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

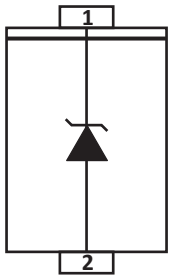
APPLICATIONS

- Laptop Computers
- SMART Phones
- Portable Electronics

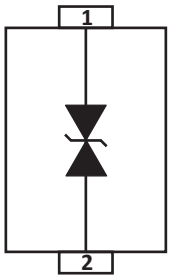
MECHANICAL CHARACTERISTICS

- 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

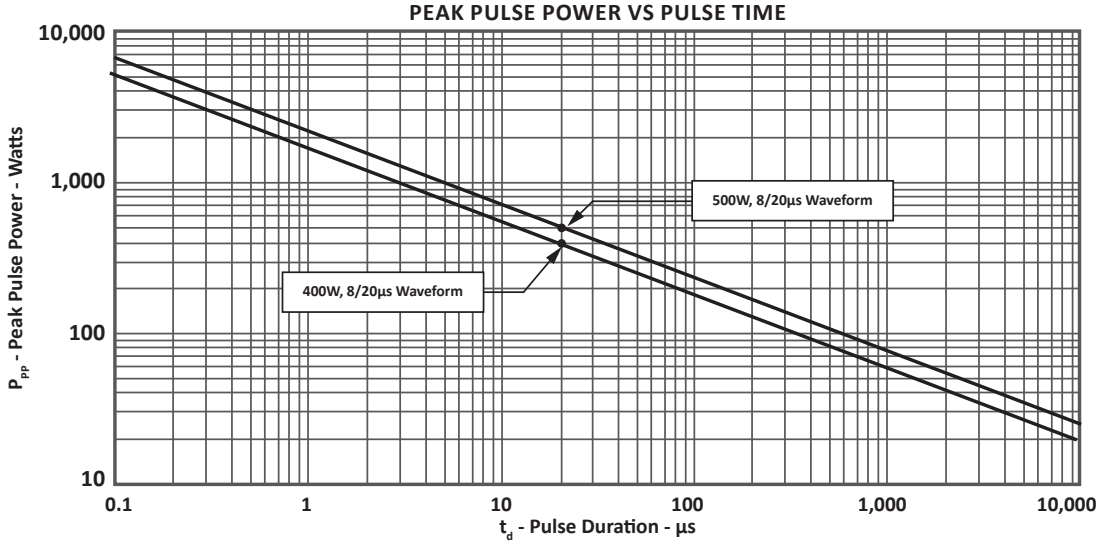


FIGURE 2
PULSE WAVE FORM

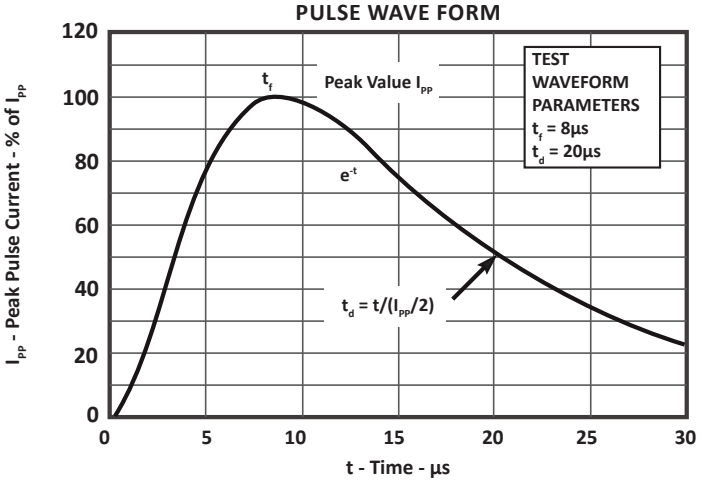
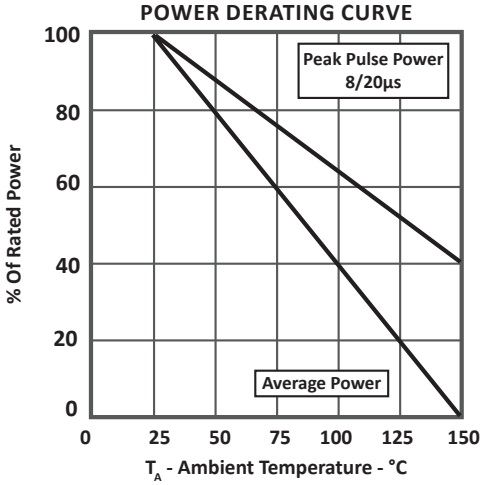


FIGURE 3
POWER DERATING CURVE



TYPICAL DEVICE CHARACTERISTICS

FIGURE 4
OVERSHOOT & CLAMPING VOLTAGE FOR PSD03

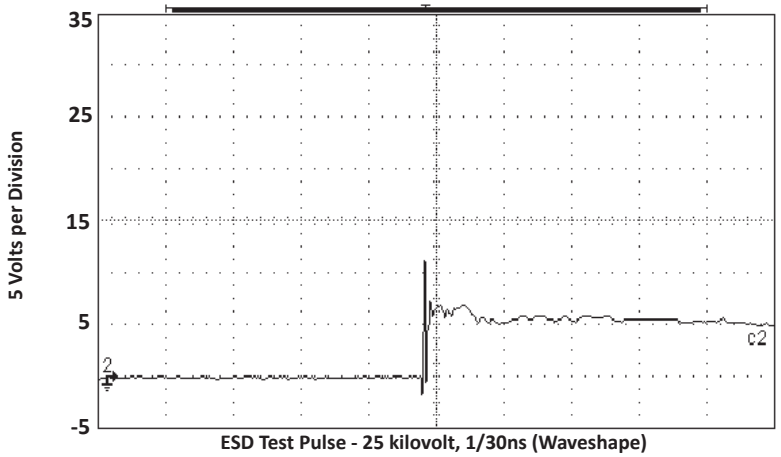
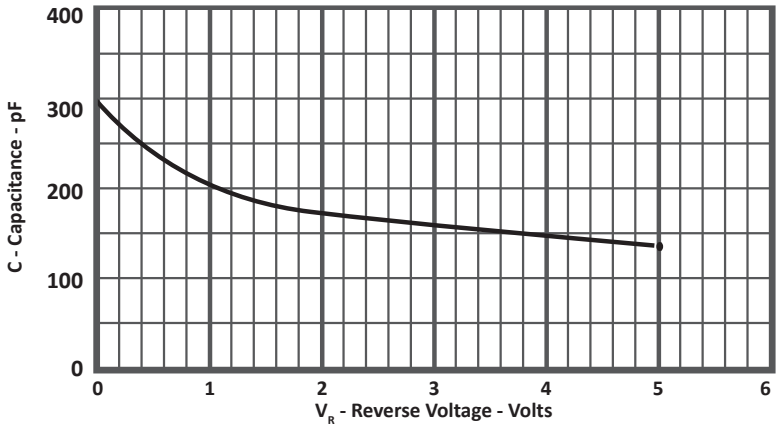
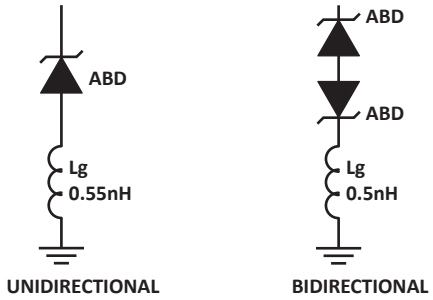


FIGURE 5
TYPICAL REVERSE VOLTAGE VS CAPACITANCE FOR PSD05



SPICE MODEL

FIGURE 1
SPICE MODEL FOR



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

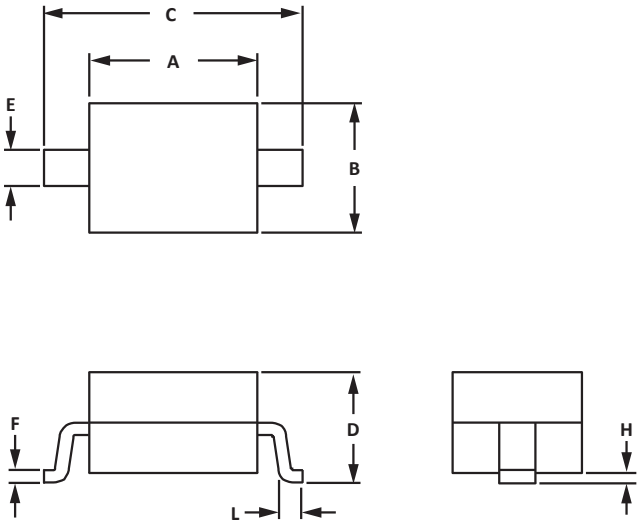
TABLE 1 - SPICE PARAMETERS		
PARAMETER	**UNIT**	**ABD(TVS)**
BV	V	See Table 2
IBV	µA	1
C_{jo}	pF	See Table 2
I_S	A	See Table 2
Vj	V	0.6
M	-	0.33
N	-	1
R_S	Ohms	See Table 2
TT	s	1E-8
EG	eV	1.11

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

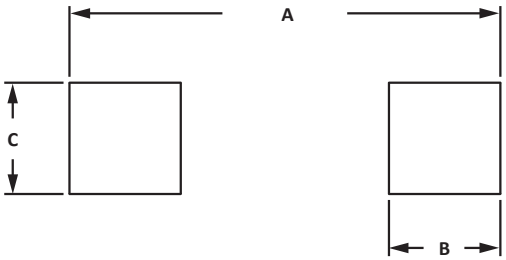
OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.60	1.90	0.063	0.075
B	1.15	1.45	0.045	0.057
C	2.39	2.70	0.094	0.106
D	0.80	1.10	0.031	0.043
E	0.25	0.40	0.010	0.016
F	0.10	0.20	0.004	0.008
H	-	0.10	-	0.004
L	0.20	-	0.008	-

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

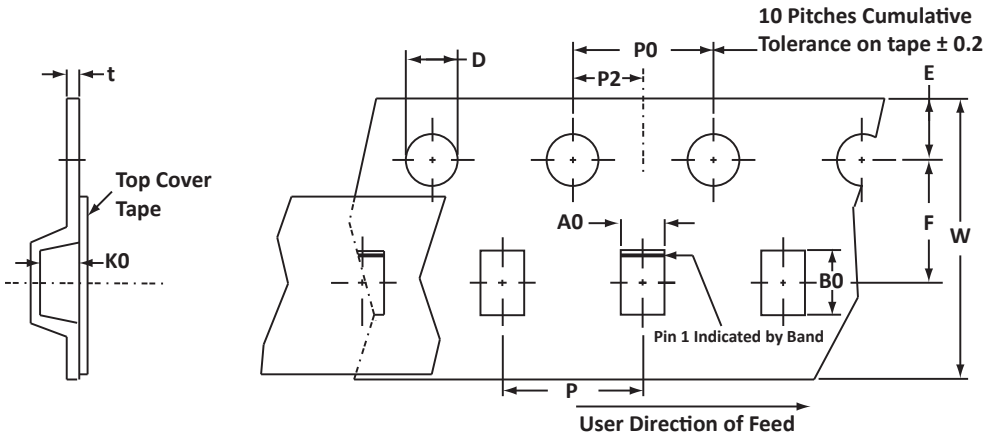


PAD LAYOUT DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.87	3.12	0.113	0.123
B	0.66	0.91	0.026	0.036
C	0.66	0.91	0.026	0.036

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

COMPANY INFORMATION

COMPANY PROFILE

ProTek Devices, based in Tempe, Arizona USA, is a manufacturer of Transient Voltage Suppression (TVS) products designed specifically for the protection of electronic systems from the effects of lightning, Electrostatic Discharge (ESD), Nuclear Electromagnetic Pulse (NEMP), inductive switching and EMI/RFI. With over 25 years of engineering and manufacturing experience, ProTek designs TVS devices that provide application specific protection solutions for all electronic equipment/systems.

ProTek Devices Analog Products Division, also manufactures analog interface, control, RF and power management products.

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