

LOW CAPACITANCE TVS ARRAY

APPLICATIONS

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

IEC COMPATIBILITY (EN61000-4)

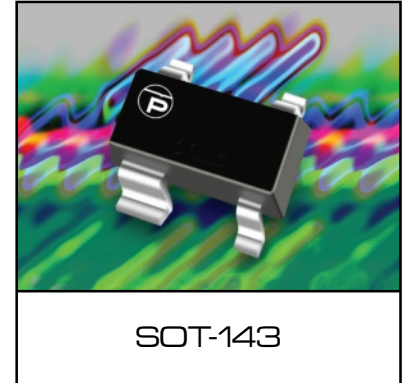
- ✓ 61000-4-2 (ESD): Air - 15kV, Contact - 8kV
- ✓ 61000-4-4 (EFT): 40A - 5/50ns
- ✓ 61000-4-5 (Surge): 12A, 8/20 μ s - Level 1(Line-Gnd) & Level 2(Line-Line)

FEATURES

- ✓ 350 Watts Peak Pulse Power per Line (tp=8/20 μ s)
- ✓ 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**

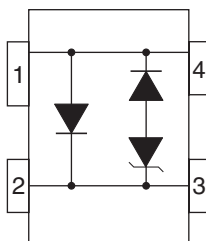
MECHANICAL CHARACTERISTICS

- ✓ 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

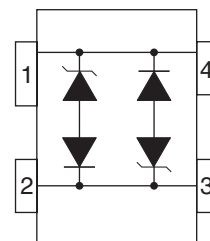


PIN CONFIGURATIONS

UNIDIRECTIONAL



BIDIRECTIONAL



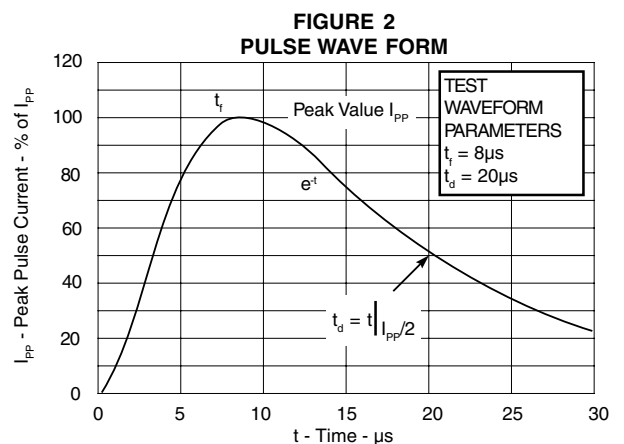
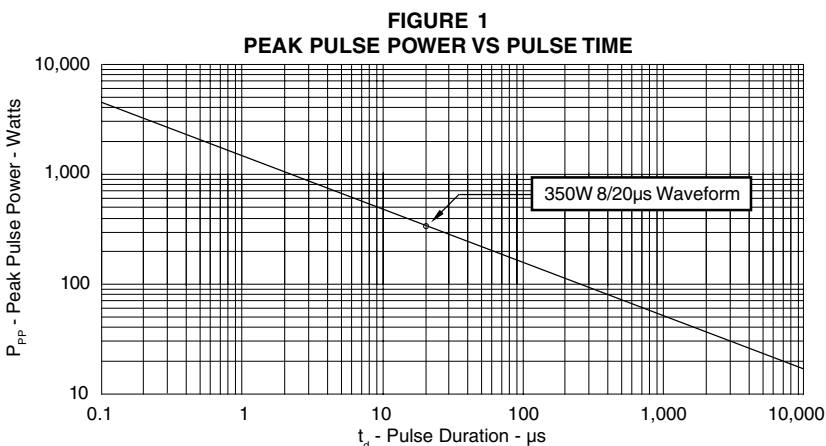
DEVICE CHARACTERISTICS

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

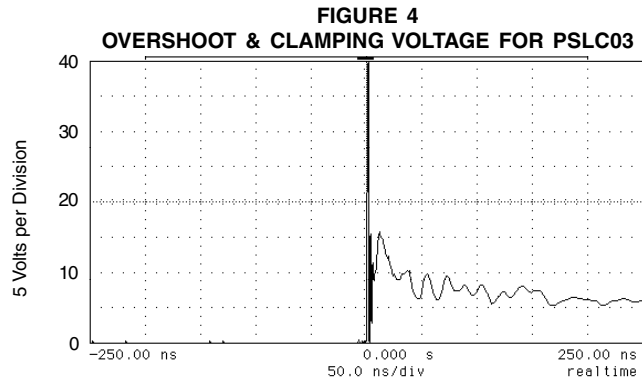
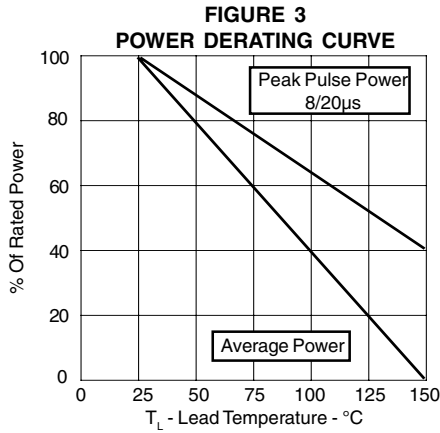
ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified							
PART NUMBER (See Notes 1-2)	DEVICE MARKING	RATED STAND-OFF VOLTAGE V_{WM} VOLTS	MINIMUM BREAKDOWN VOLTAGE @ 1mA $V_{(BR)}$ VOLTS	MAXIMUM CLAMPING VOLTAGE (See Fig. 2) @ $I_p = 5A$ V_C VOLTS	MAXIMUM CLAMPING VOLTAGE (See Fig. 2) @ 8/20 μs $V_C @ I_{PP}$	MAXIMUM LEAKAGE CURRENT @ V_{WM} I_D μA	MAXIMUM CAPACITANCE 0V @ 1 MHz C pF
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.

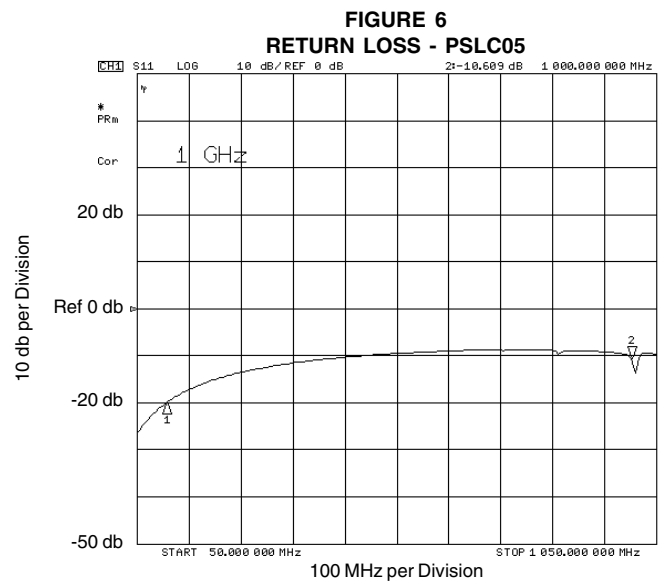
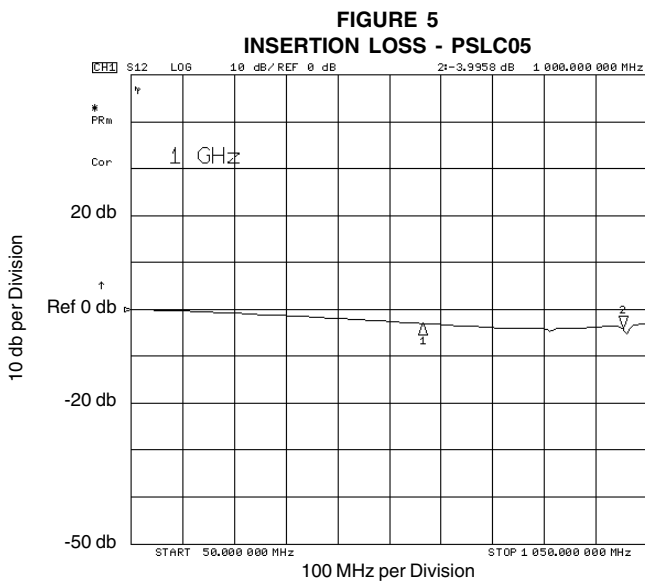
Note 2: *Unidirectional Only:* Positive potential is applied from pin 2 to 1 or pin 3 to 4.



GRAPHS



ESD Test Pulse: 5 kilovolt, 1/30ns (waveform)



APPLICATION NOTE

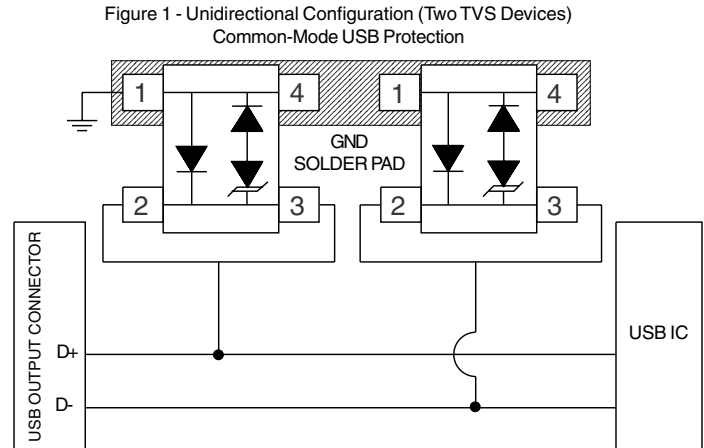
The PSLC Series are TVS arrays designed to protect I/O or data lines from the damaging effects of ESD and EFT. This product series provides both unidirectional and bidirectional protection, with a surge capability of 350 Watts P_{pp} per line for an 8/20 μ s waveform and ESD protection > 40kV.

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.



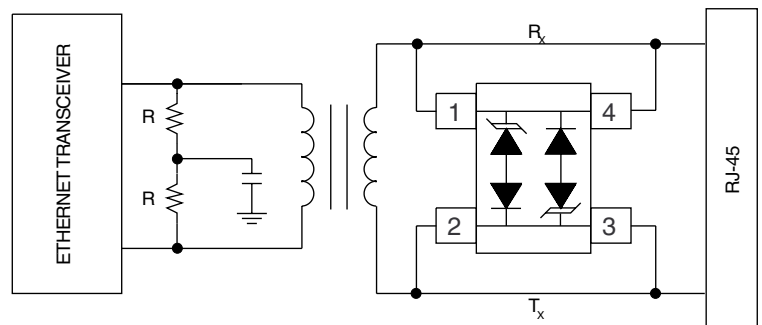
BIDIRECTIONAL DIFFERENTIAL-MODE CONFIGURATION (Figure 2)

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

PACKAGED 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

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

TAPE & REEL ORDERING NOMENCLATURE

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

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

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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