

## 500 WATT LOW CAPACITANCE STEERING DIODE/TVS ARRAY



**SO-8 PACKAGE**

### DESCRIPTION

The PSRDaxx-4A Series are low capacitance multi-line steering diode/transient voltage suppressor arrays that provides board level protection for standard TTL and CMOS bus line applications against the damaging effects of ESD, tertiary lightning and switching transients.

The PSRDaxx-4A Series has a peak pulse power rating of 500 Watts for an 8/20 $\mu$ s waveshape. This device series meets the IEC 61000-4-2, IEC 61000-4-4 and IEC 61000-4-5 requirements.

### FEATURES

- Compatible with IEC 61000-4-2 (ESD): Air - 15kV, Contact - 8kV
- Compatible with IEC 61000-4-4 (EFT): 40A - 5/50ns
- Compatible with IEC 61000-4-5 (Surge): 24A, 8/20 $\mu$ s - Level 2(Line-Gnd) & Level 3(Line-Line)
- 500 Watts Peak Pulse Power per Line (tp = 8/20 $\mu$ s)
- Unidirectional Configuration
- Available in Multiple Voltages
- Protects Up to Four I/O Ports
- Low Capacitance: 5pF per Diode
- RoHS Compliant
- REACH Compliant

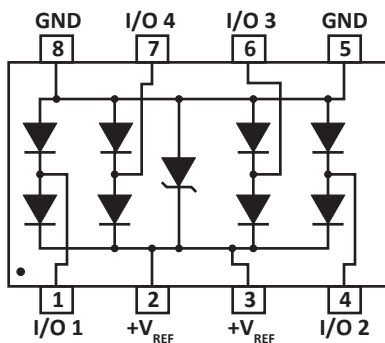
### APPLICATIONS

- Computer Interface Protection
- Ethernet - 10/100/1000 Base T
- Set-Top Box Protection
- Video Card

### MECHANICAL CHARACTERISTICS

- Molded JEDEC SO-8 Package
- Approximate Weight: 70 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
Peak Pulse Power (tp = 8/20μs) - See Figure 1	P <sub>PP</sub>	500	Watts
Operating Temperature	T <sub>L</sub>	-55 to 150	°C
Storage Temperature	T <sub>STG</sub>	-55 to 150	°C
Continuous Power Dissipation	P <sub>PC</sub>	1000	mW
Maximum Forward Voltage @ 10mA (Note 1)	V <sub>F</sub>	1.1	Volts

## NOTES

1. Measured between pins 8 or 5 to 1, 2, 3, 4, 6 and 7.

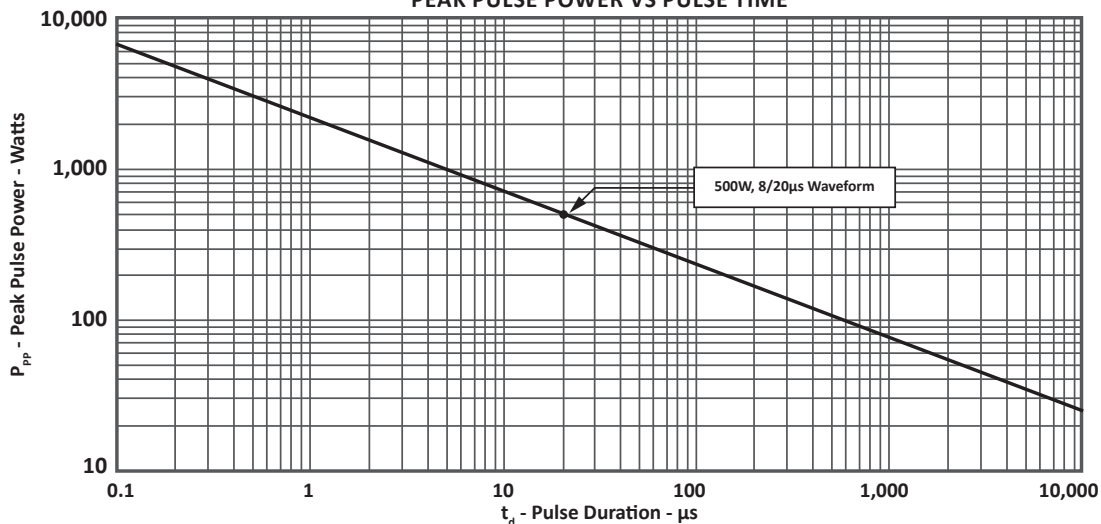
## ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER	DEVICE MARKING	RATED STAND-OFF VOLTAGE  V <sub>WM</sub> VOLTS	MINIMUM BREAKDOWN VOLTAGE  @1mA V <sub>(BR)</sub> VOLTS	MAXIMUM CLAMPING VOLTAGE (Fig. 2)  @I <sub>P</sub> = 1A V <sub>C</sub> VOLTS	MAXIMUM LEAKAGE CURRENT  @V <sub>WM</sub> I <sub>D</sub> μA	MAXIMUM CAPACITANCE (Note 1) (Fig. 6)  @0V, 1MHz C <sub>J(SD)</sub> pF
PSRDA2.5-4A	PSA	2.5	3.0	5.5	0.5	5
PSRDA3.3-4A	PSB	3.3	4.0	6.5	0.5	5

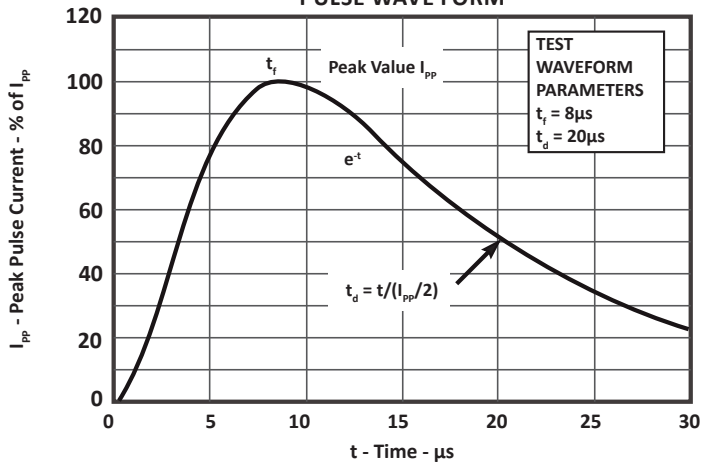
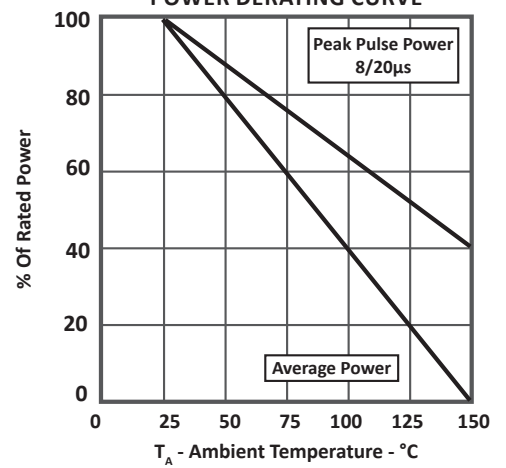
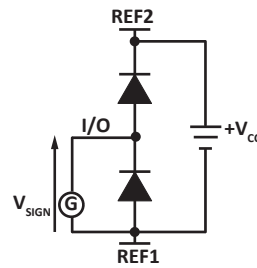
## NOTES

1. Capacitance measured at V<sub>WM</sub> = V<sub>CC</sub> connected between I/O pins to pin 8 and 5 (Gnd). V<sub>R</sub> = V<sub>WM</sub> @ 1MHz. As shown in Figure 6, REF1 is connected to ground, REF2 is connected to +V<sub>CC</sub> and input applies to V<sub>CC</sub> = 5V, V<sub>SIGN</sub> = 30mV, F = 1MHz

FIGURE 1  
PEAK PULSE POWER VS PULSE TIME



## TYPICAL DEVICE CHARACTERISTICS

**FIGURE 2**  
**PULSE WAVE FORM**

**FIGURE 3**  
**POWER DERATING CURVE**

**FIGURE 4**  
**INPUT CAPACITANCE CIRCUIT**


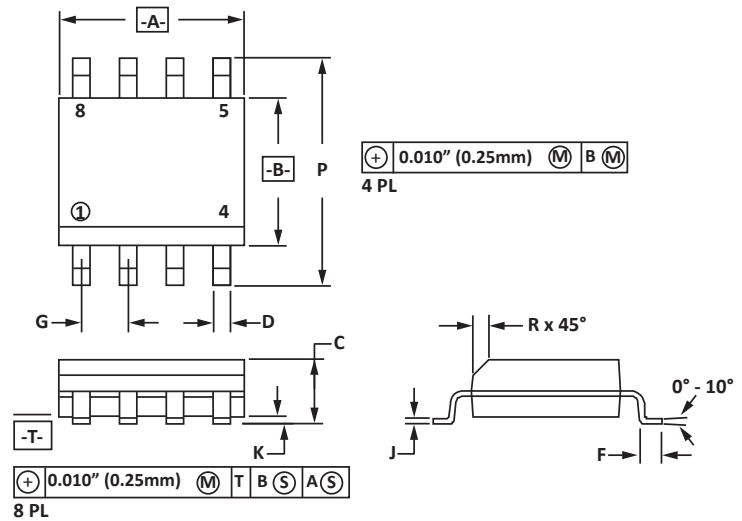
## SO-8 PACKAGE INFORMATION

## OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.80	5.00	0.189	0.196
B	3.80	4.00	0.150	0.157
C	1.35	1.75	0.054	0.068
D	0.35	0.49	0.014	0.019
F	0.40	1.25	0.016	0.049
G	1.27 BSC		0.05 BSC	
J	0.18	0.25	0.007	0.009
K	0.10	0.25	0.004	0.008
P	5.80	6.20	0.229	0.244
R	0.25	0.50	0.010	0.019

## NOTES

- T = Seating plane and datum surface.
- Dimensions "A" and "B" are datum.
- Dimensions "A" and "B" do not include mold protrusion.
- Maximum mold protrusion is 0.015" (0.380mm) per side.
- Dimensioning and tolerances per ANSI Y14.5M, 1982.
- Dimensions are exclusive of mold flash and metal burrs.

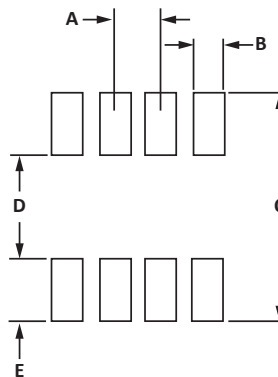


## PAD LAYOUT DIMENSIONS

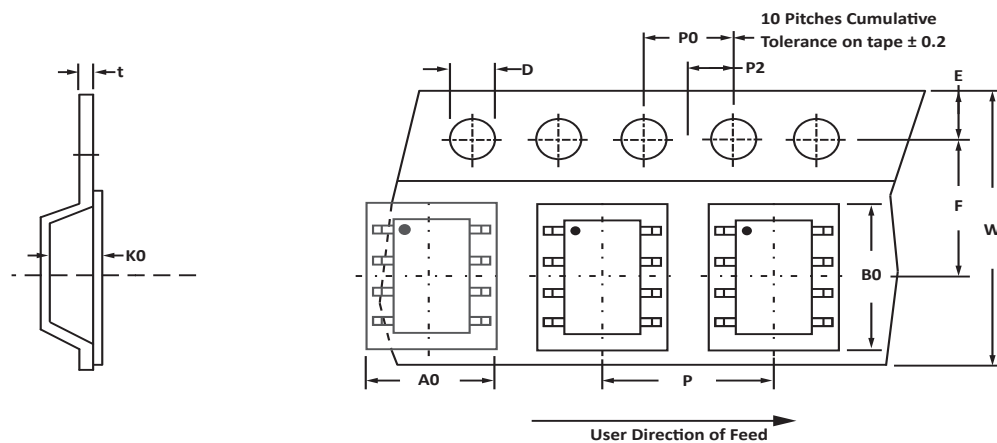
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.14	1.40	0.045	0.055
B	0.64	0.89	0.025	0.035
C	6.22	-	0.245	-
D	3.94	4.17	0.155	0.165
E	1.02	1.27	0.040	0.050

## 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	6.50 ± 0.10	5.40 ± 0.10	2.00 ± 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	4.00 ± 0.10	0.25

## NOTES

- Dimensions are in millimeters.
- Surface mount product is taped and reeled in accordance with EIA-481.
- Suffix - T7 = 7" Reel - 1,000 pieces per 12mm tape.
- Suffix - T13 = 13" Reel - 2,500 pieces per 12mm tape.
- Bulk product shipped in tubes of 98 pieces per tube.
- Marking on Part - marking code (see page 2), date code, logo and pin one defined by dot on top of package.

## ORDERING INFORMATION

BASE PART NUMBER (xx = Voltage)	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
PSRDaxx-4A	N/A	-T7	1,000	7"	98
PSRDaxx-4A	N/A	-T13	2,500	13"	98

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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