

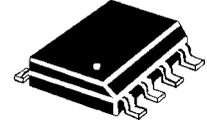
**LOW VOLTAGE UNIDIRECTIONAL  
TVSarray™**

**DESCRIPTION**

The SLVU2.8K-4U provides 500 Watt protection with LOW CAPACITANCE, LOW CLAMPING VOLTAGE and the LOWEST LEAKAGE in the industry for two lines to ground (common mode). Low unidirectional capacitance of 10 pF for each line and low standby current provides a more stable signal in higher frequency applications and at lower operating voltages of 2.8 volts. Negative transients on each line are also clamped to very low voltages with an anti-parallel forward diode in each leg (line to ground). The SLVU2.8K-4U is designed for use in applications where protection is required at the board level from voltage transients caused by electrostatic discharge (ESD) as defined in IEC 61000-4-2, electrical fast transients (EFT) per IEC 61000-4-4 and effects of secondary lightning. These arrays are used to protect two lines by connecting both pins 1 and 8 to line 1 and pins 4 and 5 to line 2. Pins 2 and 7 as well as pins 3 and 6 are all connected to ground as shown in Figures 3, 4 and 5.

**IMPORTANT:** For the most current data, consult MICROSEMI's website: <http://www.microsemi.com>

**APPEARANCE**



**FEATURES**

- Protects 2 unidirectional lines to ground with very low clamping voltage including opposite (negative) transients on each line with a forward biased diode
- Provides electrically-isolated protection
- Low operating voltage: 2.8 volts
- Low capacitance of 10 pF
- Low standby current
- Low clamping voltage with minimal voltage overshoot

**APPLICATIONS / BENEFITS**

- EIA-RS232 data rate: 19.6 kbs
- EIA-RS422 data rate: 10 Mbs
- EIA-RS423 data rate: 100 kbs
- 10 / 100 Ethernet
- WAN / LAN Equipment
- Lowest standby (leakage) current in the industry
- Very low parasitic inductance resulting in minimal voltage overshoot (Ldi/dt) effects
- Negative transients minimized that could damage CMOS transceivers

**MAXIMUM RATINGS**

- Operating Temperature: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- Peak Pulse Power: 500 watts (8/20  $\mu$ s, Figure 1 and Figure 2)

**MECHANICAL AND PACKAGING**

- Molded SO-8 Surface Mount
- UL 94V-0 Flammability Classification
- Weight 0.066 grams (approximate)
- Marking: Logo, device marking code, date code
- Pin #1 defined by dot on top of package
- Tape & Reel per EIA Standard 481-1-A
- 13 inch reel; 2,500 pieces (STANDARD)
- Carrier tubes; 95 pcs (OPTIONAL)

**ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless otherwise specified**

PART NUMBER	DEVICE MARKING CODE	STANDOFF VOLTAGE $V_{WM}$	PUNCH-THRU VOLTAGE $V_{PT}$	SNAP-BACK VOLTAGE $V_{SB}$	STANDBY CURRENT $I_D$	CLAMPING VOLTAGE $V_C$	CLAMPING VOLTAGE $V_C$	CLAMPING VOLTAGE $V_C$	CAPACITANCE (f=1 MHz) * C
		VOLTS	$I_{PT} = 2 \mu A$	$I_{SB} = 50 mA$	$V_{WM} = 2.8V$	$I_{PP} = 2 A$ (Figure 2)	$I_{PP} = 5 A$ (Figure 2)	$I_{PP} = 24 A$ (Figure 2)	@ 0V pF
			MAX	MIN	MIN	MAX	MAX	MAX	
SLVU2.8K-4U	2.8K4U	2.8	3.0	2.8	0.1	5.5	8.5	15	10

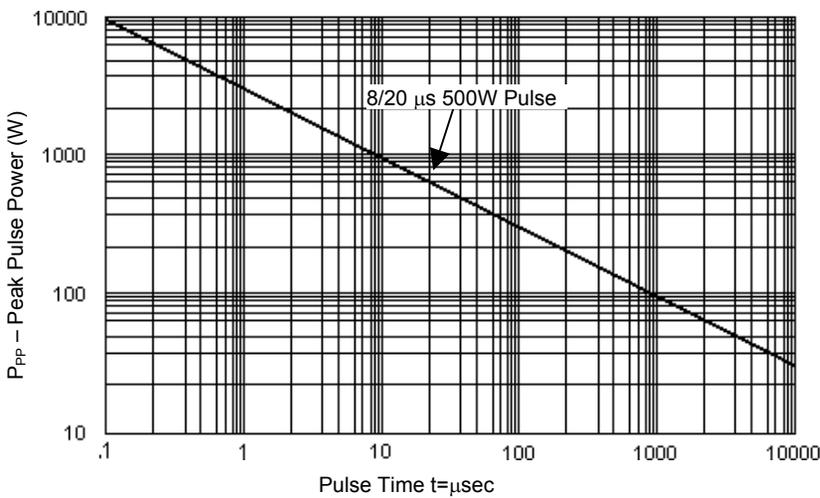
\* Capacitance line-to-ground is 10 pF typical (including anti-parallel diode for negative transients and low clamping voltage).

Note: Transient Voltage Suppressor (TVS) product is normally selected based on its stand off voltage  $V_{WM}$ . Product selected voltage should be equal to or greater than the continuous peak operating voltage of the circuit to be protected.

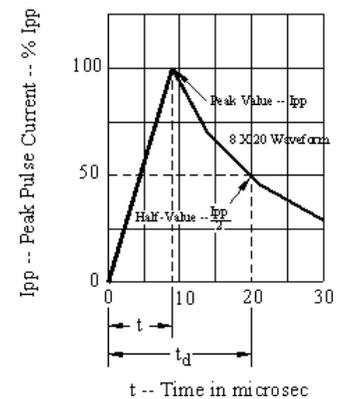
**SYMBOLS & DEFINITIONS**

Symbol	DEFINITION
$V_{WM}$	Standoff Voltage: Maximum dc voltage that can be applied over the operating temperature range. $V_{WM}$ must be selected to be equal or be greater than the operating voltage of the line to be protected.
$V_{PT}$	Punch-Thru Voltage: The minimum voltage the device will exhibit at a specified current
$V_{SB}$	Snap-Back Voltage: The minimum snap-back voltage the device will exhibit at a specified current
$V_C$	Clamping Voltage: Maximum clamping voltage across the TVS device when subjected to a given current at a pulse time of 20 $\mu$ s.
$I_D$	Standby Current: Current at $V_{WM}$ .
C	Capacitance: Capacitance of the TVS as defined @ 0 volts at a frequency of 1 MHz and stated in picofarads.

**GRAPHS**

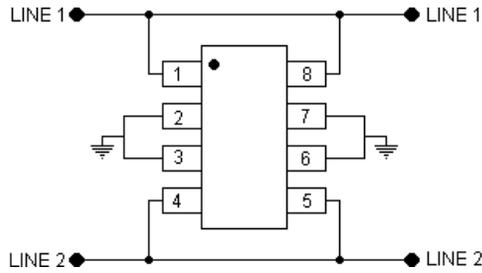


**FIGURE 1**  
**Peak Pulse Power vs. Pulse Time**

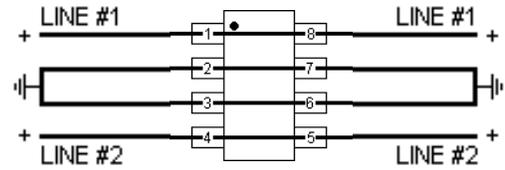


**FIGURE 2**  
**Pulse Wave Form**

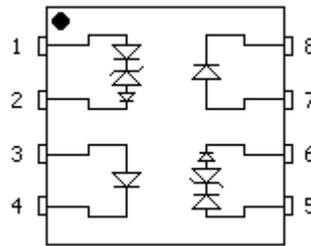
**SCHEMATIC**



**FIGURE 3**  
Common Mode Configuration

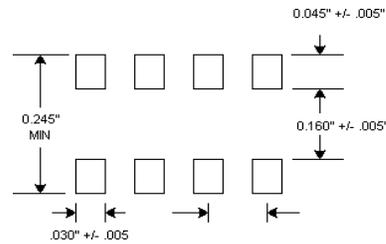
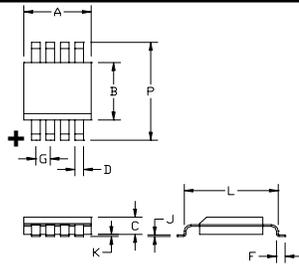


**FIGURE 4**  
Circuit Board Layout



**FIGURE 5**  
Schematic

**PACKAGE DIMENSIONS and PAD LAYOUT**



**PAD LAYOUT**

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.188	0.197	4.77	5.00
B	0.150	0.158	3.81	4.01
C	.053	.069	1.35	1.75
D	.011	.021	0.28	0.53
F	.016	.050	0.41	1.27
G	.050 BSC		1.27 BSC	
J	.006	.010	0.15	0.25
K	.004	.008	0.10	0.20
L	.189	.206	4.80	5.23
P	.228	.244	5.79	6.19

**OUTLINE**