

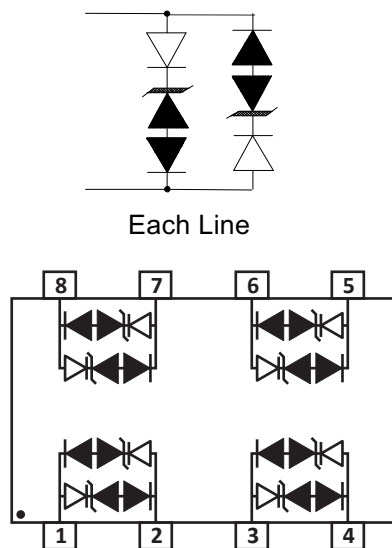
Description

The SLVU2.8-8 is in an SO-8 package and may be used to protect four high-speed line pairs. The layout of the device minimizes trace inductance and reduces voltage overshoot associated with ESD events. The low clamping voltage of the SLVU2.8-8 minimizes the stress on the protected IC. The SLVU2.8-8 complies with the IEC 61000-4-2 (ESD) standard with $\pm 30\text{kV}$ air and $\pm 25\text{kV}$ contact discharge. The SLVU2.8-8 features integrated low capacitance compensation diodes that reduce the maximum capacitance to 8pF per line. This, combined with low leakage current, means signal integrity is preserved in high-speed applications such as 10/100 Ethernet.

Mechanical Characteristics

- ◆ Package: SO-8
- ◆ UL Flammability Classification Rating 94V-0
- ◆ Terminal Connections: See Diagram Below
- ◆ Marking Information: See Below

Dimensions and Pin Configuration



Circuit and Pin Schematic

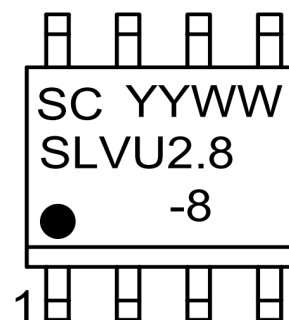
Features

- ◆ 400W peak pulse power(8/20 μs)
- ◆ Protects four line pairs(eight lines)
- ◆ High peak pulse current
- ◆ Comprehensive pin out for easy board layout
- ◆ Low capacitance
- ◆ Low leakage current
- ◆ Low operating and clamping voltages
- ◆ Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 30\text{kV}$
 - Contact discharge: $\pm 25\text{kV}$
 - IEC61000-4-4 (EFT) 40A (5/50ns)
 - IEC61000-4-5 (Lightning) 24A (8/20 μs)
- ◆ RoHS Compliant

Applications

- ◆ 10/100 Ethernet
- ◆ WAN/LAN Equipment
- ◆ Switching Systems
- ◆ DSLAMs
- ◆ Desktops, Servers, & Notebooks
- ◆ Instrumentation
- ◆ Base Stations
- ◆ Analog Inputs

Marking Information



YYWW=Date Code
Dot denotes Pin1

Ordering Information

Part Number	Marking	Packaging	Reel Size
SLVU2.8-8	SC YYWW SLVU2.8-8	2500/Tape & Reel	13 inch

Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

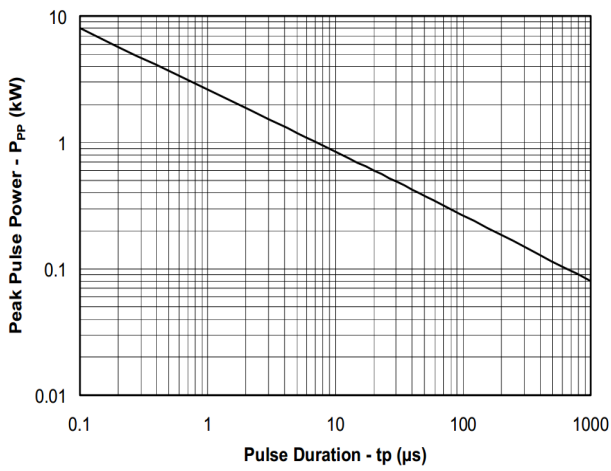
Parameter	Symbol	Value	Unit
Peak Pulse Power(8/20 μs)	Ppk	400	W
Peak Pulse Current(8/20 μs)	I _{PP}	24	A
ESD per IEC 61000-4-2 (Air)	V _{ESD}	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 25	
Operating Temperature Range	T _J	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	T _{stg}	-55 to +150	$^{\circ}\text{C}$

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

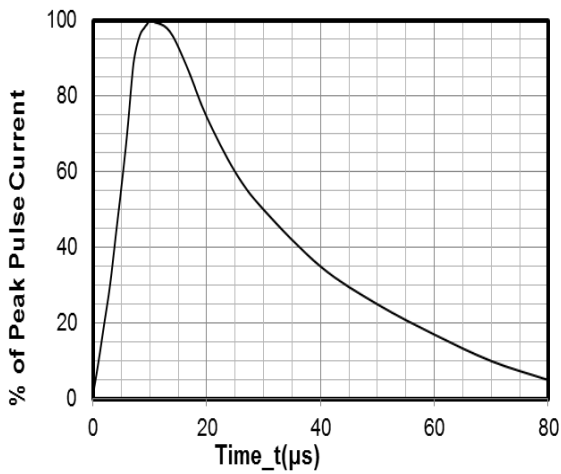
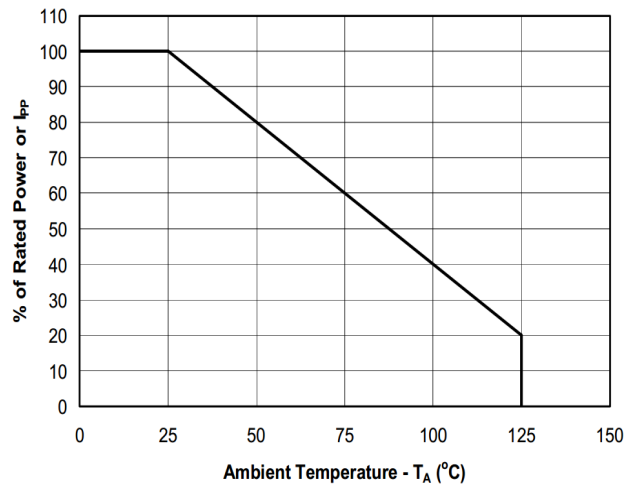
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			2.8	V	
Pouch-Through Voltage	V _{PT}	3.0			V	I _{PT} = 2 μA
Snap-Back Voltage	V _{SB}	2.8			V	I _{SB} = 50mA
Reverse Leakage Current	I _R		0.1	1.0	μA	V _{RWM} = 2.8V(Each Line)
Clamping Voltage	V _C			6.0	V	I _{PP} = 1A (8 x 20 μs pulse) (Each Line)
Clamping Voltage	V _C			8.0	V	I _{PP} = 5A (8 x 20 μs pulse) (Each Line)
Clamping Voltage	V _C			10	V	I _{PP} = 10A (8 x 20 μs pulse) (Each Line)
Clamping Voltage	V _C			17	V	I _{PP} = 24A (8 x 20 μs pulse) (Each Line)
Junction Capacitance	C _J		2		pF	V _R = 0V, f = 1MHz(Each Line)

Typical Characteristics

Non-Repetitive Peak Pulse Power vs. Pulse Time



Power Derating Curve



8 X 20 μs Pulse Waveform

Applications Information

Device Connection for Protection of Eight Data lines

Electronic equipment is susceptible to transient disturbances from a variety of sources including: ESD to an open connector or interface, direct or nearby lightning strikes to cables and wires, and charged cables “hot plugged” into I/O ports. The SLVU2.8-8 is designed to protect sensitive components from damage and latch-up which may result from such transient events. The SLVU2.8-8 can be configured to protect four high-speed line pairs differentially, or four lines to ground (common mode). The device is connected as follows:

1. Differential Protection of four line pairs:

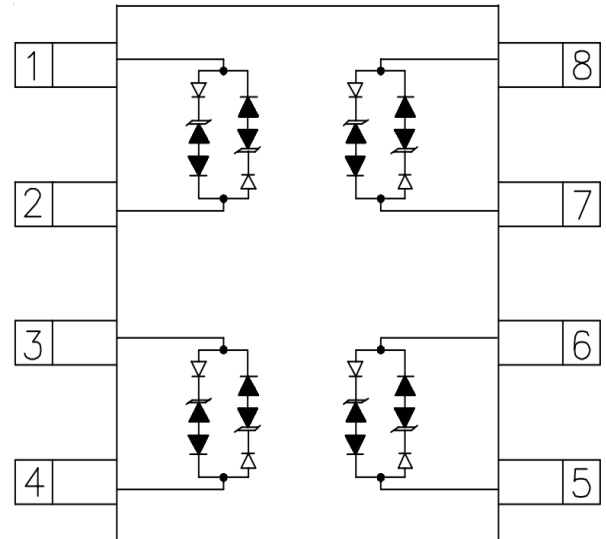
Line pairs are connected at pins 1 and 2, 3 and 4, 5 and 6, and 7 and 8.

Circuit Board Layout Recommendations for Suppression of ESD.

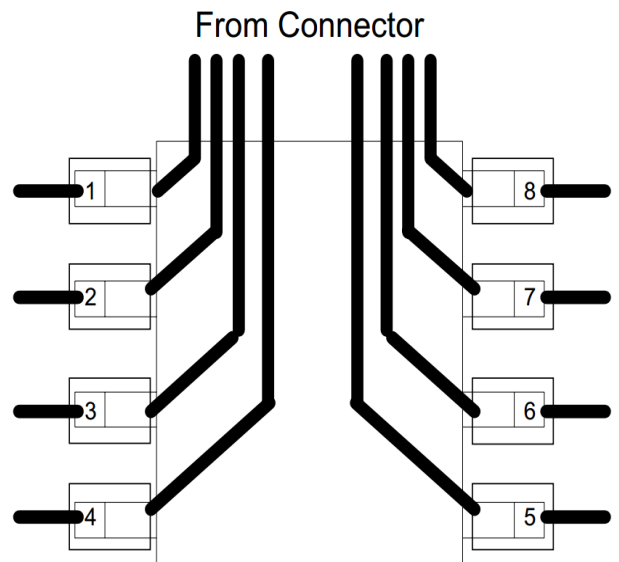
Good circuit board layout is critical for the suppression of ESD induced transients. The following guidelines are recommended:

- Place the device near the input terminals or connectors to restrict transient coupling.
- Minimize the path length between the TVS and the protected line.
- Minimize all conductive loops including power and ground loops.
- The ESD transient return path to ground should be kept as short as possible.
- Never run critical signals near board edges.
- Use ground planes whenever possible.

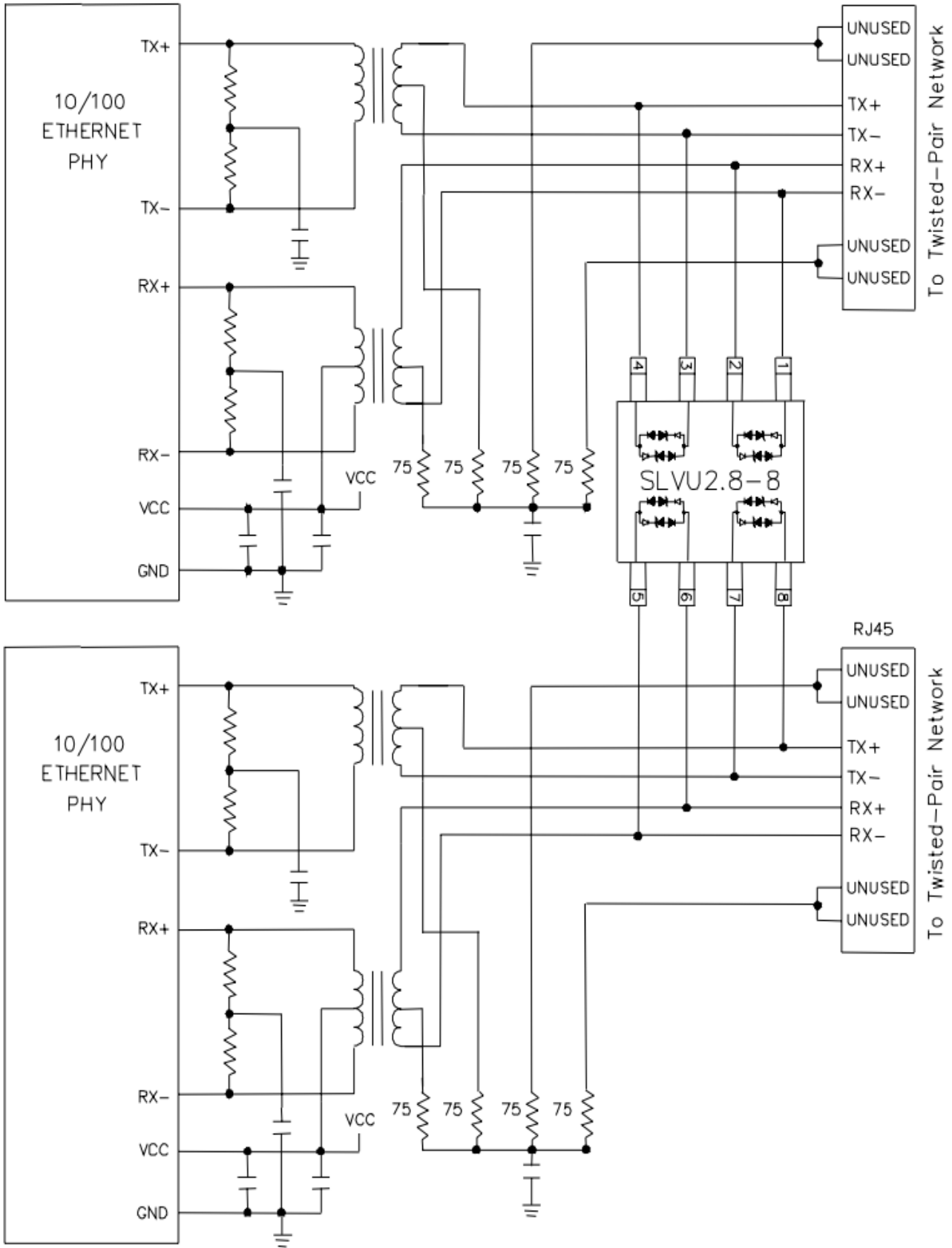
SLVU2.8-8 Circuit Diagram



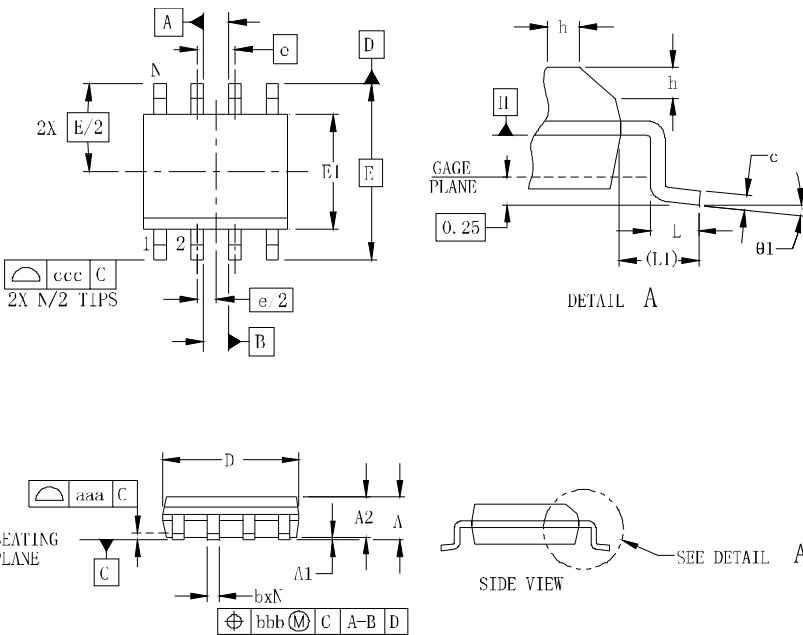
Differential Protection of Four Line Pairs



Typical Applications

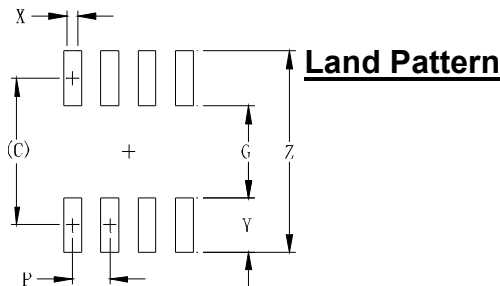


SO-8 Package Outline Drawing



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.35		1.75	0.053		0.069
A1	0.10		0.25	0.004		0.010
A2	1.25		1.65	0.049		0.065
b	0.31		0.51	0.012		0.020
c	0.17		0.25	0.007		0.010
D	4.80	4.90	5.00	0.189	0.193	0.197
E	6.00 BSC			0.236 BSC		
e	1.27 BSC			0.050 BSC		
h	0.25		0.50	0.010		0.020
L	0.40	0.72	1.04	0.016	0.028	0.041
L1	(1.04)			(0.041)		
N	8			8		
theta1	0°		8°	0°		8°
aaa	0.10			0.004		
bbb	0.25			0.010		
ccc	0.20			0.008		

Suggested



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	(5.20)	0.205
G	3.00	0.118
P	1.27	0.050
X	0.60	0.024
Y	2.20	0.087
Z	7.40	0.291

Contact Information

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