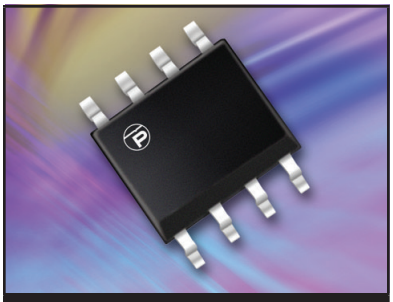
500 WATT ULTRA LOW CAPACITANCE TVS ARRAY



SO-8 PACKAGE

DESCRIPTION

The SLVU2.8-8G is an ultra low capacitance TVS array, designed to protect four line pairs from the effects of Electrostatic Discharge (ESD), Electrical Fast Transients (EFT) and switching transients. The SLVU2.8-8G exceeds Level 4 IEC 61000-4-2, with a peak pulse power rating of 500 Watts for an 8/20µs waveshape.

The ultra low capacitance and low leakage current of the device allows the designer to protect high speed data applications. Packaged in a SO-8 configuration, the SLVU2.8-8G is both RoHS and REACH compliant.

FEATURES

- IEC Compatibility IEC 61000-4-2 (ESD): Air - 15kV, Contact - 8kV
- IEC Compatibility IEC 61000-4-4 (EFT): 40A - 5/50ns
- IEC Compatibility IEC 61000-4-5 (Surge): 24A, 8/20µs - Level 2(Line-Gnd) & Level 3 (Line-Line)
- 500 Watts Peak Pulse Power per Line (tp = 8/20µs)
- Provides Protection for Four Line Pairs
- Low Leakage Current < 1.0 µA
- Ultra Low Capacitance: 3.7pF Typical
- RoHS Compliant
- REACH Compliant

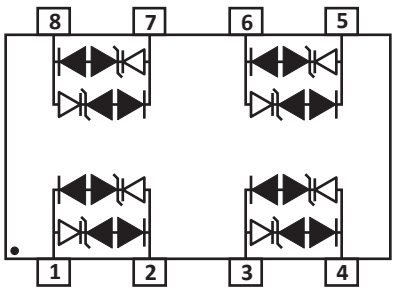
APPLICATIONS

- Ethernet - 10/100 Base T
- Cellular Phones
- Audio/Video Inputs
- Handheld Electronics
- SMART Phones

MECHANICAL CHARACTERISTICS

- Molded JEDEC SO-8 Package
- Approximate Weight: 70 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
Peak Pulse Power (tp = 8/20µs) - See Figure 1	P_{PP}	500	Watts
Peak Pulse Current (tp = 8/20µs)	I_{PP}	30	Amps
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	DEVICE MARKING	RATED STAND-OFF VOLTAGE (Note 1)	MINIMUM BREAKDOWN VOLTAGE (Note 1)	MAXIMUM SNAPBACK VOLTAGE (Note 1)	MAXIMUM CLAMPING VOLTAGE (Note 1) (Fig. 2)				MAXIMUM LEAKAGE CURRENT (Note 1)	TYPICAL CAPACITANCE (Note 1)
					@I_{PP} = 2A	@I_{PP} = 5A	@I_{PP} = 24A	@I_{PP} = 30A		
		V_{WM} VOLTS	@ 1mA $V_{(BR)}$ VOLTS	@ I_{SB} = 50mA V_{SB} VOLTS	V_C VOLTS	V_C VOLTS	V_C VOLTS	V_C VOLTS	@ V_{WM} I_D µA	0V, 1MHz C pF
SLVU2.8-8G	288G	2.8	3.0	2.8	5.5	8.5	15	17	1.0	3.7

NOTES
1. Device is measured between pin 1 to 2, pin 3 to 4, pin 5 to 6 and pin 7 to 8.

TYPICAL DEVICE CHARACTERISTICS

FIGURE 1
PEAK PULSE POWER VS PULSE TIME

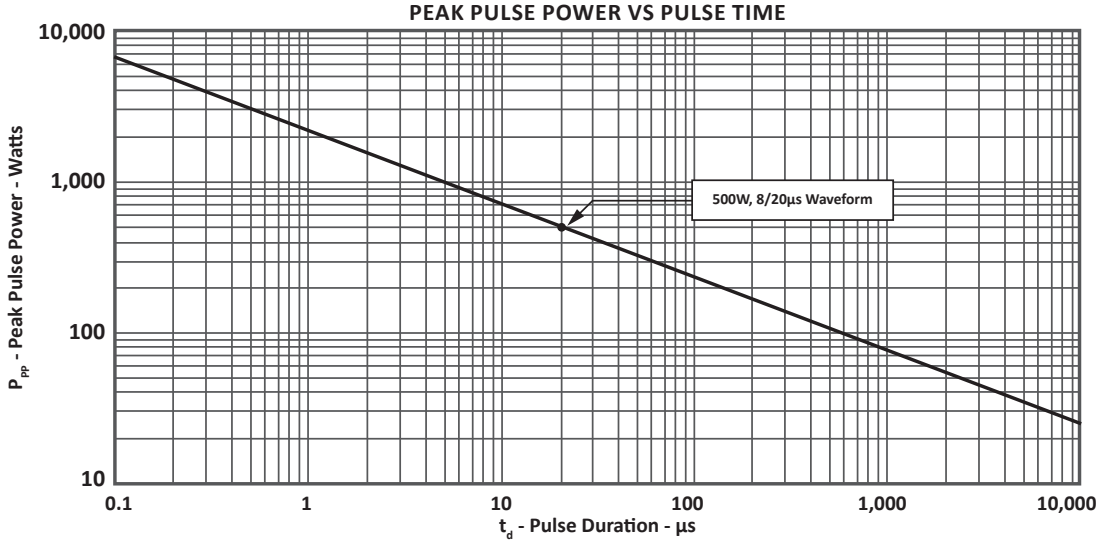
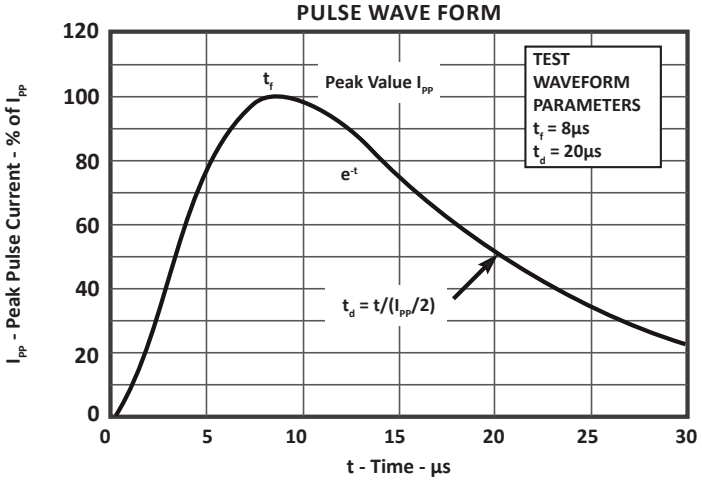


FIGURE 2
PULSE WAVE FORM



TYPICAL DEVICE CHARACTERISTICS

FIGURE 3
POWER DERATING CURVE

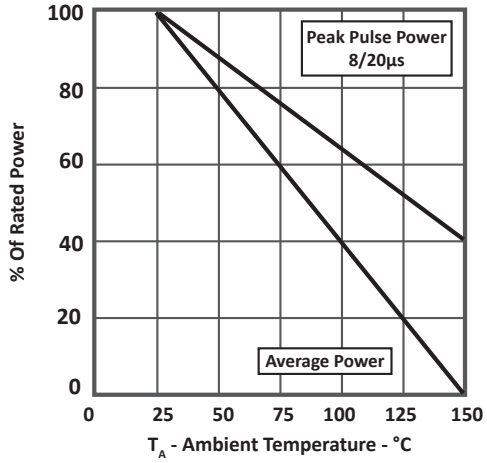
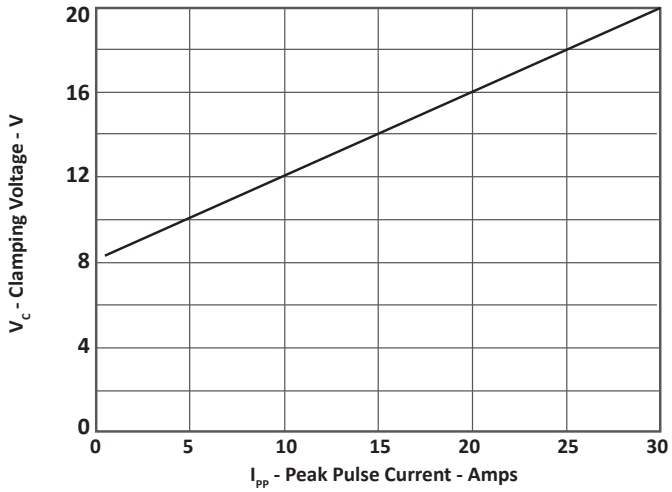


FIGURE 4
TYPICAL CLAMPING VOLTAGE VS PEAK PULSE CURRENT



APPLICATION INFORMATION

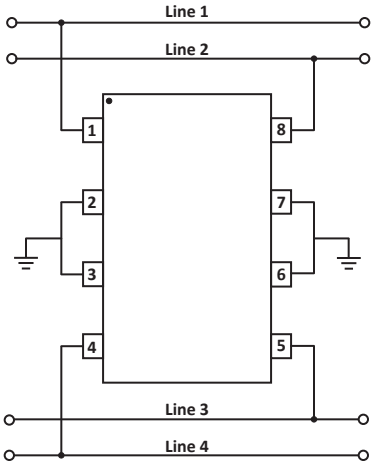


FIGURE 1 - BIDIRECTIONAL COMMON-MODE PROTECTION

The SLVU2.8-8G provides 4 lines of protection in a common mode configuration. Circuit connectivity is as follows:

- Line 1 connected to Pin 1
- Line 2 connected to Pin 8
- Line 3 connected to Pin 5
- Line 4 connected to Pin 4
- Pins 2, 3, 6, 7 are connected to ground

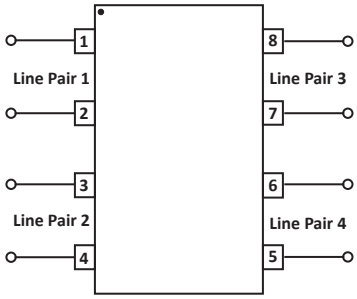


FIGURE 2 - BIDIRECTIONAL DIFFERENTIAL-MODE PROTECTION

The SLVU2.8-8G provides four line pairs in a differential mode configuration. Circuit connectivity is as follows:

- Line Pair 1 connected to Pins 1 & 2
- Line Pair 2 connected to Pins 3 & 4
- Line Pair 3 connected to Pins 5 & 6
- Line Pair 4 connected to Pins 7 & 8

CIRCUIT BOARD RECOMMENDATIONS

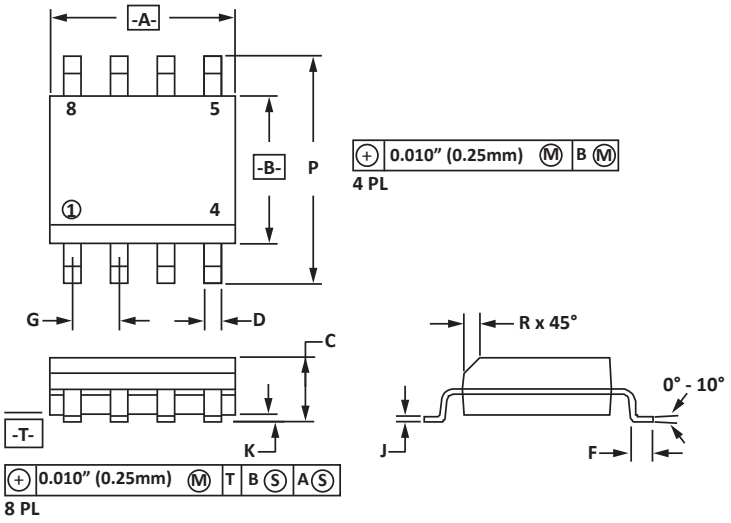
Circuit board layout is critical for electromagnetic compatibility protection. The following guidelines are recommended:

- 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.

SO-8 PACKAGE INFORMATION

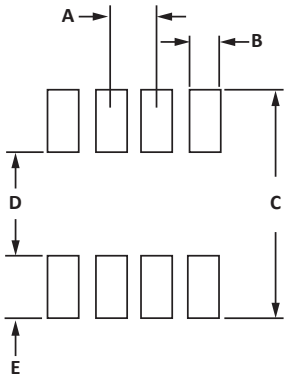
OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.80	5.00	0.189	0.196
B	3.80	4.00	0.150	0.157
C	1.35	1.75	0.054	0.068
D	0.35	0.49	0.014	0.019
F	0.40	1.25	0.016	0.049
G	1.27 BSC		0.05 BSC	
J	0.18	0.25	0.007	0.009
K	0.10	0.25	0.004	0.008
P	5.80	6.20	0.229	0.244
R	0.25	0.50	0.010	0.019

NOTES
1. -T- = Seating plane and datum surface.
2. Dimensions "A" and "B" are datum.
3. Dimensions "A" and "B" do not include mold protrusion.
4. Maximum mold protrusion is 0.015" (0.380mm) per side.
5. Dimensioning and tolerances per ANSI Y14.5M, 1982.
6. Dimensions are exclusive of mold flash and metal burrs.

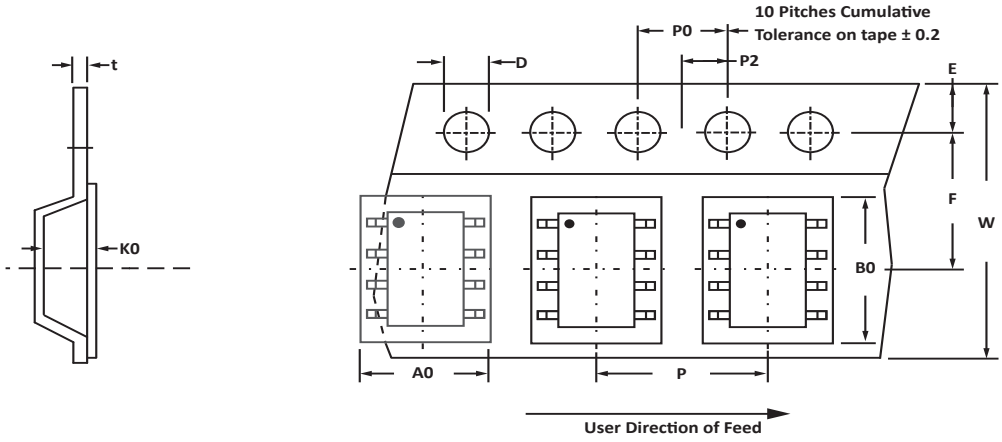


PAD LAYOUT DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.14	1.40	0.045	0.055
B	0.64	0.89	0.025	0.035
C	6.22	-	0.245	-
D	3.94	4.17	0.155	0.165
E	1.02	1.27	0.040	0.050

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")	12mm	6.50 ± 0.10	5.40 ± 0.10	2.00 ± 0.10	1.50 ± 0.10	1.75 ± 0.10	5.50 ± 0.05	12.00 ± 0.30	4.00 ± 0.12	2.00 ± 0.10	8.00 ± 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 - 1,000 pieces per 12mm tape.
4. Suffix - T13 = 13" Reel - 2,500 pieces per 12mm tape.
5. Bulk product shipped in tubes of 98 pieces per tube.
6. Marking on Part - marking code (see page 2), date code, logo and pin one defined by dot on top of package.

ORDERING INFORMATION					
BASE PART NUMBER	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
SLVU2.8-8G	n/a	-T7	1,000	7"	98
SLVU2.8-8G	n/a	-T13	2,500	13"	98
This device is only available in a Lead-Free configuration.					

COMPANY INFORMATION

COMPANY PROFILE

In business more than 25 years, ProTek Devices™ is a privately held semiconductor company. The company offers a product line of overvoltage protection and overcurrent protection components. These include transient voltage suppressor array (TVS arrays) avalanche breakdown diode, steering diode TVS array and electronics SMD chip fuses. These components deliver circuit protection in electronic systems from numerous overvoltage and overcurrent events. They include lightning; electrostatic discharge (ESD); nuclear electromagnetic pulses (NEMP); inductive switching; and electromagnetic interference (EMI) / radio frequency interference (RFI). ProTek Devices also offers LED wafer die for ESD protection and related high frequency products. ProTek Devices is ISO 9001:2015 certified.

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