

LOW CAPACITANCE TVS ARRAY

APPLICATIONS

- ✓ Ethernet - 10/100 Base T
- ✓ Cellular Phones
- ✓ Audio & Video Inputs
- ✓ FireWire, SCSI & USB Interfaces

IEC COMPATIBILITY (EN61000-4)

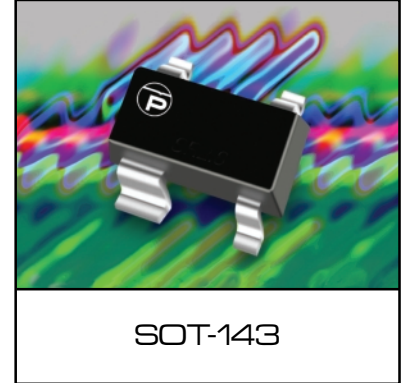
- ✓ 61000-4-2 (ESD): Air - 15kV, Contact - 8kV
- ✓ 61000-4-4 (EFT): 40A - 5/50ns
- ✓ 61000-4-5 (Surge): 12A, 8/20μs - Level 1(Line-Gnd) & Level 2(Line-Line)

FEATURES

- ✓ 350 Watts Peak Pulse Power per Line (tp=8/20μs)
- ✓ Unidirectional & Bidirectional Configurations
- ✓ Available in Multiple Voltage Types Ranging From 3V to 24V
- ✓ Protects One Line
- ✓ ESD Protection > 40 kilovolts
- ✓ Low Clamping Voltage
- ✓ **LOW CAPACITANCE: 10pF**

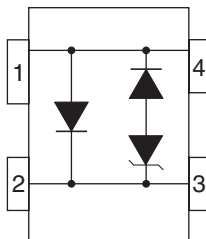
MECHANICAL CHARACTERISTICS

- ✓ Molded JEDEC SOT-143 Package
- ✓ Weight 10 milligrams (Approximate)
- ✓ Flammability rating UL 94V-0
- ✓ 8mm Tape and Reel Per EIA Standard 481
- ✓ Marking: Marking Code

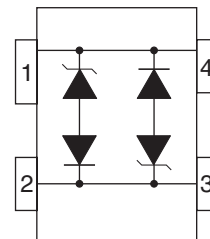


PIN CONFIGURATIONS

UNIDIRECTIONAL



BIDIRECTIONAL



DEVICE CHARACTERISTICS

MAXIMUM RATINGS @ 25°C Unless Otherwise Specified

PARAMETER	SYMBOL	VALUE	UNITS
Peak Pulse Power ($t_p = 8/20\mu s$) - See Figure 1	P_{PP}	350	Watts
Operating Temperature	T_J	-55°C to 150°C	°C
Storage Temperature	T_{STG}	-55°C to 150°C	°C

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER (See Notes 1-2)	DEVICE MARKING	RATED STAND-OFF VOLTAGE V_{WM} VOLTS	MINIMUM BREAKDOWN VOLTAGE @ 1mA $V_{(BR)}$ VOLTS	MAXIMUM CLAMPING VOLTAGE (See Fig. 2) @ $I_p = 5A$ V_C VOLTS	MAXIMUM CLAMPING VOLTAGE (See Fig. 2) @ 8/20 μs V_C @ I_{PP}	MAXIMUM LEAKAGE CURRENT @ V_{WM} I_D μA	MAXIMUM CAPACITANCE 0V @ 1 MHz C pF
PSLC03	3U	3.3	4.0	9.0	19.0V @ 20.0A	125	10
PSLC03C	3B	3.3	4.0	9.0	19.0V @ 20.0A	125	10
PSLC05	5U	5.0	6.0	11.0	18.3V @ 17.0A	20	10
PSLC05C	5B	5.0	6.0	11.0	18.3V @ 17.0A	20	10
PSLC08	8U	8.0	8.5	16.6	18.5V @ 17.0A	10	10
PSLC08C	8B	8.0	8.5	16.6	18.5V @ 17.0A	10	10
PSLC12	12U	12.0	13.3	24.0	28.6V @ 11.0A	1	10
PSLC12C	12B	12.0	13.3	24.0	28.6V @ 11.0A	1	10
PSLC15	15U	15.0	16.6	30.0	31.8V @ 10.0A	1	10
PSLC15C	15B	15.0	16.6	30.0	31.8V @ 10.0A	1	10
PSLC24	24U	24.0	26.7	N/A	56.0V @ 6.0A	1	10
PSLC24C	24B	24.0	26.7	N/A	56.0V @ 6.0A	1	10

Note 1: Part numbers with an additional "C" suffix are bidirectional devices, i.e., PSLC05C.

Note 2: *Unidirectional Only:* Positive potential is applied from pin 2 to 1 or pin 3 to 4.

FIGURE 1
PEAK PULSE POWER VS PULSE TIME

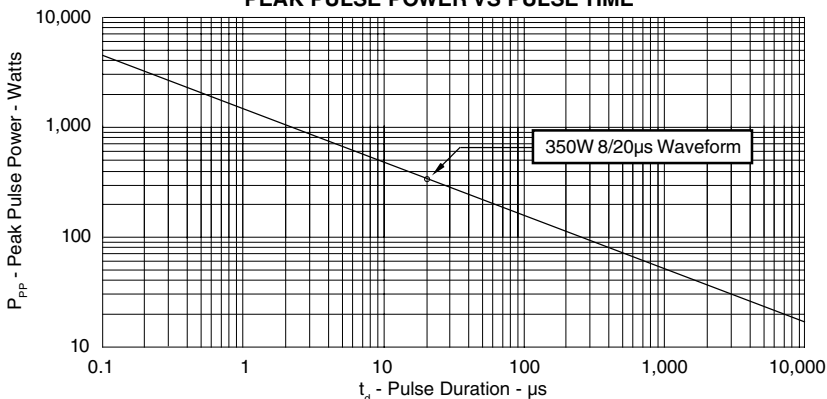
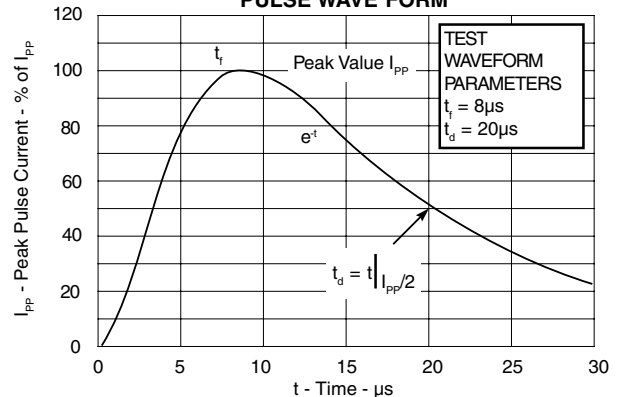
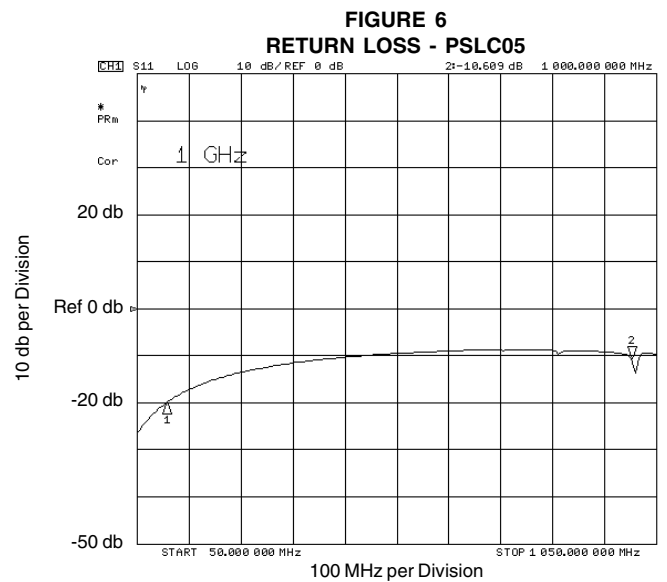
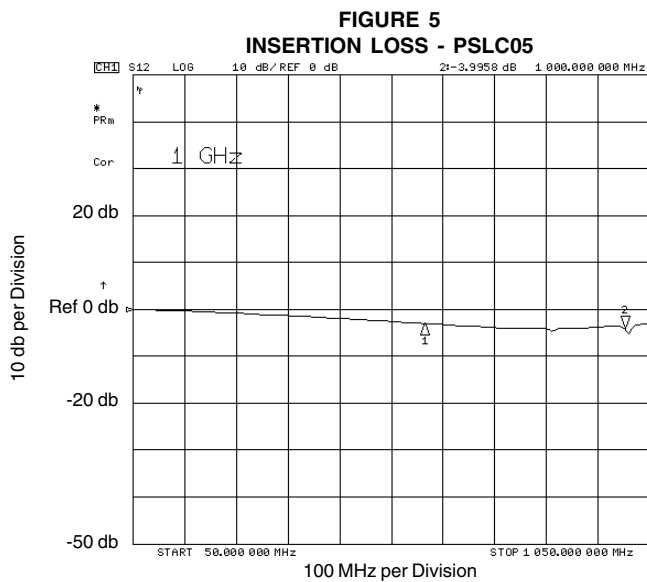
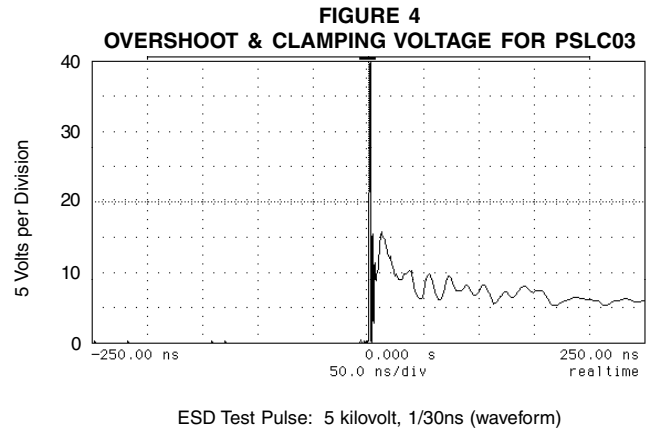
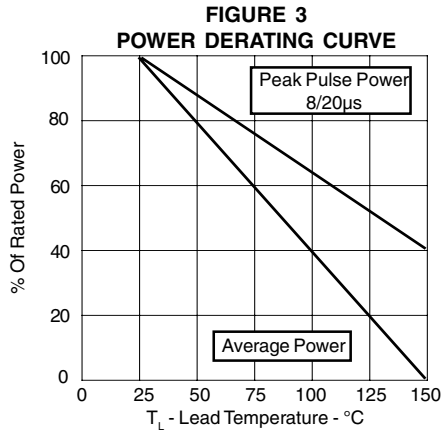


FIGURE 2
PULSE WAVE FORM



GRAPHS



APPLICATION NOTE

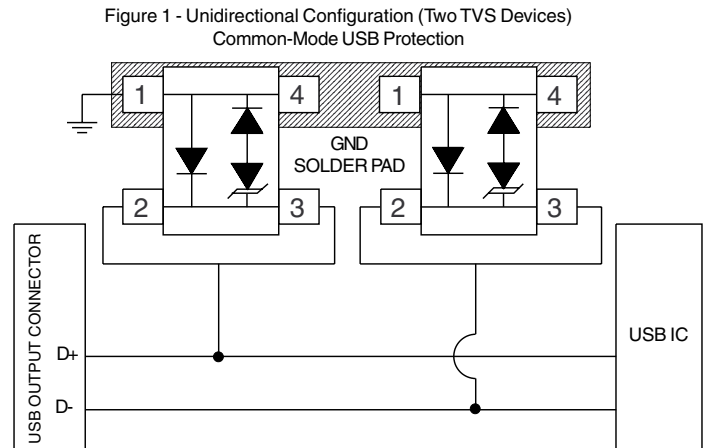
The PSLC Series are TVS arrays designed to protect I/O or data lines from the damaging effects of ESD and EFT. This product series provides both unidirectional and bidirectional protection, with a surge capability of 350 Watts P_{PP} per line for an 8/20 μ s waveform and ESD protection > 40kV.

UNIDIRECTIONAL COMMON-MODE CONFIGURATION (Figure 1)

The two PSLC Series devices provide protection in a common-mode configuration as depicted in Figure 1.

Circuit connectivity is as follows:

- ✓ TVS Device 1: Line 1(D+) is connected to Pins 2 & 3.
- ✓ TVS Device 2: Line 2(D-) is connected to Pins 2 & 3.
- ✓ Both TVS Devices: Pins 1 & 4 connected to ground.



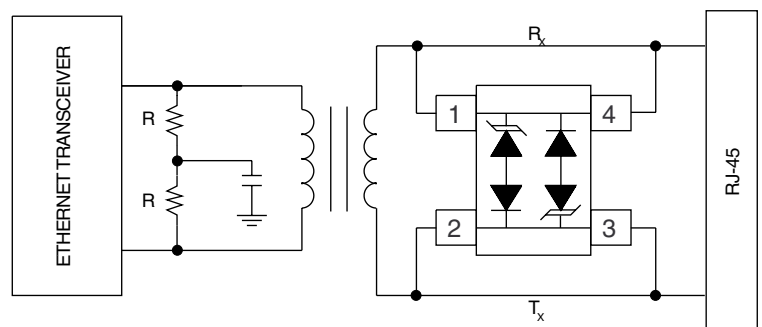
BIDIRECTIONAL DIFFERENTIAL-MODE CONFIGURATION (Figure 2)

The PSLCxxC Series provides protection in a differential-mode configuration as depicted in Figure 2.

Circuit connectivity is as follows:

- ✓ Line 1(R_x) is connected to Pins 1 & 4.
- ✓ Line 2(T_x) is connected to Pins 2 & 3.

Figure 2 - Bidirectional Configuration
Differential-Mode Ethernet Protection



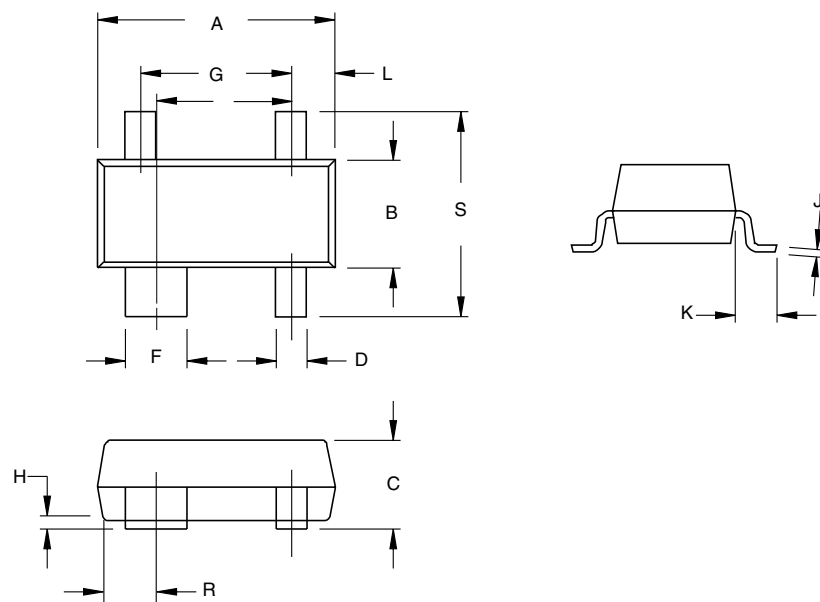
CIRCUIT BOARD LAYOUT RECOMMENDATIONS

Circuit board layout is critical for Electromagnetic Compatibility (EMC) protection. The following guidelines are recommended:

- ✓ The protection device should be placed near the input terminals or connectors, the device will divert the transient current immediately before it can be coupled into the nearby traces.
- ✓ The path length between the TVS device and the protected line should be minimized.
- ✓ All conductive loops including power and ground loops should be minimized.
- ✓ The transient current return path to ground should be kept as short as possible to reduce parasitic inductance.
- ✓ Ground planes should be used whenever possible. For multilayer PCBs, use ground vias.

PACKAGE OUTLINE & DIMENSIONS

PACKAGE OUTLINE



SOT-143

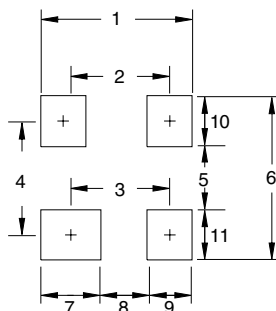


PACKAGE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.80	3.04	0.110	0.0120
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
H	0.013	0.10	0.0005	0.004
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
R	0.72	0.83	0.028	0.033
S	2.11	2.48	0.083	0.098

MOUNTING PAD

TYPICAL		
DIM	Millimeters	Inches
1	2.85	0.112
2	2.00	0.079
3	1.80	0.071
4	1.90	0.075
5	1.05	0.041
6	2.75	0.108
7	1.20	0.047
8	0.80	0.031
9	0.85	0.033
10	0.85	0.033
11	0.85	0.033



NOTES

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

TAPE & REEL ORDERING NOMENCLATURE

1. Surface mount product is taped and reeled in accordance with EIA-481.
2. Suffix-T7 = 7 Inch Reel - 3,000 pieces per 8mm tape, i.e., PSLC05-T7.
3. Suffix-T13 = 13 Inch Reel - 10,000 pieces per 8mm tape, i.e., PSLC05-T13.

Outline & Dimensions: Rev 1 - 11/01, 06011

COPYRIGHT © ProTek Devices 2003

SPECIFICATIONS: ProTek reserves the right to change the electrical and or mechanical characteristics described herein without notice (except JEDEC).

DESIGN CHANGES: ProTek reserves the right to discontinue product lines without notice, and that the final judgement concerning selection and specifications is the buyer's and that in furnishing engineering and technical assistance, ProTek assumes no responsibility with respect to the selection or specifications of such products.

ProTek Devices

2929 South Fair Lane, Tempe, AZ 85282

Tel: 602-431-8101 Fax: 602-431-2288

E-Mail: sales@protekdevices.com

Web Site: www.protekdevices.com