ULTRA LOW CAPACITANCE STEERING DIODE/TVS ARRAY

SOT-143 PACKAGE

DESCRIPTION

The SR series offers two low voltage (2.8V & 3.3V) and 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 SR series is ideal for low voltage circuit applications. The leakage current for the SR2.8 is less than 1.0 microampere. The low capacitance of the steering diode allows the designer to protect high speed data applications. The small SOT-143 package, with four 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 - 15kV, Contact - 8kV
- Compatible with IEC 61000-4-4 (EFT): 40A - 5/50ns
- Compatible with IEC 61000-4-5 (Surge): 24A, 8/20µs - Level 2(Line-Gnd) & Level 3 (Line-Line)
- 300 Watts Peak Pulse Power per Line (tp = 8/20µs)
- Provides Two Lines of Protection
- Low Leakage Current < 1.0µA
- Ultra Low Capacitance: 4.5pF Typical
- RoHS Compliant
- REACH Compliant

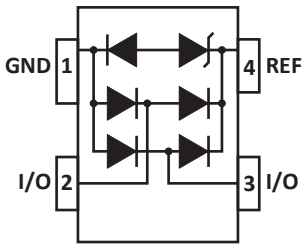
APPLICATIONS

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

MECHANICAL CHARACTERISTICS

- Molded JEDEC SOT-143 Package
- 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)	I_{PP}	30	Amps

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified								
PART NUMBER	**DEVICE MARKING**	**RATED STAND-OFF VOLTAGE (Note 1)** V_{WM} **VOLTS**	**MINIMUM SNAP-BACK VOLTAGE @ 50mA** $V_{(SB)}$ **VOLTS**	**MINIMUM BREAKDOWN VOLTAGE (Note 1) @ 2µA** $V_{(BR)}$ **VOLTS**	**MAXIMUM CLAMPING VOLTAGE (Fig. 2) (Note 1) @** I_P **= 1A** V_C **VOLTS**	**MAXIMUM CLAMPING VOLTAGE (Fig. 2) (Note 1) @ 8/20µs** V_C **VOLTS**	**MAXIMUM LEAKAGE CURRENT (Note 1) @** V_{WM} I_D **µA**	**TYPICAL CAPACITANCE (Note 2) 0V, 1MHz** $C_{J(SD)}$ **pF**
SR2.8	2A	2.8	2.8	3.0	5.0	8.5V @ 5A	1	4.5
SR3.3	3A	3.3	3.3	3.5	7.0	15V @ 10A	1	4.5

NOTES
1. From pin 4 to 1.
2. From pin 1 to 3, 1 to 2, 3 to 4, 2 to 4.

TYPICAL DEVICE CHARACTERISTICS

FIGURE 1
PEAK PULSE POWER VS PULSE TIME

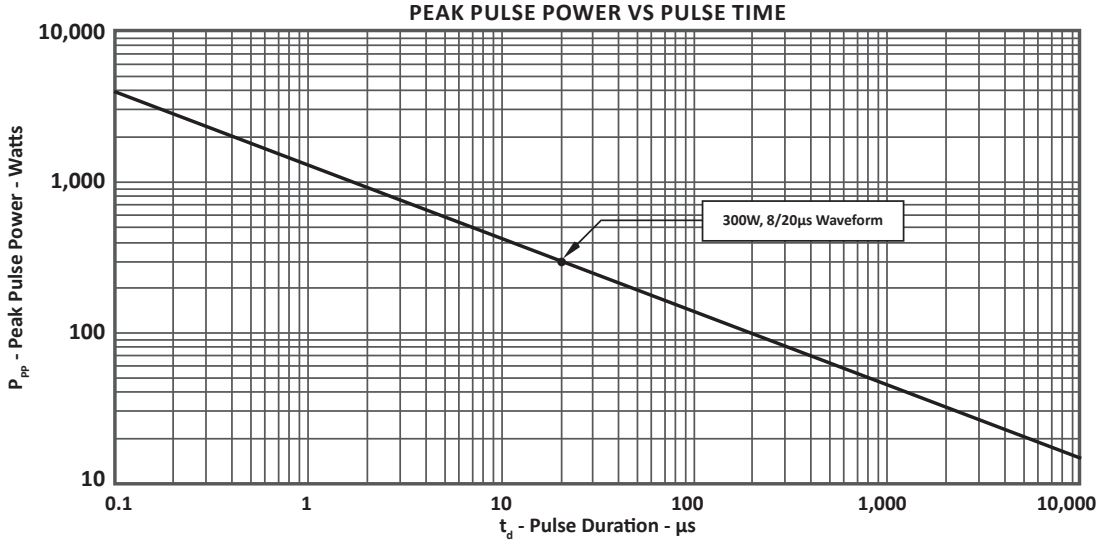


FIGURE 2
PULSE WAVE FORM

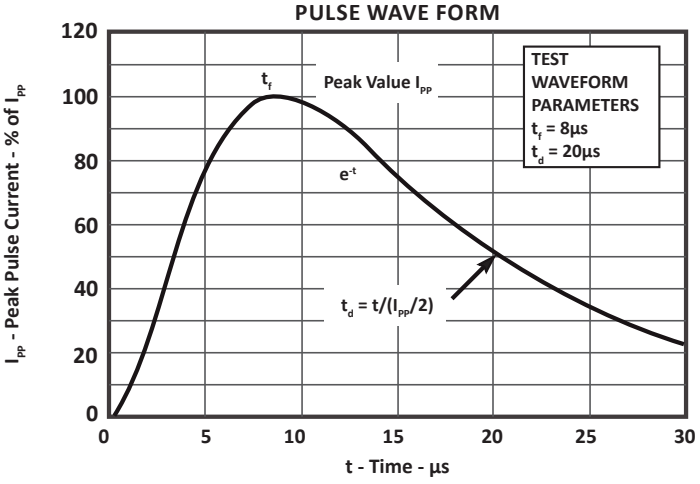
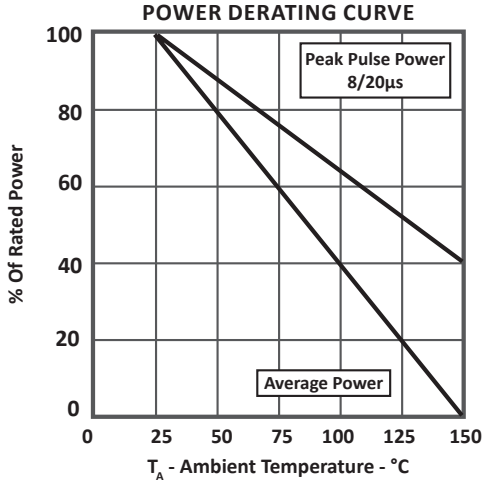


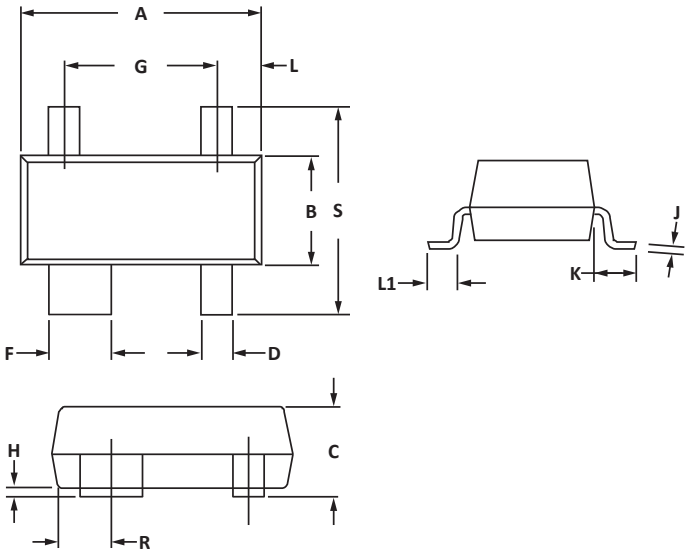
FIGURE 3
POWER DERATING CURVE



SOT-143 PACKAGE INFORMATION

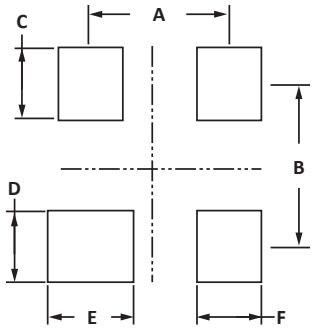
OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.80	3.04	0.110	0.120
B	1.20	1.39	0.047	0.055
C	0.84	1.14	0.033	0.045
D	0.39	0.50	0.015	0.020
F	0.79	0.93	0.031	0.037
G	1.78	2.03	0.070	0.080
J	0.08	0.15	0.003	0.006
K	0.46	0.60	0.018	0.024
L	0.445	0.60	0.0175	0.024
L1	0.40	0.60	0.016	0.024
R	0.72	0.83	0.028	0.033
S	2.11	2.48	0.083	0.098

NOTES
1. Dimensioning and tolerances per ANSI Y14.M, 1985.
2. Controlling dimension: inches.
3. Dimensions are exclusive of mold flash and metal burrs.

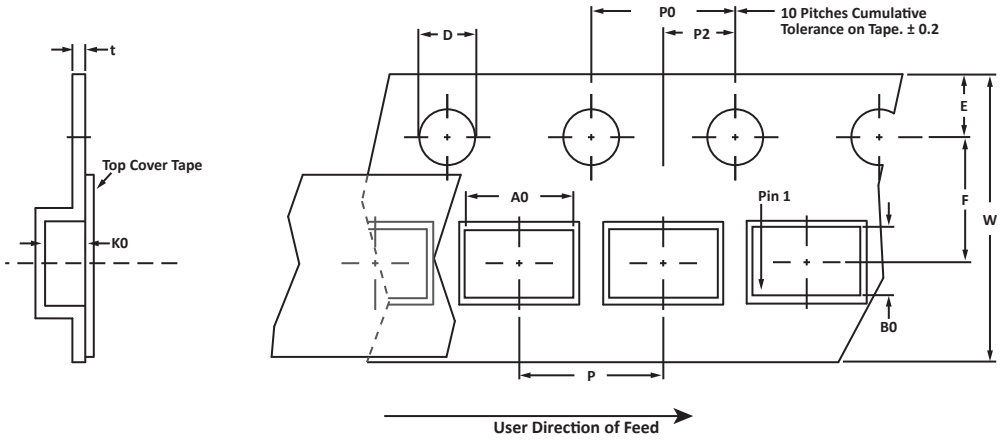


PAD LAYOUT DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.88	2.13	0.074	0.084
B	1.80	2.06	0.071	0.081
C	0.71	0.97	0.028	0.038
D	0.76	1.02	0.030	0.040
E	1.07	1.32	0.042	0.052
F	0.71	0.97	0.028	0.038

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")	8mm	3.10 ± 0.10	2.70 ± 0.10	1.35 ± 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. Suffix - T13 = 13" Reel - 10,000 pieces per 8mm tape.
5. Marking on Part - marking code (see page 2) and date code.

Package outline, pad layout and tape specifications per document number 06011.R4 8/10.

ORDERING INFORMATION					
BASE PART NUMBER	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
SR2.8/SR3.3	-LF	-T7	3000	7"	n/a
SR2.8/SR3.3	-LF	-T13	10,000	13"	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 company located in Tempe, Arizona, that offers a product line of transient voltage suppressors (TVS); avalanche breakdown diodes; steering diode TVS arrays and other surge suppressor component products. These TVS devices protect electronic systems from the effects of lightning, electrostatic discharge (ESD), nuclear electromagnetic pulses (NEMP), inductive switching and EMI / RFI. ProTek Devices also offers high performance interface and linear products that include analog switches; multiplexers; LED drivers; audio control ICs; RF and related high frequency products. The analog devices work in a host of consumer; industrial; automotive and other applications.

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