SLVU2.8

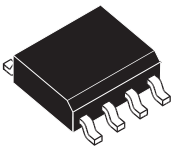
Low voltage unit for Gigabit Ethernet protection

Features

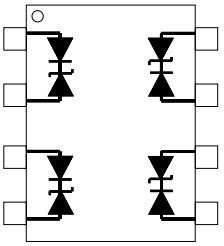
- Peak pulse current : I_{PP} = 30 A 8/20 µs
- Low capacitance : C_{typ} = 1.5 pF
- Stand-off voltage : V_R = 2.8 V
- Low leakage current : I_{Rmax} = 0.2 µA
- ECOPACK®2 compliant component
- IEC 61000-4-5 (1kV 42 Ω 24 A) compliant at T_j = 150 °C

Complies with the following standards

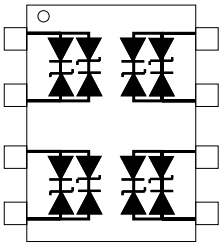
- IEC 61000-4-2 level 4
  - 15 kV (air discharge)
  - 8 kV (contact discharge)
- IEC 61000-4-4 level 4
  - ± 2 kV - 40 A (5/50 ns)
- IEC 61000-4-5 level 2
  - ± 1 kV - 42 Ω
- IEEE 802.3ab and 802.3at compatible on both receiver (4 Vmax) and driver side (3.6 Vmax)
- MIL STD 883G - Method 3015-7
  - 25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



SO-8 package



SLVU2.8-4A1



SLVU2.8-8A1

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 Gigabiit 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 Gigabiit 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.

1 Characteristics

Table 1. Absolute ratings (T_{amb} = 25 °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	°C
T_j	Maximum junction temperaturee	-55 to + 150	°C
T_L	Maximum lead temperature for soldering during 10 s.	260	°C

Table 2. Electrical characteristics values (T_{amb} = 25 °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 °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

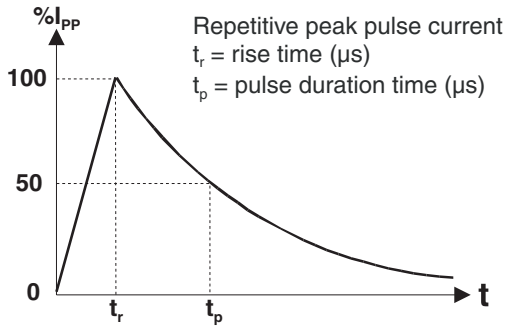


Figure 2. Relative peak pulse power versus initial junction temperature

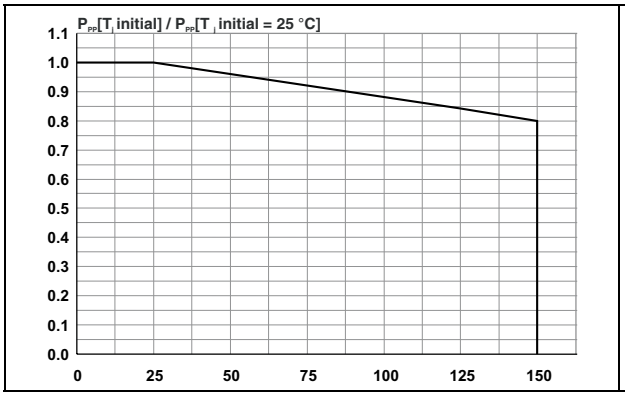


Figure 3. Junction capacitance versus frequency (SLVU2.8-4A1)

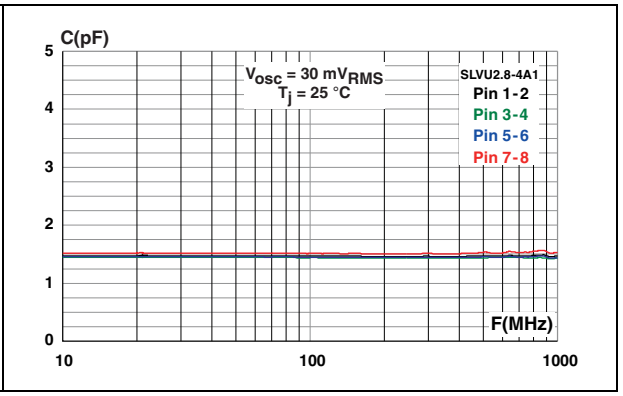


Figure 4. Junction capacitance versus frequency (SLVU2.8-8A1)

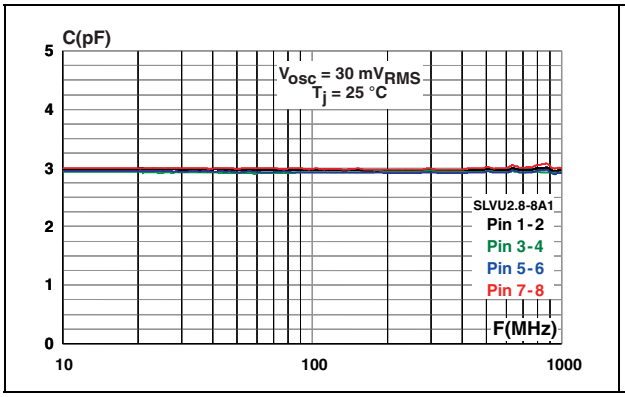


Figure 5. Junction capacitance versus reverse applied voltage (typical values)

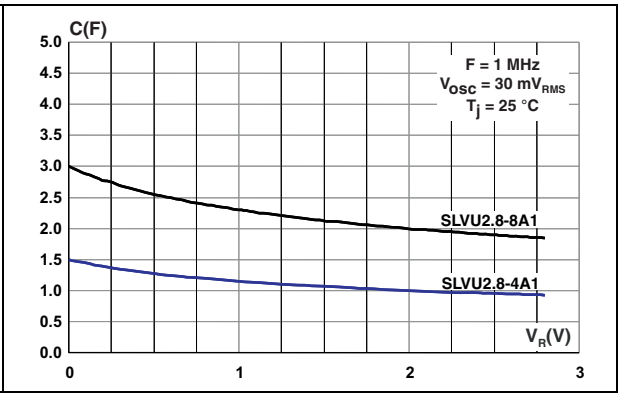


Figure 6. Leakage current versus junction temperature (typical values)

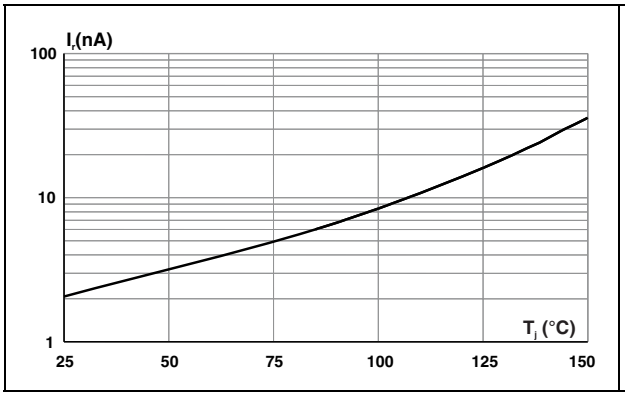


Figure 7. S21 attenuation (typical value)

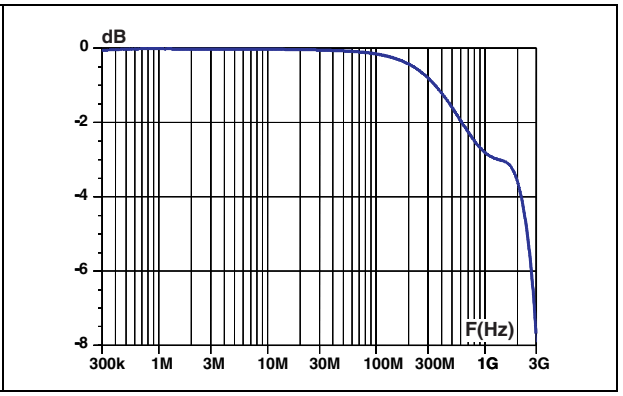


Figure 8. Connection for 10/100 Mbps Ethernet with SLVU2.8-4A1

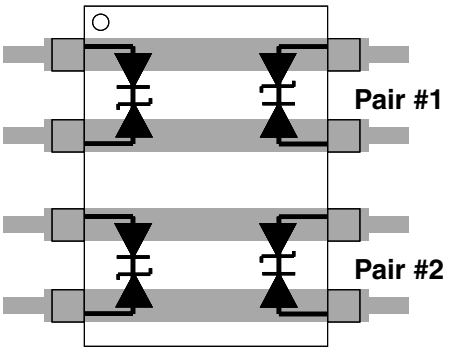


Figure 9. Connection for 1G Ethernet with SLVU2.8-8A1

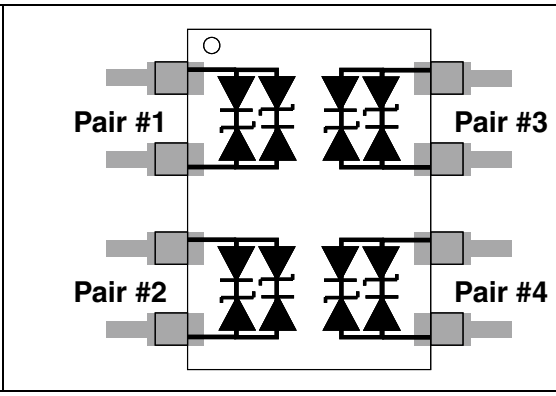


Figure 10. Schematic for 10/100 Mbps Ethernet

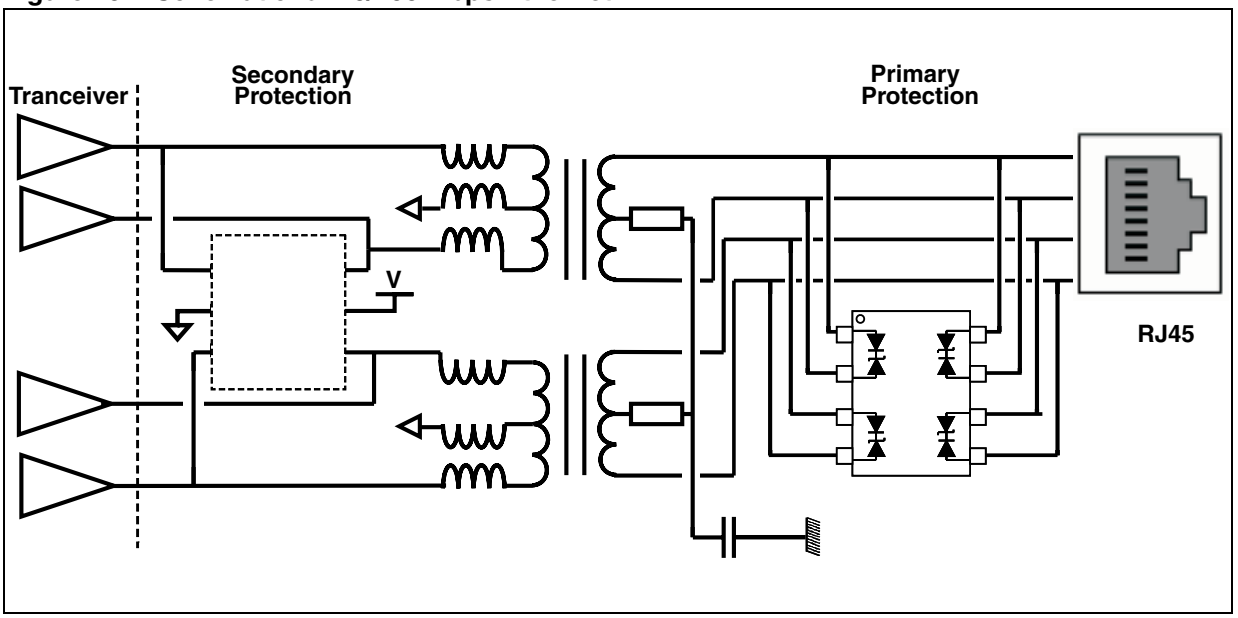
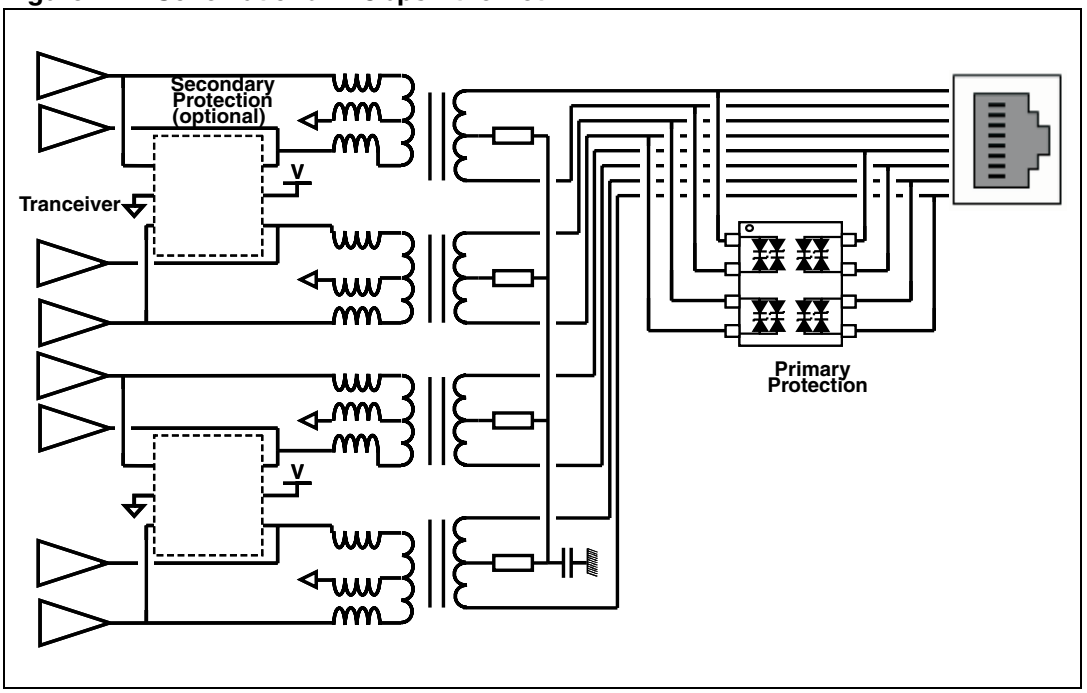


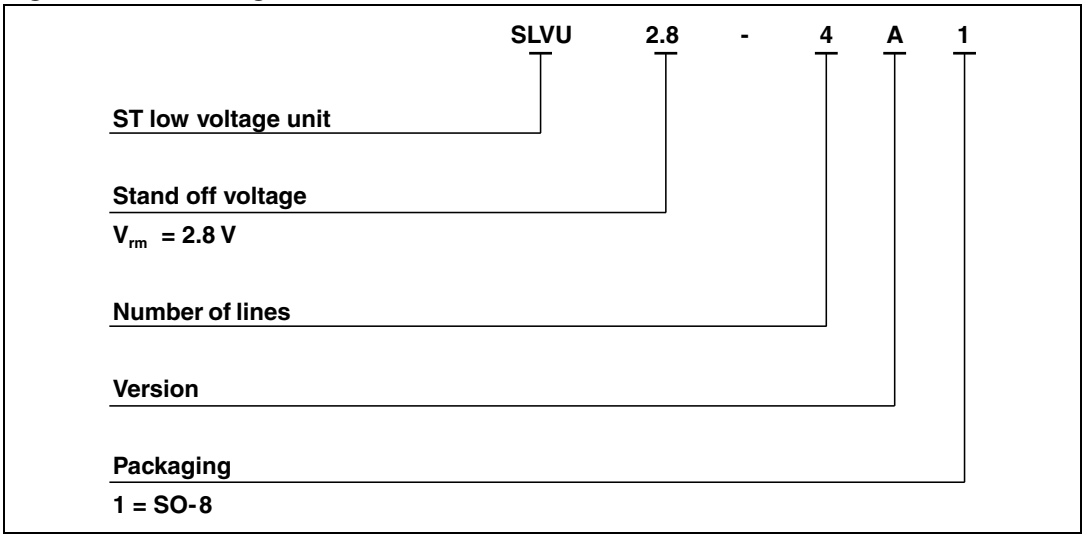
Figure 11. Schematic for 1 Gbps Ethernet



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

2 Ordering information scheme

Figure 12. Ordering information scheme

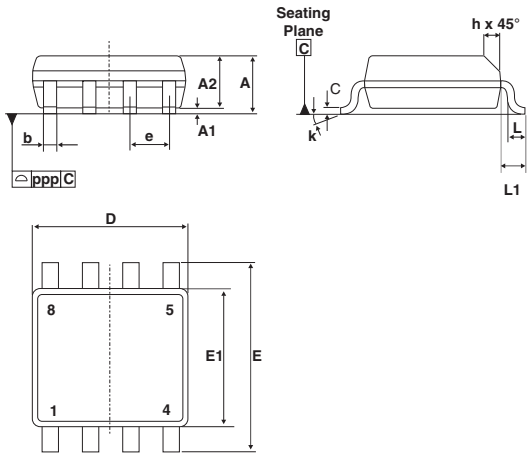


3 Package information

- 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

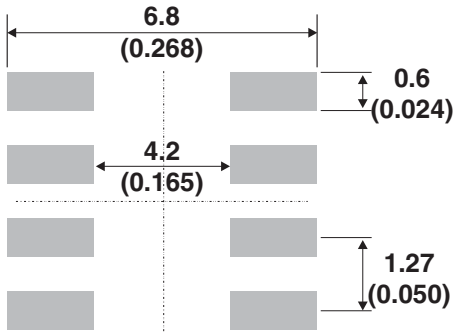
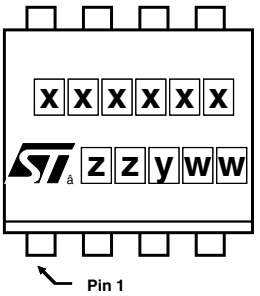


Figure 14. Marking



XXXXX : Marking
ZZ : Manufacturing location
Y : Year
WW : week

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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