge (ESD) and Electrical Fast Transients (EFT).

The PSRV-2LC series is ideal for low voltage circuit applications. The leakage current for the 3.3V device is less than 1.0 microampere. The low capacitance of the steering diode allows the designer to protect high speed data applications. The small DFN-6 package, with 6 leads reduces the internal lead inductance for low overshoot voltage during fast front time transient events, such as ESD. This device meets the IEC 61000-4-2 and IEC 61000-4-4 requirements.

FEATURES

- Compatible with IEC 61000-4-2 (ESD): Air: $\pm 15\text{kV}$, Contact: $\pm 8\text{kV}$
- Compatible with IEC 61000-4-4 (EFT): 40A - 5/50ns
- Compatible with IEC 61000-4-5 (Surge): 24A, 8/20 μs - Level 2 (Line-Gnd) & Level 3 (Line-Line)
- 300 Watts Peak Pulse Power per Line ($t_p = 8/20\mu\text{s}$)
- Provides Two Lines of Protection
- Low Leakage Current $< 1.0\mu\text{A}$
- Available in Multiple Voltages
- Ultra Low Capacitance: 1pF Typical
- RoHS Compliant
- REACH Compliant

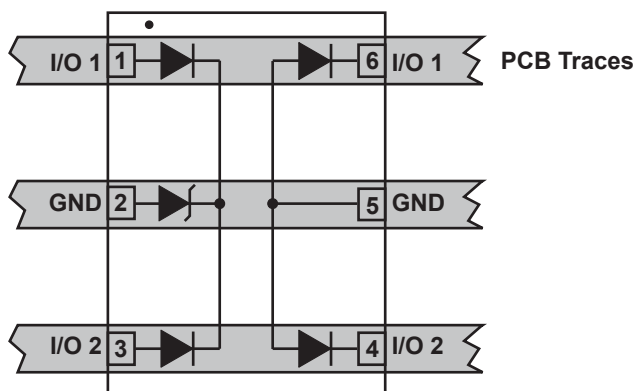
APPLICATIONS

- Ethernet - 10/100/1000 Base T
- USB
- Handheld Electronics
- Video Cards
- WAN/LAN Equipment

MECHANICAL CHARACTERISTICS

- Molded DFN-6 Package
- Pins 1-6, Pins 2-5 & Pins 3-4 Must Be Connected Via PCB Traces
- Approximate Weight: 9 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

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}	300	Watts
Forward Surge Rating (1/20s @ 25°C, $I_F = 10mA$)	V_F	1	Volts
Peak Pulse Current (tp = 8/20μs) - PSRV05-2LC	I_{PP}	17	Amps

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER	DEVICE MARKING	RATED STAND-OFF VOLTAGE V_{WM} VOLTS	MINIMUM PUNCH THROUGH VOLTAGE V_{PT} VOLTS	MINIMUM SNAP-BACK VOLTAGE I_{SB} @ 50mA $V_{(SB)}$ VOLTS	MINIMUM BREAKDOWN VOLTAGE @ 2μA $V_{(BR)}$ VOLTS	MAXIMUM CLAMPING VOLTAGE (Fig. 2) @ $I_p = 1A$ V_c VOLTS	MAXIMUM CLAMPING VOLTAGE (Fig. 2) @ 8/20μs V_c VOLTS
PSRV3.3-2LC	13A	3.3	3.5	3.3	3.5	7.0	15V @ 10A
PSRV05-2LC	5A	5	-	-	6V @ 1mA	9.8	20V @ 17A

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER	MAXIMUM PUNCH THROUGH CURRENT @ V_{PT} I_{PT} μA	MAXIMUM LEAKAGE CURRENT @ V_{WM} I_D μA	TYPICAL CAPACITANCE 0V, 1MHz $C_{J(SD)}$ pF
PSRV3.3-2LC	2.0	0.1	1
PSRV05-2LC	-	0.5	1

TYPICAL DEVICE CHARACTERISTICS

FIGURE 1
PEAK PULSE POWER VS PULSE TIME

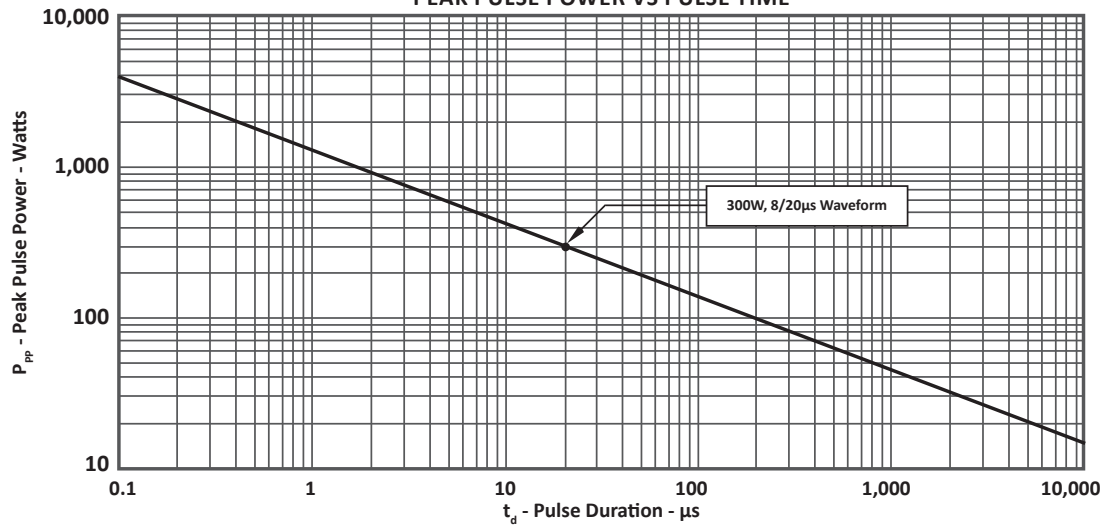


FIGURE 2
PULSE WAVE FORM

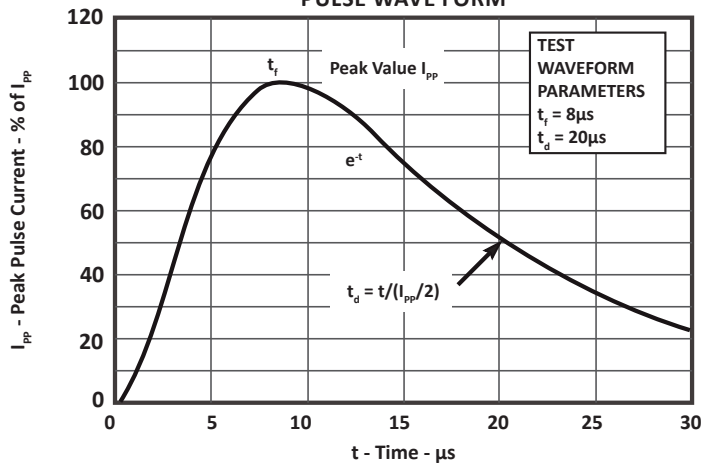
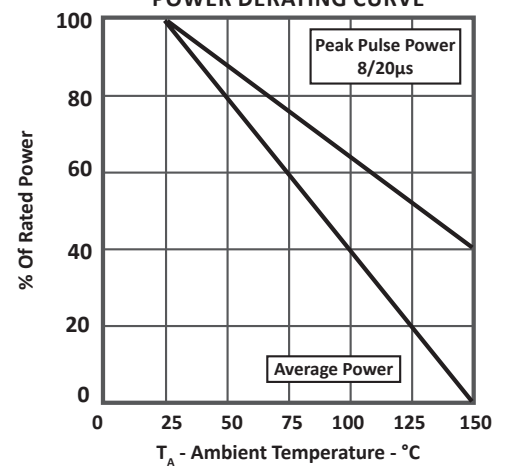


FIGURE 3
POWER DERATING CURVE



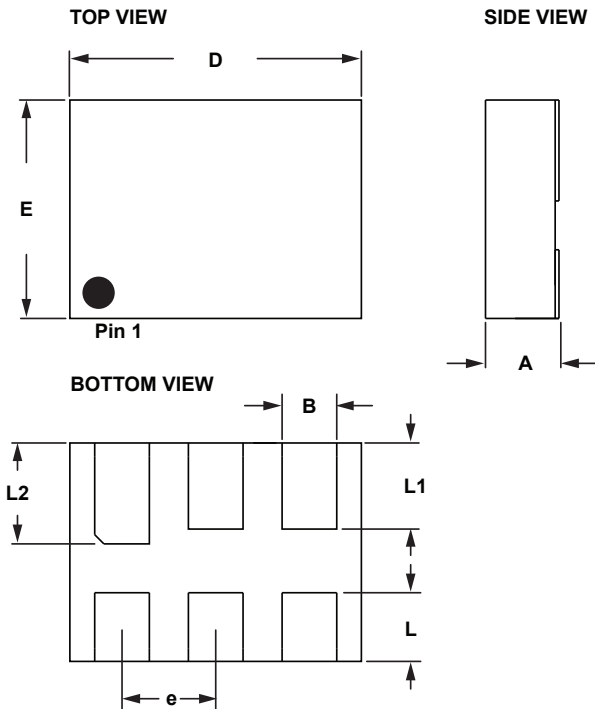
PACKAGE INFORMATION

OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.45	0.55	0.017	0.021
A2	0.13 BSC		0.005 BSC	
B	0.35	0.45	0.013	0.017
D	1.90	2.10	0.074	0.082
E	1.40	1.60	0.055	0.063
e	0.065 BSC		0.025 BSC	
L	0.45	0.55	0.017	0.021
L1	0.55	0.65	0.021	0.025
L2	0.65	0.75	0.025	0.029

NOTES

1. Dimensioning and tolerances per ANSI Y14.M, 1985.
2. Dimensions are exclusive of mold flash and metal burrs.

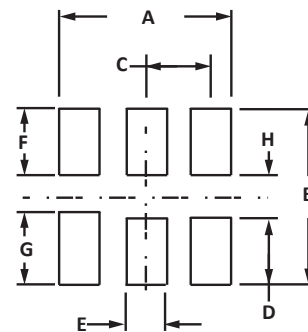


PAD LAYOUT DIMENSIONS

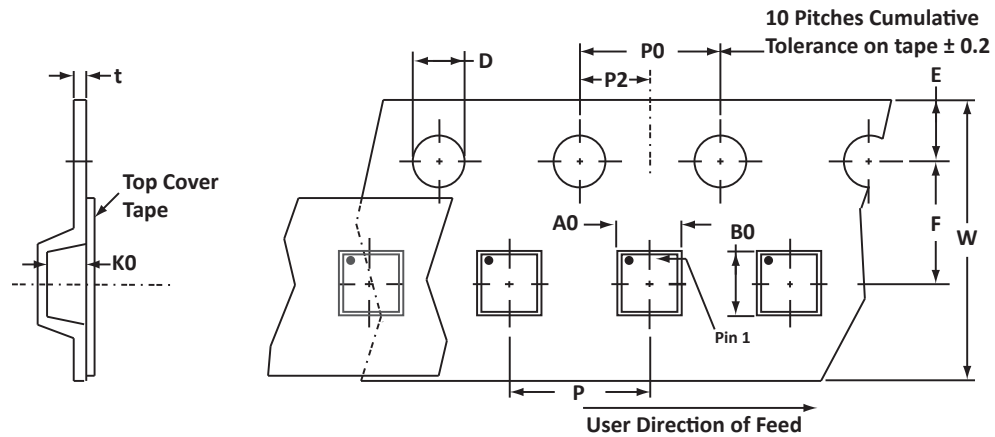
DIM	MILLIMETERS	INCHES
	NOMINAL	NOMINAL
A	1.78	0.070
B	1.93	0.076
C	0.64	0.025
D	0.86	0.034
E	0.51	0.020
F	0.76	0.030
G	0.94	0.037
H	0.30	0.012

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	1.70 ± 0.10	2.20 ± 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 - T7 = 7" Reel - 3,000 pieces per 8mm tape.
4. Marking on Part - marking code (see page 2) and date code.

ORDERING INFORMATION

BASE PART NUMBER	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
PSRVxx-2LC	N/A	-T7	3000	7"	n/a

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

COMPANY INFORMATION

COMPANY PROFILE

In business more than 20 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.

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