



Protection for Ethernet lines

Features

- Differential and common mode protection
- Telcordia GR1089 Intrabuilding: 150 A, 2/10 µs
- ITU-T K20/21: 40 A, 5/310 µs
- Low capacitance: 13 pF max at 0 V
- UL94 V0 approved resin
- SO-8 package is JEDEC registered

Benefits

- Trisil[™] technology is not subject to ageing and provides a fail safe mode in short circuit for a better protection.
- This series is used to help equipment to meet main standards such as UL61950, IEC 950 / CSA C22.2 and UL1459.

Complies with the following standards

- IEC 61000-4-2: Level 4
 - 15 kV (air discharge)
 - 8 kV (contact discharge)
- MIL STD 883E-Method 3015-7: class3:
 - 25 kV (Human body model)
- Telcordia GR-1089 Core: 100 A, 2/10 µs
- ITU-T K20/21: 37.5 A, 5/310 µs
- IEC 61000-4-5: 4 kV, 42 Ω, 96 A, 8/20 μs
- IEC 61000-4-4 EFT : 40A (5/50ns)

Applications

This series can meet subscriber and central office requirements.

- Protection against telecommunications surge standards on:
 - 10/100 Mbps Ethernet
 - T1 / E1 line cards

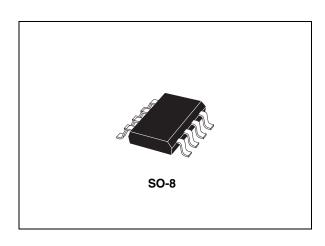
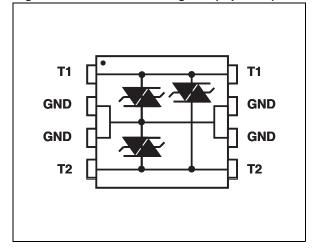


Figure 1. Schematic diagram (top view)



Description

The ETP01 series is a low capacitance transient surge arrestor designed for protection of high debit rate communication network. Planar technology used combines a high surge capability to comply with Telcordia GR1089 Intrabuilding and ITU-T K20/21, and low capacitance to avoid distortion of high speed signals such as Ethernet.

TM: Trisil is a trademark of STMicroelectronics

Characteristics ETP01-xx21

1 Characteristics

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

Symbol	Parameter	Value	Unit		
		5/310 µs	40	Α	
I _{pp}	Peak pulse current ⁽¹⁾	8/20 μs	100	Α	
		2/10 μs	150	Α	
I _{TSM}	Non repetitive surge peak on state current t = 20 r		8	Α	
T _{stg} T _i	Storage temperature range	-55 to 150	°C		
Tj	T _j Operating junction temperature range		-40 to 150		
T_L	Maximum temperature for soldering during 10 s	260	°C		

^{1.} Surge capability tested according to ITU-T K20/21 and Telcordia GR1089 Intrabuilding connections (Metallic and Longitudinal tests).

Table 2. Electrical characteristics ($T_{amb} = 25$ °C)

	I _{RM} @	V _{RM}	I _{RM} @	V _{RM}	V _{bo}	I _H	С	С
Order code	μA typ.	v	μA max.	V	V max.	mA min.	pF max. ⁽¹⁾	pF max. ⁽²⁾
ETP01-1621	0.01	3.3	1	16	25	30	16	13
ETP01-2821	0.01	3.3	1	28	36	30	16	13

^{1.} Test conditions: Capacitance between I/O and GND, $V_R = 0 \text{ V}$ bias, $V_{RMS} = 1 \text{ V}$, F = 1 MHz

^{2.} Test conditions: Capacitance between I/O and I/O, $V_R = 0 \text{ V}$ bias, $V_{RMS} = 1 \text{ V}$, F = 1 MHz

ETP01-xx21 Characteristics

Figure 2. Non repetitive surge peak on-state current versus overload duration

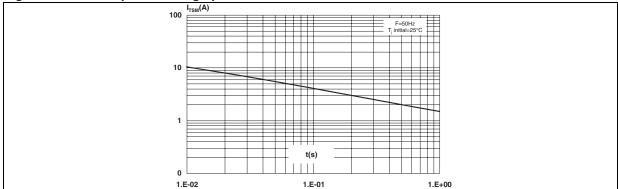
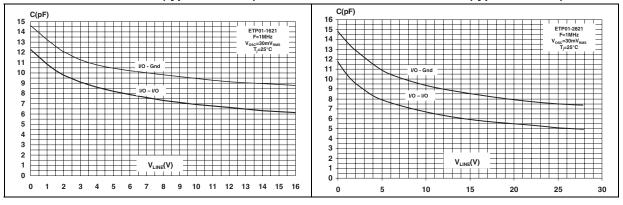


Figure 3. Junction capacitance versus reverse voltage applied for ETP01-1621 (typical values)

Figure 4. Junction capacitance versus reverse voltage applied for ETP01-2821 (typical values)



2 Application information

Figure 5. Application schematic for Ethernet 10/100 Mbps

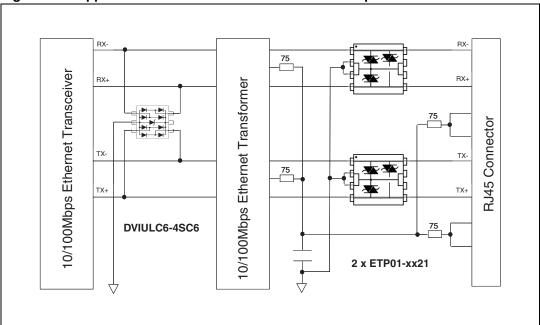
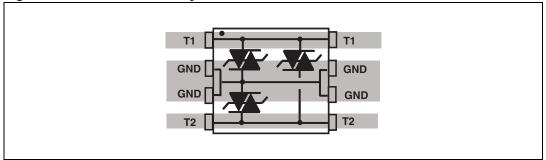


Figure 6. Recommended layout



3 Package information

- Epoxy meets UL94, V0
- Lead-free 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

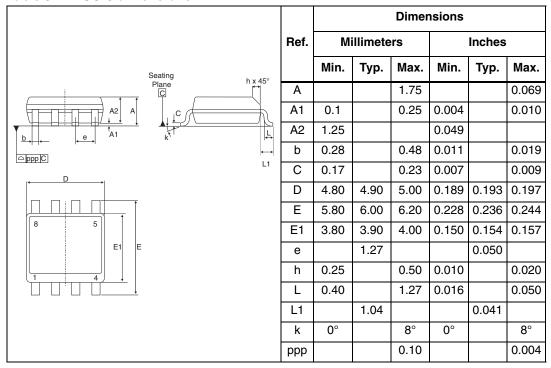
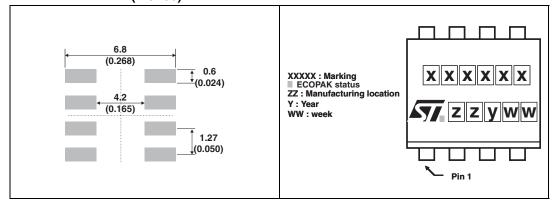


Figure 7. Footprint dimensions in mm (inches)

Figure 8. Marking



4 Ordering information

Table 4. Ordering information

Order code	Marking	Weight	Base qty	Delivery mode
ETP01-1621RL	ETP162	0.08 g	2500	Tape and reel
ETP01-2821RL	ETP282	0.08 g	2500	Tape and reel

5 Revision history

Table 5. Document revision history

Date	Revision	Changes
04-Mar-2008	1	Initial release.
24-Sep-2009	2	Updated order code in <i>Table 4</i> and surge values.
		Updated <i>Figure 1</i> caption to indicate top view. Updated graphic in <i>Table 3</i> to facilitate pin 1 identification. Updated <i>Figure 8</i> to show ECOPACK status marking.
10-May-2011	4	Updated: Applications on page 1.

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