HIGH POWERED TVS ARRAY

SOD-323 PACKAGE

DESCRIPTION

The PSDxx and PSDxxC Series are transient voltage suppressor arrays designed for ESD protection of SMART phones, laptop computers and other portable electronics. These silicon based diodes offer superior clamping voltage and performance compared to other technologies such as MLVs.

The PSDxx and PSDxxC Series can be utilized as a single line protector in either a unidirectional or bidirectional configuration. The SOD-323 small package configuration offers designers the flexibility of placement on the printed circuit board for each I/O port or voltage bus. The PSDxx and PSDxxC Series meets the IEC 61000-4-2 (ESD), 61000-4-4 (EFT) and 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, 8/20µs Level 2(Line-Gnd) & Level 3 (Line-Line)
- Unidirectional: 500 Watts Peak Pulse Power per Line (tp = 8/20µs)
- Bidirectional: 400 Watts Peak Pulse Power per Line (tp = 8/20µs)
- Replacement for MLV (0805)
- Unidirectional & Bidirectional Configurations
- Protects One Power or I/O Port
- ESD Protection > 25kV
- Low Clamping Voltage
- Available in Multiple Voltages Ranging From 3V to 36V
- RoHS Compliant
- REACH Compliant

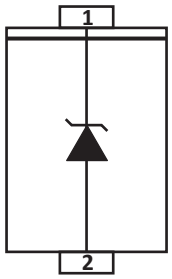
APPLICATIONS

- Laptop Computers
- SMART Phones
- Portable Electronics

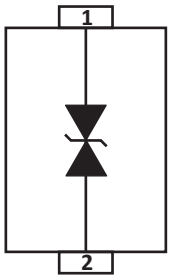
MECHANICAL CHARACTERISTICS

- Molded JEDEC SOD-323 Package
- Approximate Weight: 5 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 CONFIGURATIONS



UNIDIRECTIONAL



BIDIRECTIONAL

TYPICAL DEVICE CHARACTERISTICS

MAXIMUM RATINGS @ 25°C Unless Otherwise Specified			
PARAMETER	SYMBOL	VALUE	UNITS
Unidirectional: Peak Pulse Power (tp = 8/20µs) - See Figure 1	P_{PP}	500	Watts
Bidirectional: Peak Pulse Power (tp = 8/20µs) - See Figure 1	P_{PP}	400	Watts
Operating Temperature	T_L	-55 to 150	°C
Storage Temperature	T_{STG}	-55 to 150	°C

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER (Note 1)	DEVICE MARKING	RATED STAND-OFF VOLTAGE V_{WM} VOLTS	MINIMUM BREAKDOWN VOLTAGE @ 1mA $V_{(BR)}$ VOLTS	MAXIMUM CLAMPING VOLTAGE (Fig. 2) @ IP = 1A V_C VOLTS	MAXIMUM LEAKAGE CURRENT @V_{WM} I_D µA	TYPICAL CAPACITANCE @0V, 1MHz C pF
PSD03	A	3.3	4.0	6.5	125	500
PSD03C	G	3.3	4.0	7.0	125	200
PSD05	B	5.0	6.0	9.8	10	350
PSD05C	H	5.0	6.0	9.8	10	175
PSD08	C	8.0	8.5	13.4	10	250
PSD08C	J	8.0	8.5	13.4	10	150
PSD12	D	12.0	13.3	19.0	1	150
PSD12C	K	12.0	13.3	19.0	1	50
PSD15	E	15.0	16.7	24.0	1	100
PSD15C	L	15.0	16.7	24.0	1	40
PSD18	18	18.0	20.0	29.0	1	90
PSD18C	N	18.0	20.0	29.0	1	40
PSD24	F	24.0	26.7	43.0	1	88
PSD24C	M	24.0	26.7	43.0	1	40
PSD36	R	36.0	40.0	60.0	1	75
PSD36C	T	36.0	40.0	60.0	1	35

NOTES
1. Part numbers with an additional "C" suffix are bidirectional devices, i.e., PSD05**C**.

TYPICAL DEVICE CHARACTERISTICS

FIGURE 1
PEAK PULSE POWER VS PULSE TIME

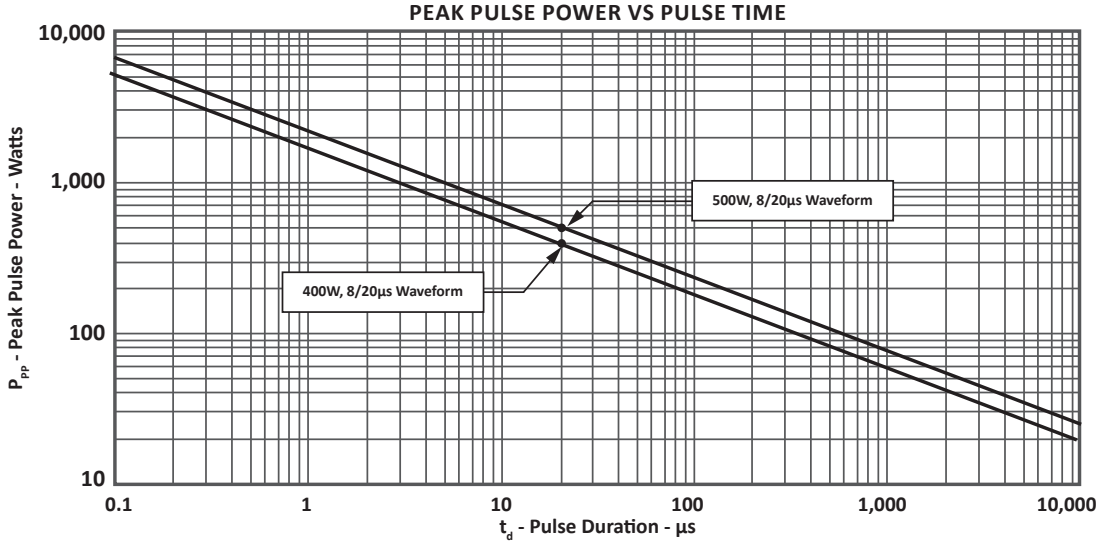


FIGURE 2
PULSE WAVE FORM

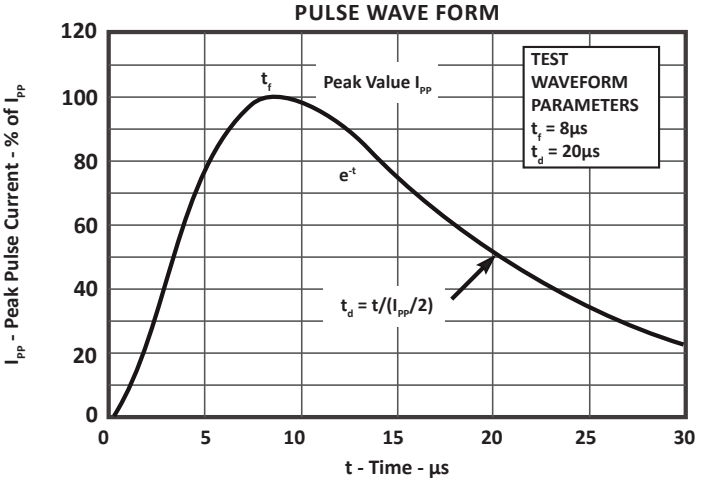
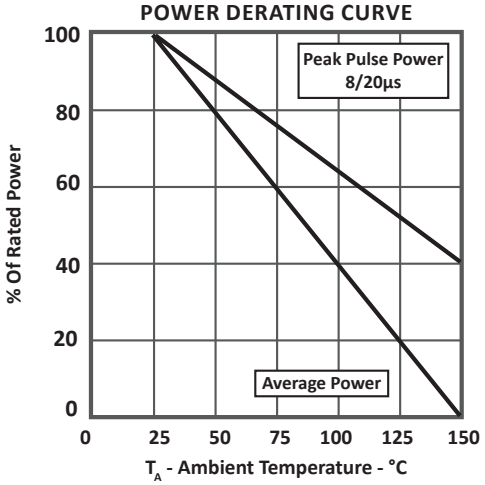


FIGURE 3
POWER DERATING CURVE



TYPICAL DEVICE CHARACTERISTICS

FIGURE 4
OVERSHOOT & CLAMPING VOLTAGE FOR PSD03

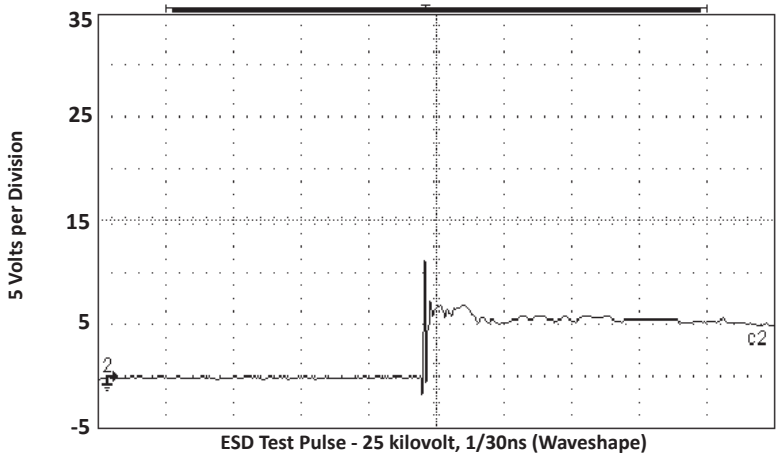
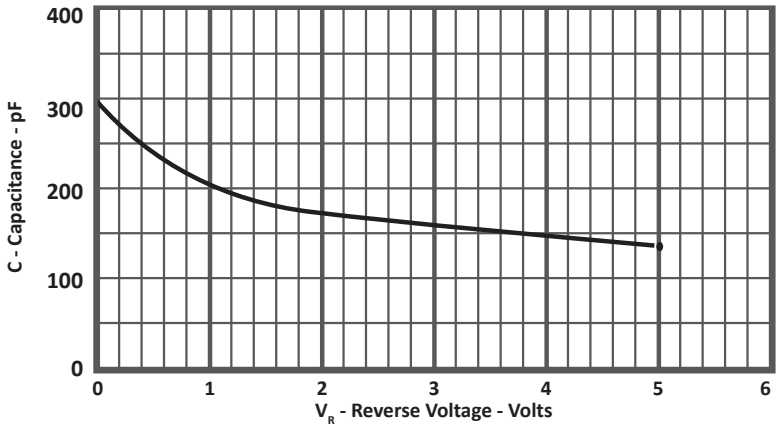
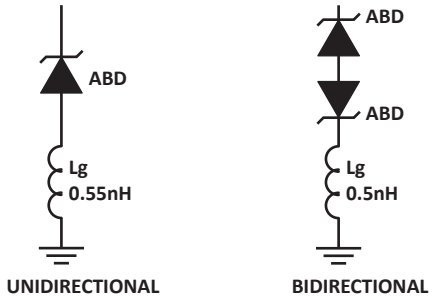


FIGURE 5
TYPICAL REVERSE VOLTAGE VS CAPACITANCE FOR PSD05



SPICE MODEL

FIGURE 1
SPICE MODEL FOR



ABD - Avalanche Breakdown Diode (TVS)
Lg - Lead Inductance

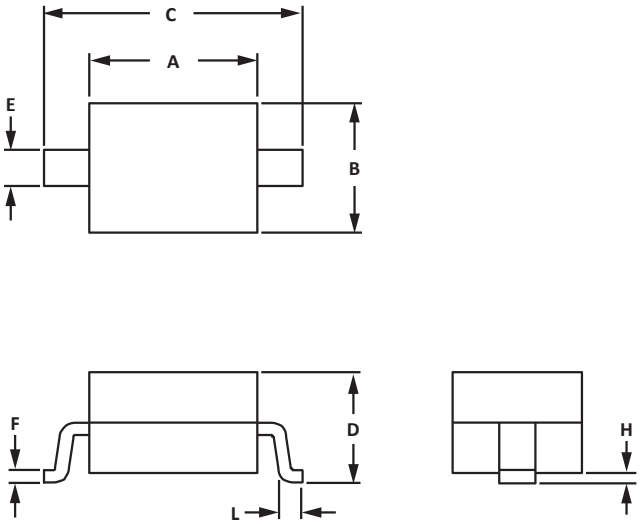
TABLE 1 - SPICE PARAMETERS		
PARAMETER	**UNIT**	**ABD(TVS)**
BV	V	See Table 2
IBV	µA	1
C_{jo}	pF	See Table 2
I_S	A	See Table 2
Vj	V	0.6
M	-	0.33
N	-	1
R_S	Ohms	See Table 2
TT	s	1E-8
EG	eV	1.11

TABLE 2 - ABD SPECIFIC SPICE PARAMETERS				
PART NUMBER	**B_V(VOLTS)**	**C_{jo}(pF)**	**I_S (AMPS)**	**Rs(OHMS)**
PSD03	4.0	438	1E-11	0.21
PSD05	6.0	284	1E-11	0.14
PSD08	8.5	146	1E-11	0.28
PSD12	13.3	123	1E-13	0.40
PSD15	16.7	102	1E-13	0.52
PSD24	26.7	61	1E-13	1.54
PSD03C	4.5	219	1E-11	0.21
PSD05C	6.0	142	1E-11	0.14
PSD08C	8.5	73	1E-11	0.28
PSD12C	13.3	62	1E-13	0.40
PSD15C	16.7	51	1E-13	0.52
PSD24C	26.7	30	1E-13	1.54

SOD-323 PACKAGE INFORMATION

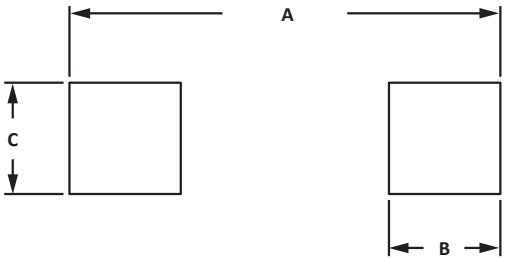
OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.60	1.90	0.063	0.075
B	1.15	1.45	0.045	0.057
C	2.39	2.70	0.094	0.106
D	0.80	1.10	0.031	0.043
E	0.25	0.40	0.010	0.016
F	0.10	0.20	0.004	0.008
H	-	0.10	-	0.004
L	0.20	-	0.008	-

NOTES
1. Controlling dimension: millimeters.
2. Dimensioning and tolerances per ANSI Y14.5M, 1985.
3. Dimensions are exclusive of mold flash and metal burrs.

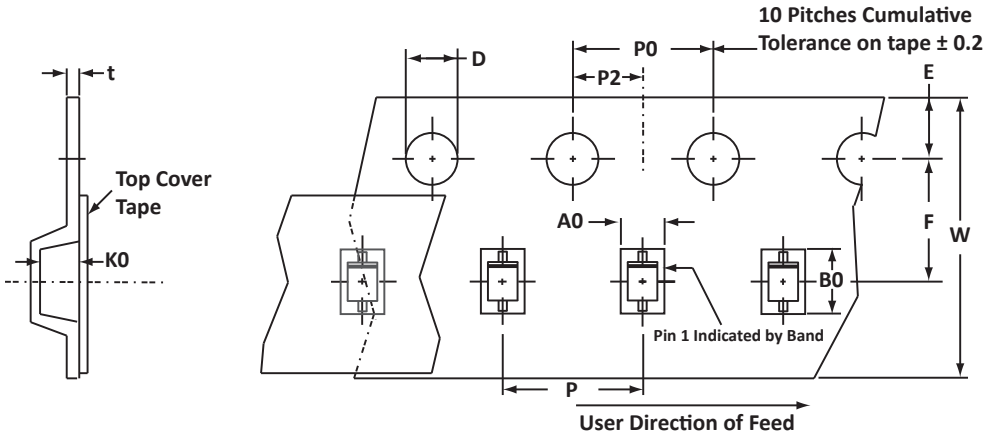


PAD LAYOUT DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.87	3.12	0.113	0.123
B	0.66	0.91	0.026	0.036
C	0.66	0.91	0.026	0.036

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	1.55 ± 0.10	2.90 ± 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. Marking on Part - marking code (see page 2), polarity band (Unidirectional Only).

Package outline, pad layout and tape specifications per document number 06010.R4 9/10.

ORDERING INFORMATION					
BASE PART NUMBER (xx = Voltage)	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
PSDxx/PSDxxC	-LF	-T7	3,000	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 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.

CONTACT US

Corporate Headquarters
2929 South Fair Lane
Tempe, Arizona 85282
USA

By Telephone
General: 602-431-8101
Sales: & Marketing: 602-414-5109
Customer Service: 602-414-5114
Product Technical Support: 602-414-5107

By Fax
General: 602-431-2288

By E-mail:
Sales: sales@protekdevices.com
Customer Service: service@protekdevices.com
Technical Support: support@protekdevices.com

ProTek Devices (Asia Pacific) Pte. Ltd.
8 Ubi Road 2, #06-19
Zervex
Singapore - 408538
Tel: +65-67488312
Fax: +65-67488313

Web
www.protekdevices.com