SLVU2.8-4A1

2.8V TVS Array For ESD and Latch-Up Protection

Description

The SLVU2.8-4A1 is designed to protect low voltage, CMOS semiconductors from transients caused by electrostatic discharge(ESD), cable discharge events(CDE), lightning and other induced voltage surges. Low capacitance compensation diode is integrated into the TVS to lower the typical capacitance to 2pF per line. The SLVU2.8-4A1 complies with the IEC 61000-4-2 (ESD) standard with ±30kV air and ±30kV contact discharge. The SLVU2.8-4A1 is assembled into a 8-pin lead-free SOP-8 package. The combination of low leakage, signal integrity and flow through design makes the SLVU2.8-4A1 an ideal application such as 10/100/1000 Ethernet.

Features

- 600W peak pulse power(8/20μs)
- Protects two line pairs(four lines)
- Ultra low leakage：nA level
- Low operating voltage：2.8V
- Low capacitance
- Ultra low clamping voltage
- JEDEC SOP-8 package
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    Air discharge: ±30kV
    Contact discharge: ±30kV
  - IEC61000-4-4 (EFT) 40A (5/50ns)
  - IEC61000-4-5 (Lightning) 30A (8/20μs)
- RoHS Compliant

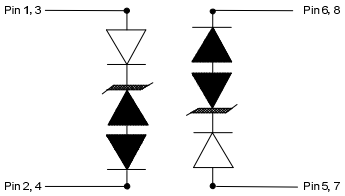
Mechanical Characteristics

- Package: SOP-8
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking Information: See Below

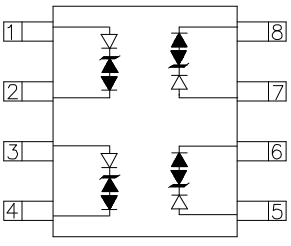
Applications

- Base Station
- Analog Inputs
- Switch Systems
- 10/100/1000 Ethernet
- WAN/LAN Equipment
- Desktops, Servers, and Notebooks
- Low Voltage Interfaces

Dimensions and Pin Configuration

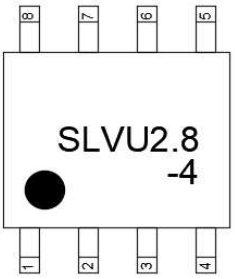


Circuit and Pin Schematic



SOP-8

Marking



Ordering Information

Part Number	Marking	Packaging	Reel Size
SLVU2.8-4A1	SLVU2.8-4	2500/Tape & Reel	13 inch

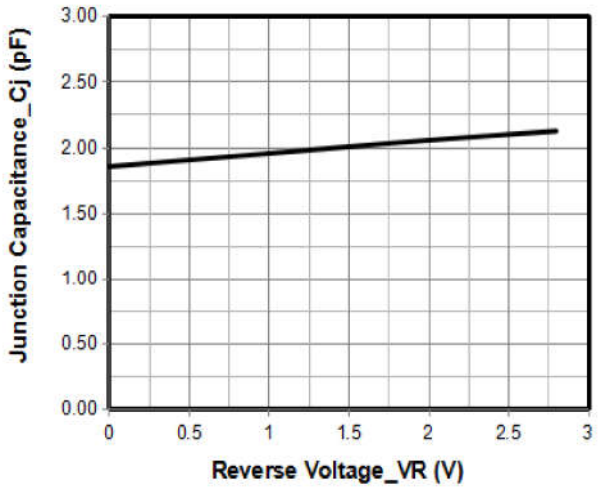
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power(8/20μs)	Ppk	600	W
Peak Pulse Current(8/20μs)	I_{PP}	30	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	±30 ±30	kV
Operating Temperature Range	T_J	−55 to +125	°C
Storage Temperature Range	Tstg	−55 to +150	°C

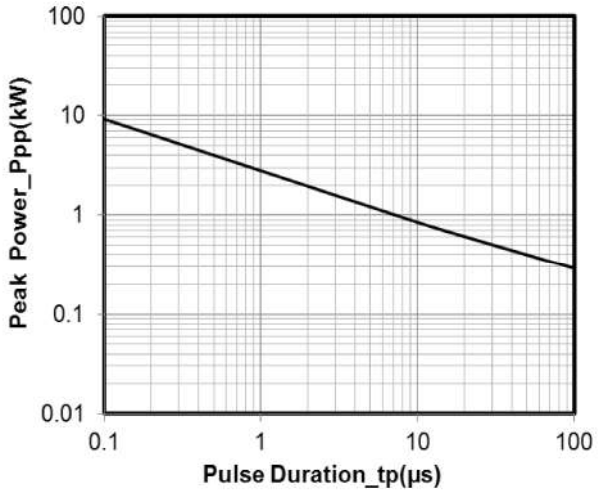
Electrical Characteristics (T_A=25°C unless otherwise specified)

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} = 2μA
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 20μs pulse) (Each Line)
Clamping Voltage	V_C			8.0	V	I_{PP} = 5A (8 x 20μs pulse) (Each Line)
Clamping Voltage	V_C			10	V	I_{PP} = 10A (8 x 20μs pulse) (Each Line)
Clamping Voltage	V_C			20	V	I_{PP} = 30A (8 x 20μs pulse) (Each Line)
Junction Capacitance	C_J		2		pF	VR = 0V, f = 1MHz(Each Line)

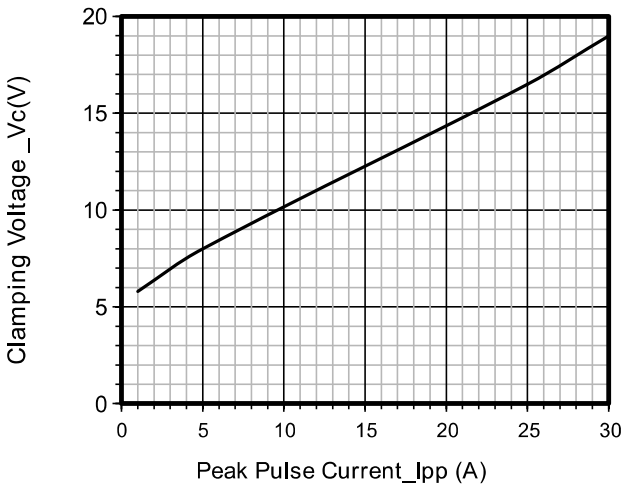
Typical Performance Characteristics(T_A=25°C unless otherwise Specified)



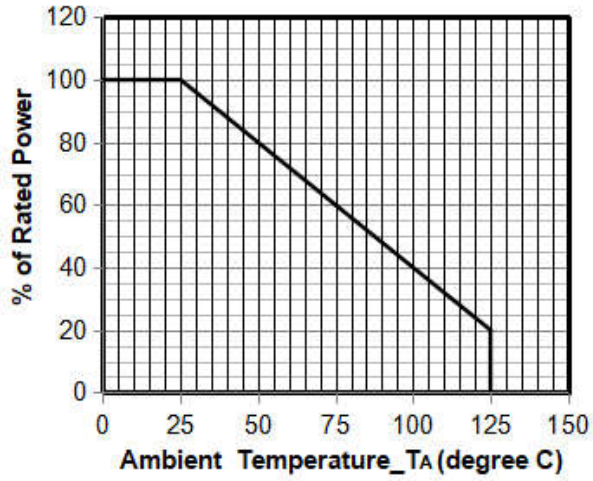
Junction Capacitance vs. Reverse Voltage



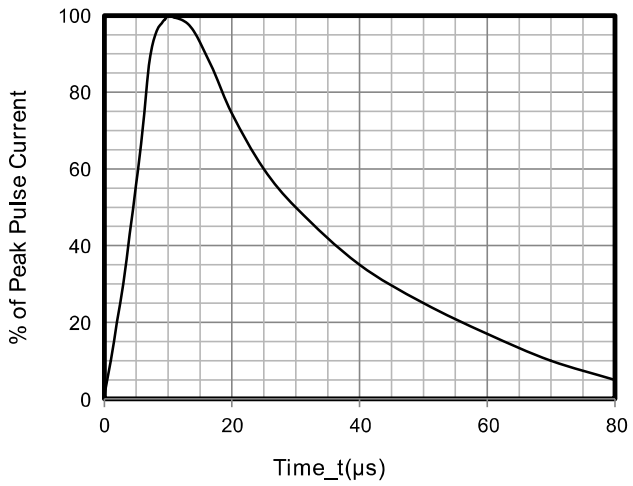
Peak Pulse Power vs. Pulse Time



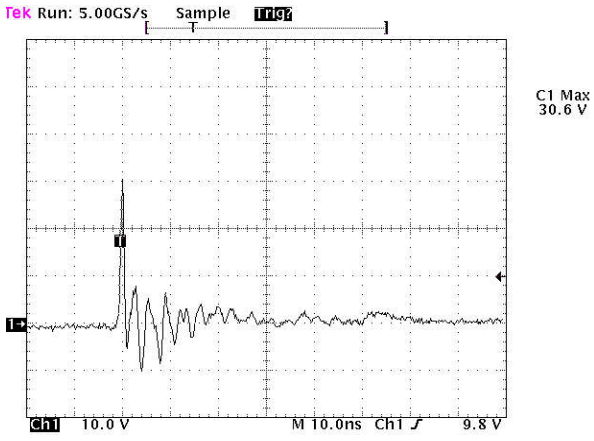
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



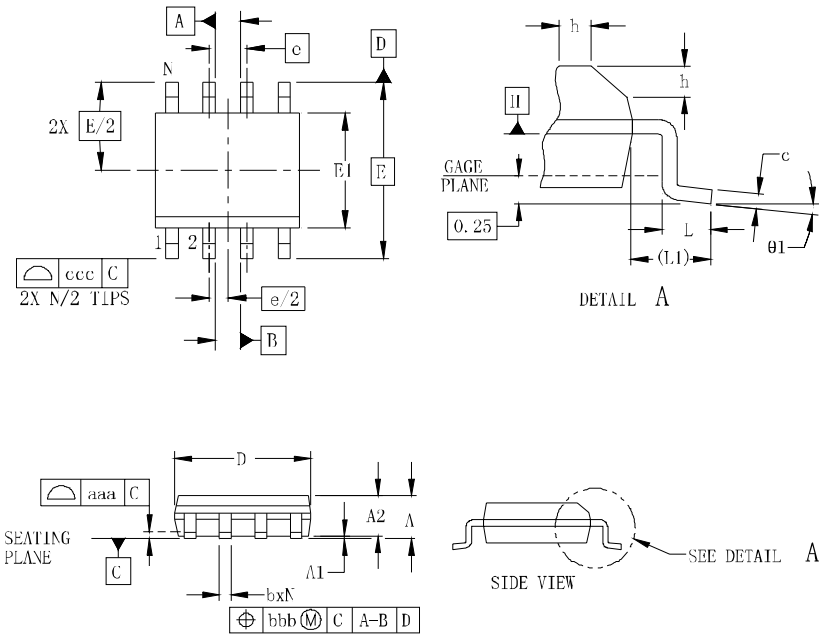
8 X 20μs Pulse Waveform



Note：Data is taken with a 10x attenuator

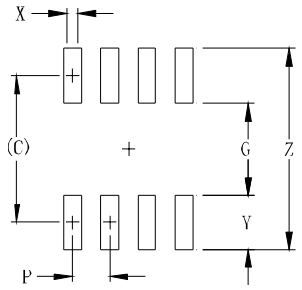
ESD Clamping Voltage
8 kV Contact per IEC61000−4−2

SOP-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
E1	3.80	3.90	4.00	0.150	0.154	0.157
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		
θ1	0°		8°	0°		8°
aaa	0.10			0.004		
bbb	0.25			0.010		
ccc	0.20			0.008		

Suggested Land Pattern



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