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SLVU2.8

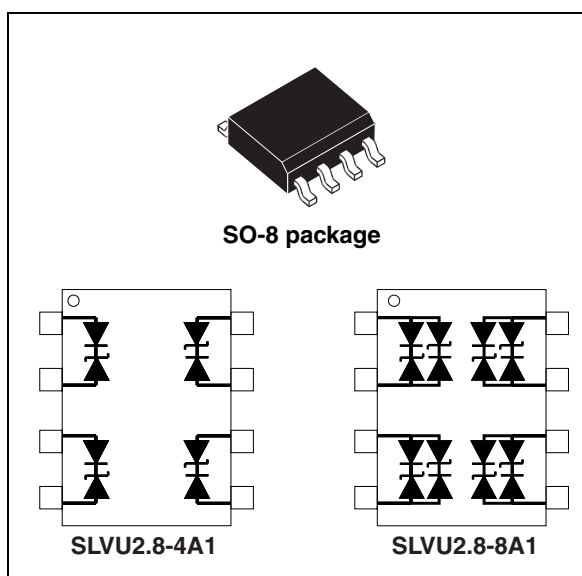
Low voltage unit for Gigabit Ethernet protection

Features

- Peak pulse current : $I_{PP} = 30 \text{ A } 8/20 \mu\text{s}$
- Low capacitance : $C_{typ} = 1.5 \text{ pF}$
- Stand-off voltage : $V_R = 2.8 \text{ V}$
- Low leakage current : $I_{Rmax} = 0.2 \mu\text{A}$
- ECOPACK®2 compliant component
- IEC 61000-4-5 (1kV 42 Ω 24 A) compliant at $T_j = 150^\circ\text{C}$

Complies with the following standards

- IEC 61000-4-2 level 4
 - 15 kV (air discharge)
 - 8 kV (contact discharge)
- IEC 61000-4-4 level 4
 - $\pm 2 \text{ kV} - 40 \text{ A } (5/50 \text{ ns})$
- IEC 61000-4-5 level 2
 - $\pm 1 \text{ kV} - 42 \Omega$
- IEEE 802.3ab and 802.3at compatible on both receiver (4 Vmax) and driver side (3.6 Vmax)
- MIL STD 883G - Method 3015-7
 - 25 kV (human body model)



Description

The SLVU2.8 series has been designed to protect Ethernet line. Its low capacitance makes it compatible with Gigabit Ethernet.

SLVU2.8-4A1 is designed to be compatible with Gigabit Ethernet and Gigabit PoE by using two SO-8 packages and can be used on 10/100 Mbps Ethernet by using a single device.

SLVU2.8-8A1 is designed to be compatible with Gigabit Ethernet and Gigabit PoE by using a single SO-8 package.

Surge capability is compatible with IEC 61000-4-5 class 2 (1 kV, 42 Ω , 24 A).

Packaged in SO-8, the SLVU2.8 is a flow-through design in order to minimize trace inductances. Footprint is in accordance with IPC 7531 standard.

Characteristics

SLVU2.8

1 Characteristics

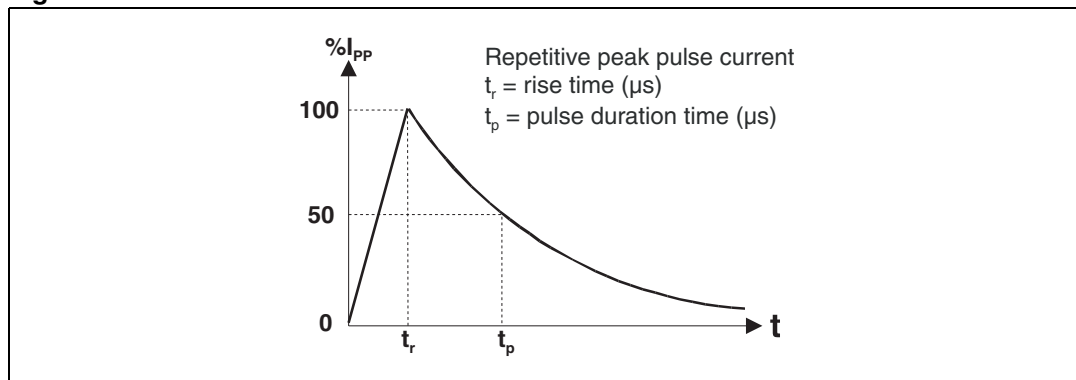
Table 1. Absolute ratings ($T_{amb} = 25\text{ }^{\circ}\text{C}$)

Symbol	Parameter	Value	Unit
P_{PP}	Peak pulse power (8/20 μs)	600	W
I_{PP}	Peak pulse current (8/20 μs)	30	A
T_{stg}	Storage temperature range	-65 to + 150	$^{\circ}\text{C}$
T_j	Maximum junction temperature	-55 to + 150	$^{\circ}\text{C}$
T_L	Maximum lead temperature for soldering during 10 s.	260	$^{\circ}\text{C}$

Table 2. Electrical characteristics values ($T_{amb} = 25\text{ }^{\circ}\text{C}$)

Order code	$I_{RM} @ V_{RM}$				$V_{CL} @ I_{PP}$ 8/20 μs		$V_{CL} @ I_{PP}$ 8/20 μs		C I/O to I/O	
	typ.	max.	max. 85 $^{\circ}\text{C}$		max.		max.		typ.	max.
	nA	μA	μA	V	V	A	V	A	pF	pF
SLVU2.8-4A1	2	0.2	1	2.8	15	24	12	12	1.5	2.5
SLVU2.8-8A1	2	0.2	1	2.8	15	24	12	12	3	5

Figure 1. Pulse waveform



SLVU2.8

Characteristics

Figure 2. Relative peak pulse power versus initial junction temperature

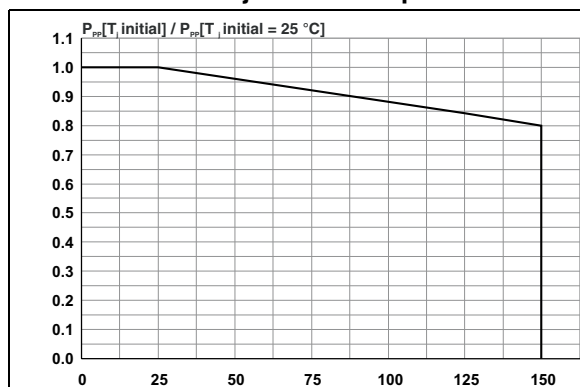


Figure 3. Junction capacitance versus frequency (SLVU2.8-4A1)

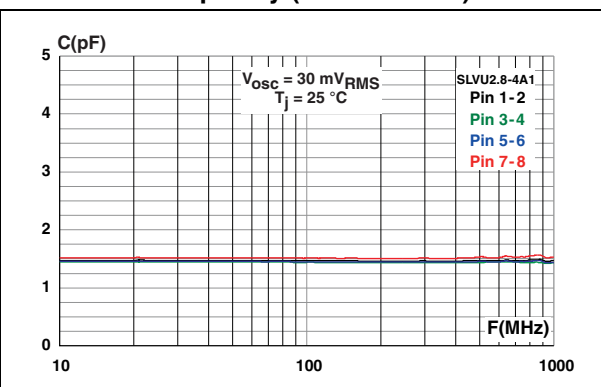


Figure 4. Junction capacitance versus frequency (SLVU2.8-8A1)

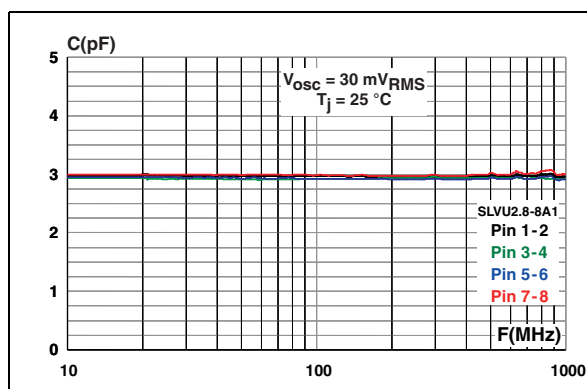


Figure 5. Junction capacitance versus reverse applied voltage (typical values)

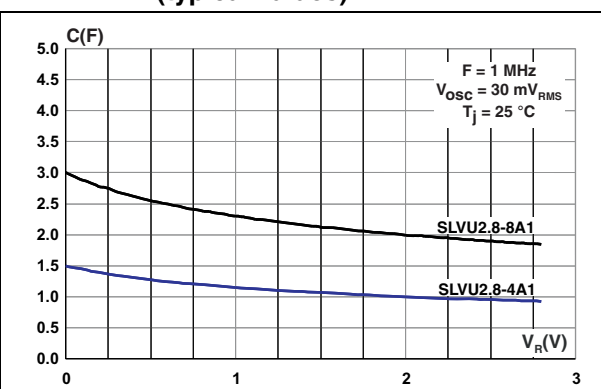


Figure 6. Leakage current versus junction temperature (typical values)

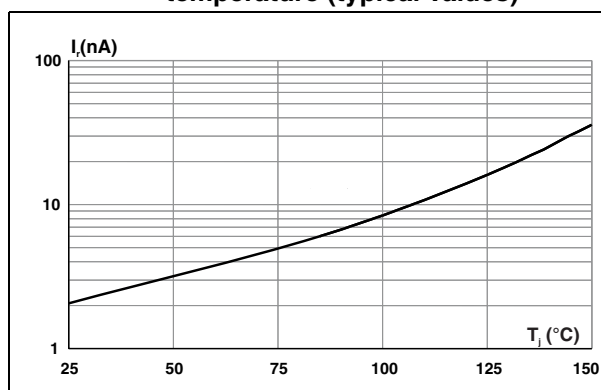
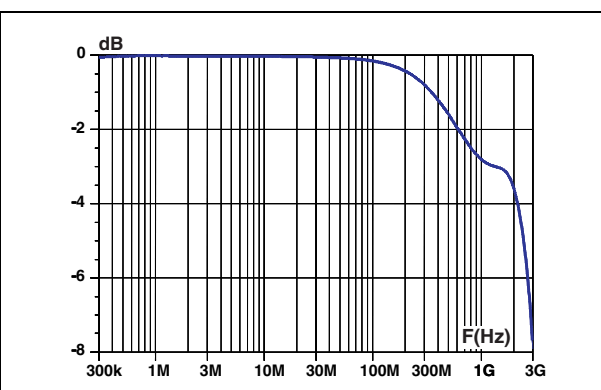


Figure 7. S21 attenuation (typical value)



Characteristics

SLVU2.8

Figure 8. Connection for 10/100 Mbps Ethernet with SLVU2.8-4A1

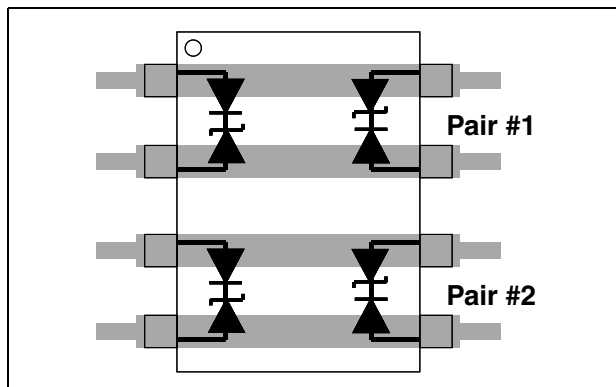


Figure 9. Connection for 1G Ethernet with SLVU2.8-8A1

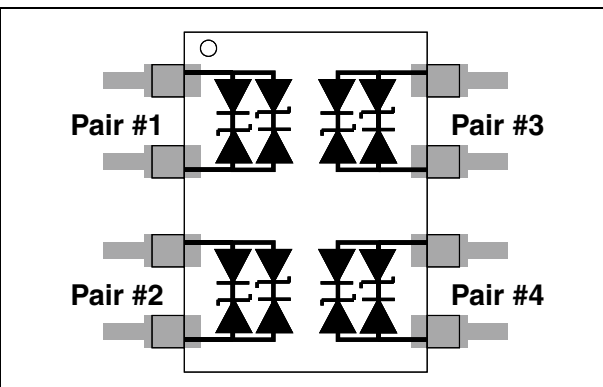
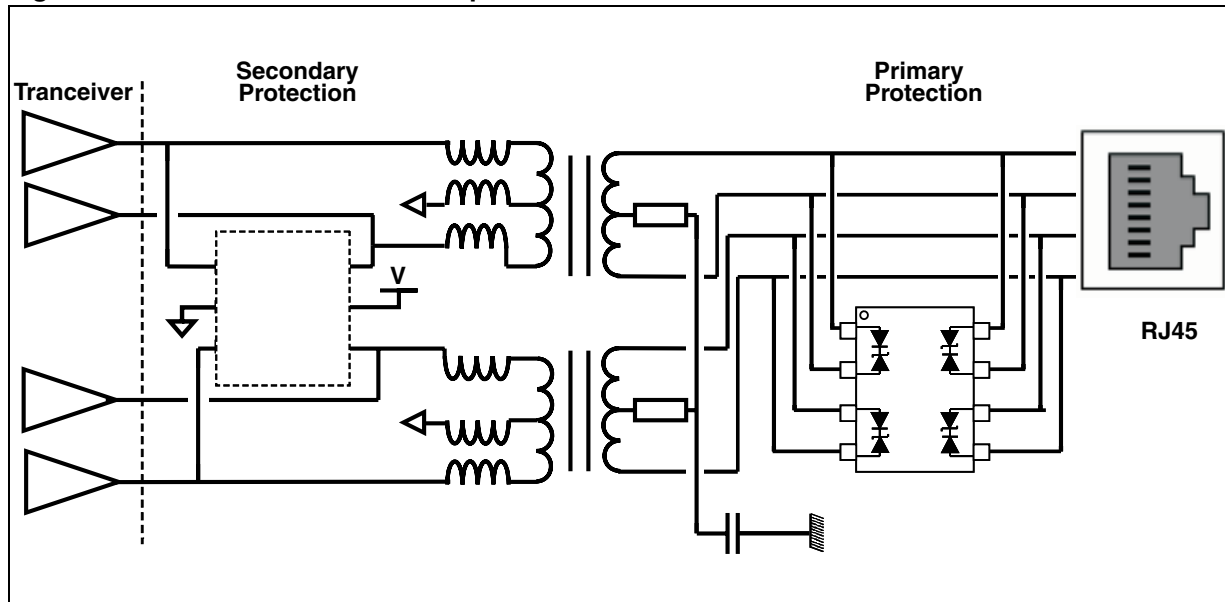


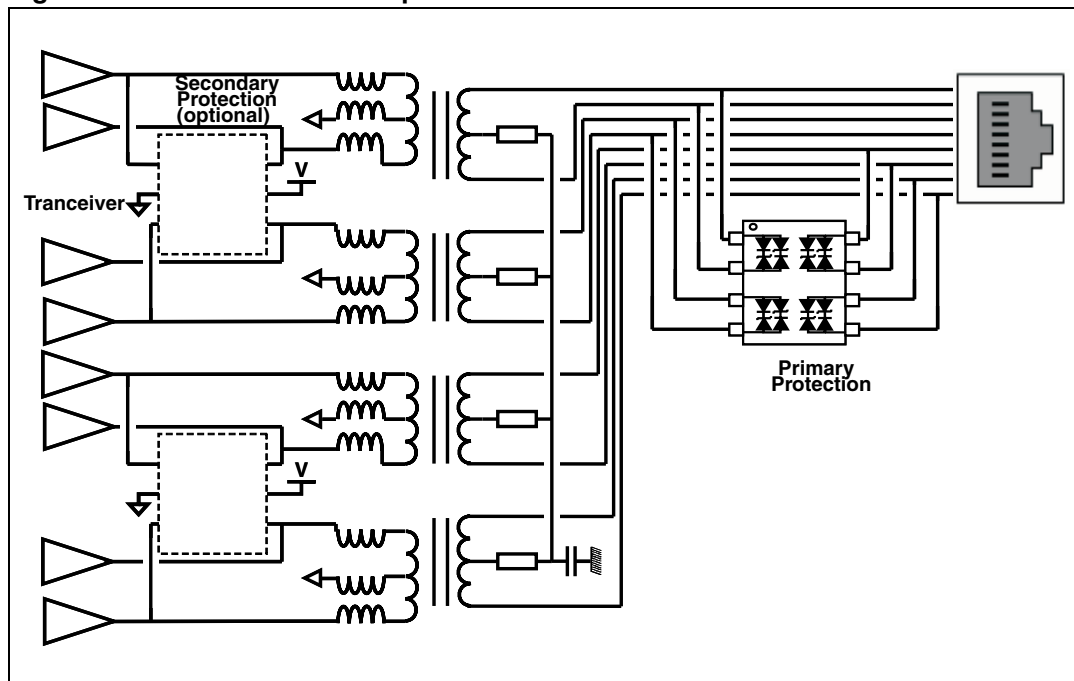
Figure 10. Schematic for 10/100 Mbps Ethernet



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Ordering information scheme

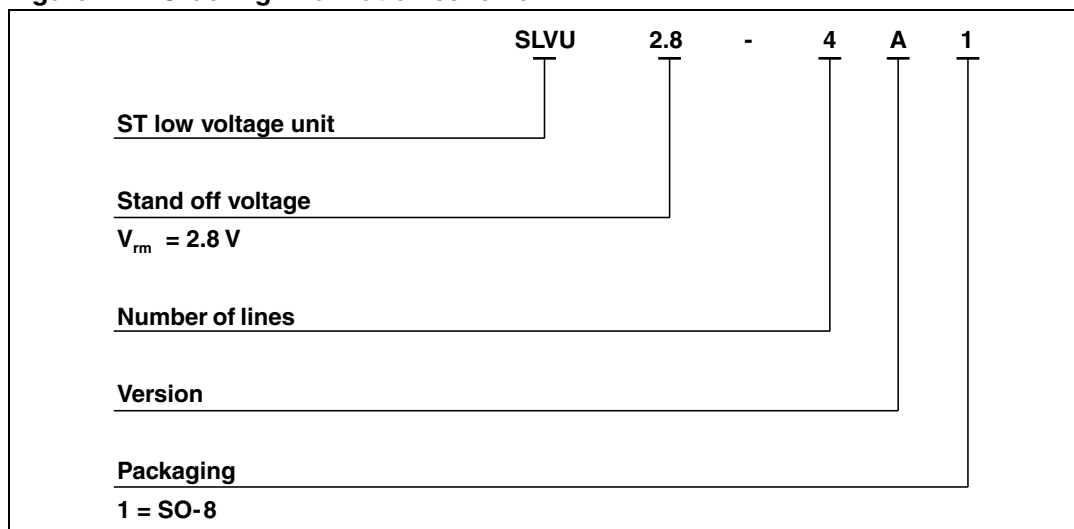
Figure 11. Schematic for 1 Gbps Ethernet



1. For further information, refer to application note : AN3007

2 Ordering information scheme

Figure 12. Ordering information scheme



Package information

SLVU2.8

3 Package information

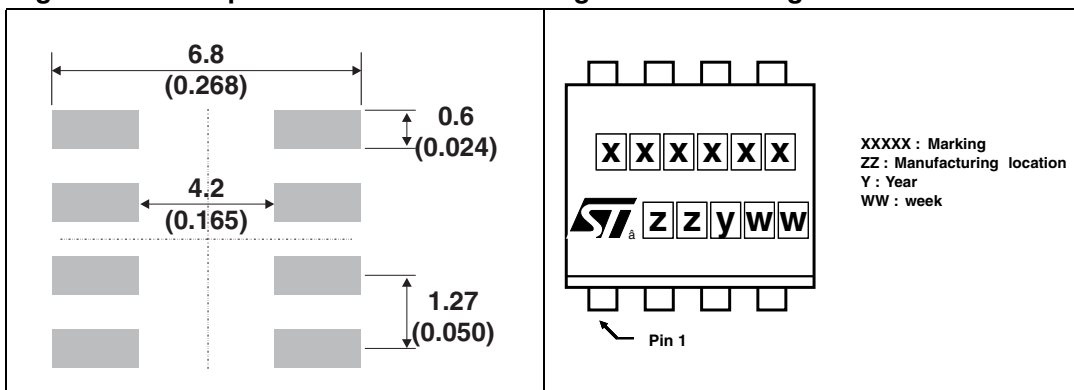
- Case: JEDEC SO-8 molded plastic over planar junction
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Flammability: Epoxy is rated UL94V-0
- RoHS package

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: www.st.com. ECOPACK® is an ST trademark.

Table 3. SO-8 dimensions

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			1.75			0.069
A1	0.1		0.25	0.004		0.010
A2	1.25			0.049		
b	0.28		0.48	0.011		0.019
C	0.17		0.23	0.007		0.009
D	4.80	4.90	5.00	0.189	0.193	0.197
E	5.80	6.00	6.20	0.228	0.236	0.244
E1	3.80	3.90	4.00	0.150	0.154	0.157
e		1.27			0.050	
h	0.25		0.50	0.010		0.020
L	0.40		1.27	0.016		0.050
L1		1.04			0.041	
k	0°		8°	0°		8°
ppp			0.10			0.004

Figure 13. Foot print recommendations **Figure 14. Marking**



SLVU2.8

Ordering information

4 Ordering information

Table 4. Ordering information

Order code	Marking	Package	Weight	Base qty	Delivery mode
SLVU2.8-4A1	SLVU284	SO-8	78 mg	2500	Tape and reel
SLVU2.8-8A1	SLVU288	SO-8	78 mg	2500	Tape and reel

5 Revision history

Table 5. Document revision history

Date	Revision	Changes
01-Sep-2009	1	Initial release.
31-May-2011	2	Updated Ethernet standard compatibility on the cover page.

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