

## ULTRA LOW CAPACITANCE STEERING DIODE ARRAY



**SO-8 PACKAGE**

### DESCRIPTION

The PSRDA70-4 is an ultra low capacitance steering diode array designed to protect circuit applications from the effects of Electrostatic Discharge (ESD) and Electrical Fast Transients (EFT). Its ultra low capacitance allows maintenance of signal integrity for high-speed data lines while protecting the circuit ICs from the damage of severe transients. This device is designed for the protection of four lines.

Packaged in an SO-8 configuration, this device meets all the applicable voltage immunity standards, including IEC 61000-4-2 (ESD), 61000-4-4 (EFT) and 61000-4-5 (Surge).

### 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)
- Provides 4 Lines/Ports of Protection
- Low Leakage Current
- Ultra Low Capacitance: 6pF Typical
- RoHS Compliant
- REACH Compliant

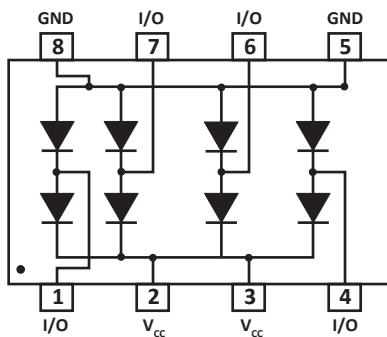
### APPLICATIONS

- Ethernet 10/100/1000 Base T
- RS-422 and RS-485
- Microcontrollers
- USB Interface

### 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**

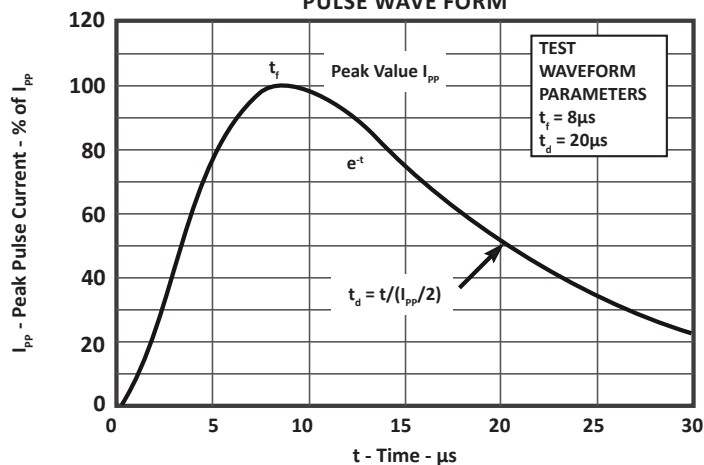
PARAMETER	SYMBOL	VALUE	UNITS
Operating Temperature	$T_A$	-55 to 150	°C
Storage Temperature	$T_{STG}$	-55 to 150	°C
Continuous Power Dissipation	$P_{PC}$	500	mW

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

PART NUMBER	DEVICE MARKING	REPETITIVE PEAK REVERSE VOLTAGE $V_{RRM}$ VOLTS	MAXIMUM FORWARD VOLTAGE @ 100mA $V_F$ VOLTS	MAXIMUM FORWARD PEAK PULSE CURRENT (Fig. 1) @ 8/20 $\mu$ s $I_{FM}$ AMPS	MAXIMUM REVERSE LEAKAGE CURRENT @ $V_{RRM}$ $I_R$ $\mu$ A	TYPICAL CAPACITANCE (Note 1) @ 0V, 1MHz $C_J$ pF
PSRDA70-4	PRG	70	1.1	24	5	6

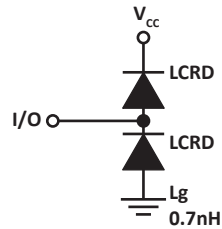
**NOTE**

 1. Between line and ground,  $C_j = C_{MEAS}/2$ .

**FIGURE 1  
PULSE WAVE FORM**


## SPICE MODEL

FIGURE 1  
SPICE MODEL



LCRD: Low Capacitance Rectifier Diode  
Lg - Lead Inductance

TABLE 1 - SPICE PARAMETERS		
PARAMETER	UNIT	LCRD
BV	V	200
IBV	$\mu\text{A}$	0.01
$C_{jo}$	pF	5
$I_s$	A	1E-13
Vj	V	0.6
M	-	0.33
N	-	1
$R_s$	Ohms	0.31
TT	s	1E-9
EG	eV	1.11

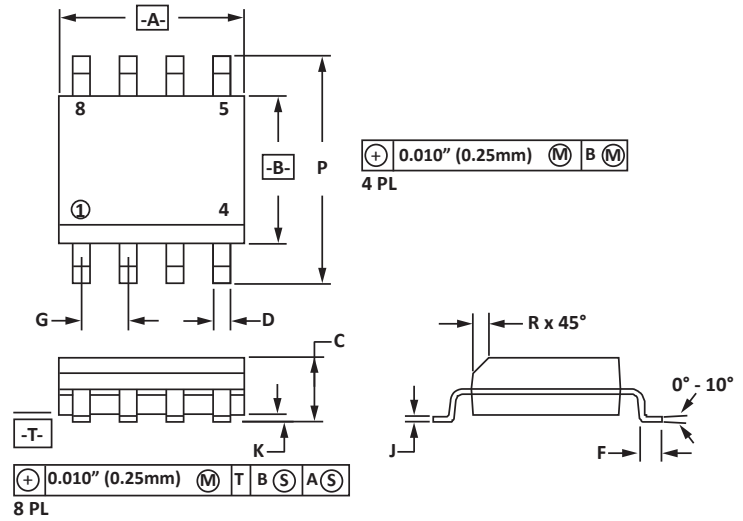
## SO-8 PACKAGE INFORMATION

## 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

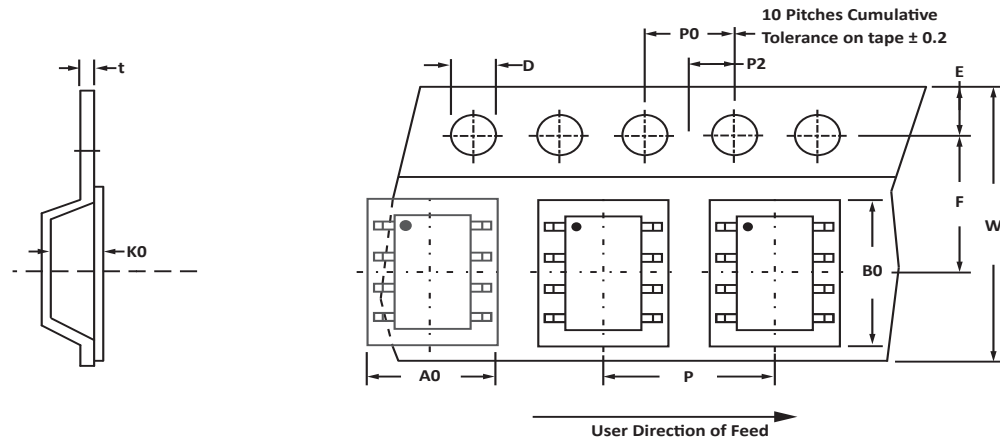
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.14	1.40	0.045	0.055
B	0.64	0.89	0.025	0.035
C	6.22	-	0.245	-
D	3.94	4.17	0.155	0.165
E	1.02	1.27	0.040	0.050

## 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	8.00 ± 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	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
PSRDA70-4	-LF	-T7	1,000	7"	98
PSRDA70-4	-LF	-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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