

**FEATURES**

- TRIPLE CROWBAR PROTECTION
- PEAK PULSE CURRENT : I<sub>PP</sub> = 30 A, 10/1000µs
- VERY LOW CAPACITANCE :  
C = 30 pF
- PROTECTS HIGH-SPEED LINE DRIVERS / RECEIVERS

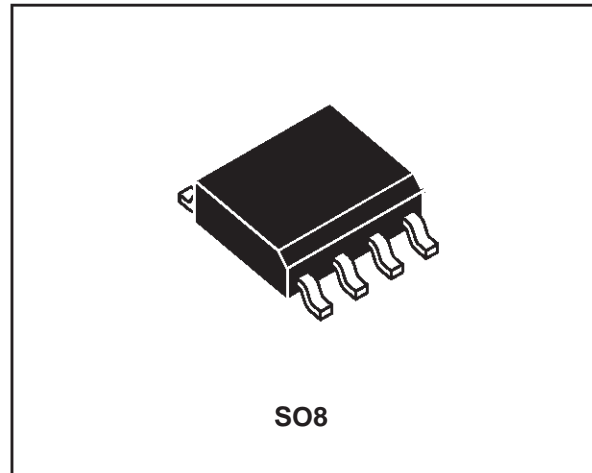
**DESCRIPTION**

Dedicated to dataline protection, this device provides a triple protection function. It ensures the same protection capability with the same breakdown voltage both in common mode and in differential mode.

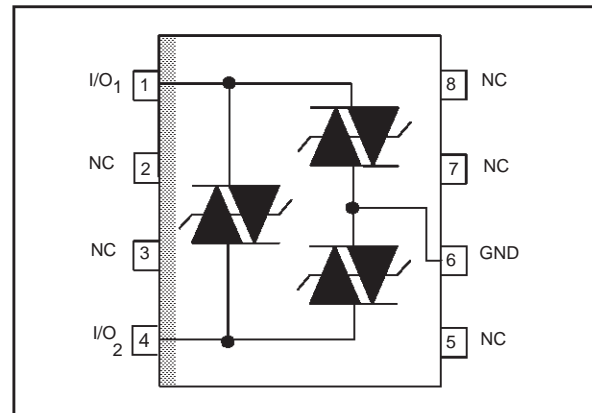
With a stand-off voltage of 28V and a very low capacitance, this device is able to protect high-speed interfaces such as T1/E1 interface.

**COMPLIES WITH THE FOLLOWING STANDARDS :**

- IEC801-2    15kV        (air discharge)
- IEC801-4    40A            (repetitive 2.5kHz)
- IEC801-5    1.2/50µs    4kV  
                  8/20µs      100A



**SCHEMATIC DIAGRAM**



**ABSOLUTE MAXIMUM RATINGS (T<sub>amb</sub> = 25 °C)**

Symbol	Parameter	Value	Unit
I <sub>pp</sub>	Peak pulse current	10/1000 µs	30 A
		8/20 µs	150 A
T <sub>stg</sub>	Storage temperature range	- 40 to + 150	°C
T <sub>j</sub>	Maximum junction temperature	150	°C
T <sub>L</sub>	Maximum lead temperature for soldering during 10s	260	°C

**THERMAL RESISTANCE**

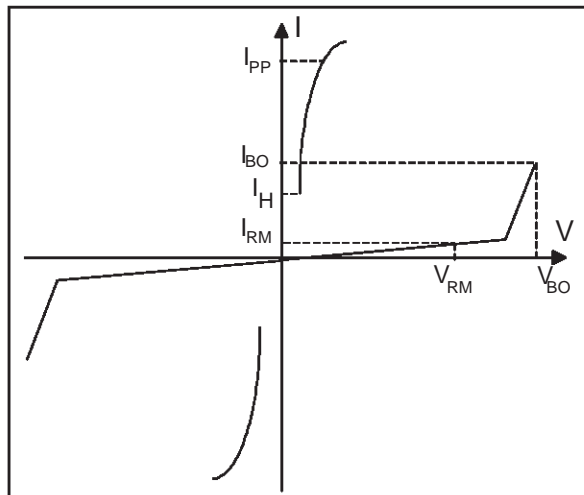
Symbol	Parameter	Value	Unit
R <sub>th(j-a)</sub>	Junction to ambient	170	°C/W

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# TPN3021

## ELECTRICAL CHARACTERISTICS (T<sub>amb</sub>=25°C)

Symbol	Parameter
V <sub>RM</sub>	Stand-off voltage
V <sub>BO</sub>	Breakover voltage
V <sub>BR</sub>	Breakdown voltage
I <sub>H</sub>	Holding current
I <sub>BO</sub>	Breakover current
I <sub>RM</sub>	Leakage current at V <sub>RM</sub>
I <sub>PP</sub>	Peak pulse current
C	Capacitance
αT	Temperature coefficient



Type	I <sub>RM</sub> @ V <sub>RM</sub> max.		V <sub>BO</sub> @ I <sub>BO</sub> max.		I <sub>H</sub> min.	C typ.	C max.	αT typ.
	note 1							
	μA	V	V	mA	mA	pF	pF	10 <sup>-4</sup> /°C
TPN3021	4	28	38	100	30	25	30	8

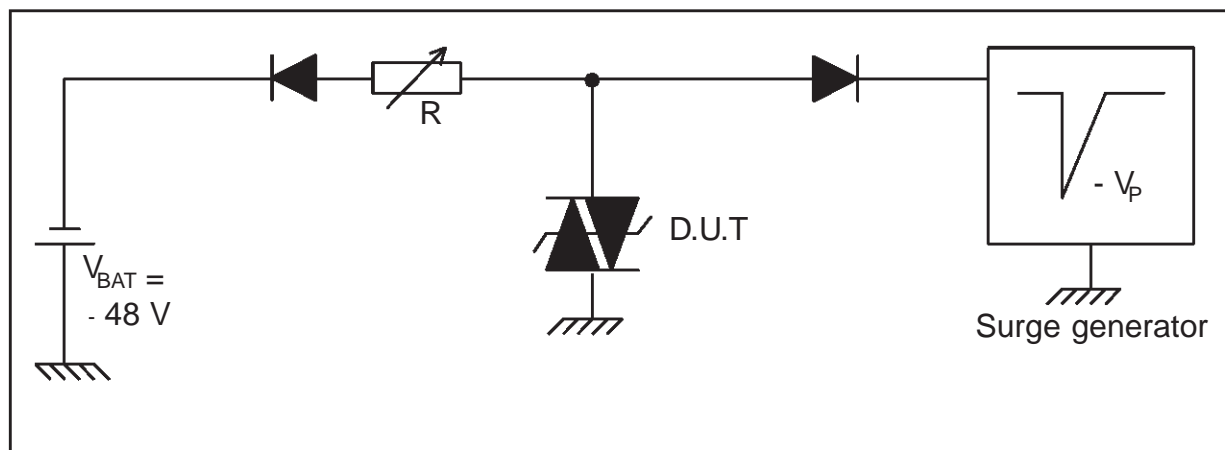
**Note 1 :** Between any I/O pin and Ground or between I/O1 and I/O2.

**Note 2 :** See the functional holding current (I<sub>H</sub>) test circuit.

**Note 3 :** Between any I/O pin and GND or between I/O1 and I/O2 at 0V bias, V<sub>RMS</sub> = 30 mV, F = 1 MHz.

**Note 4 :** ΔV<sub>BO</sub> = αT x (T<sub>amb</sub> - 25) x V<sub>BO</sub>(25°C).

## FUNCTIONAL HOLDING CURRENT (I<sub>H</sub>) TEST CIRCUIT : GO-NO GO TEST



This is a GO-NO GO test which allows to confirm the holding current (I<sub>H</sub>) level in a functional test circuit.

### TEST PROCEDURE :

- Adjust the current level at the I<sub>H</sub> value by short circuiting the D.U.T.
- Fire the D.U.T. with a surge current : I<sub>pp</sub> = 10A, 10/1000 μs.
- The D.U.T. will come back to the off-state within a duration of 50 ms max.

APPLICATION CIRCUIT : T1/E1 Interface Protection

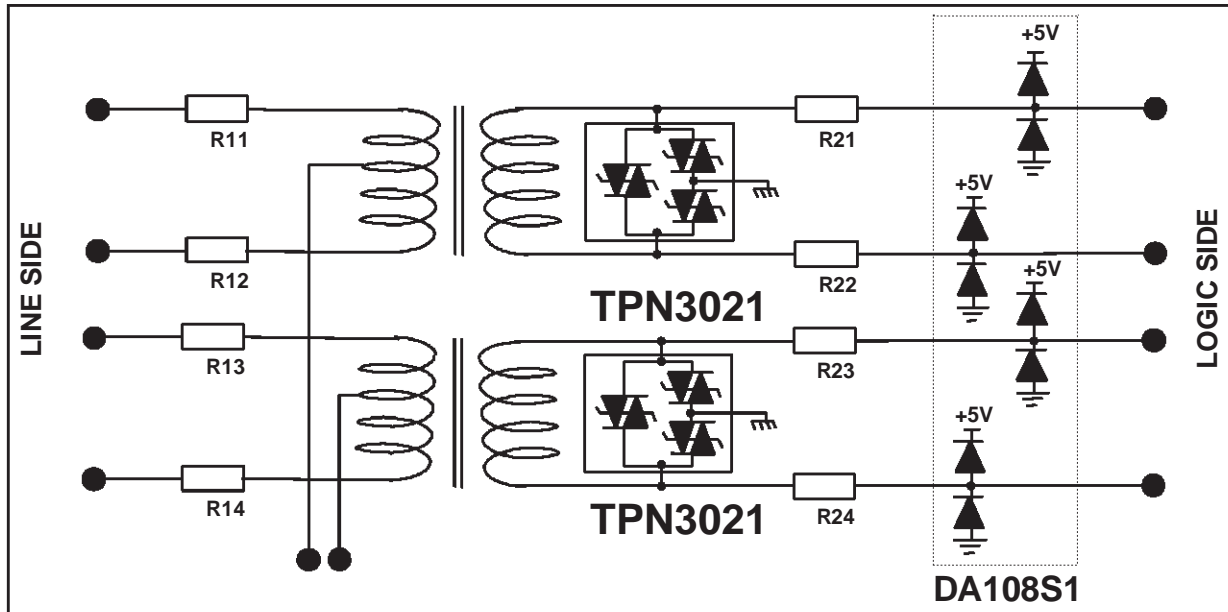
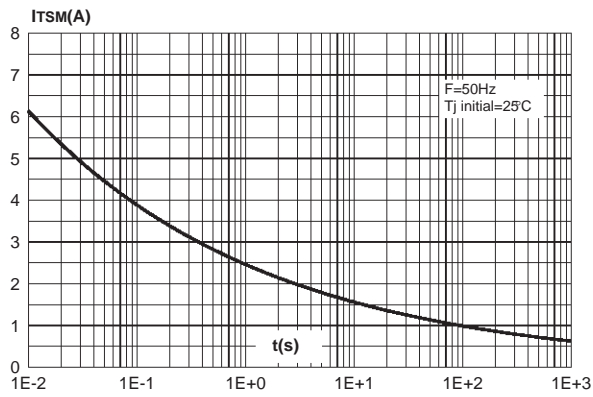
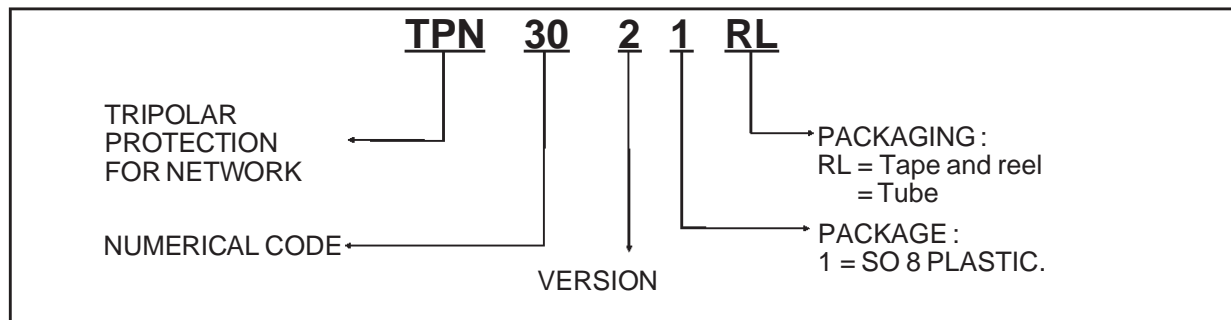


Fig. 1 : Surge peak current versus overload duration.



# TPN3021

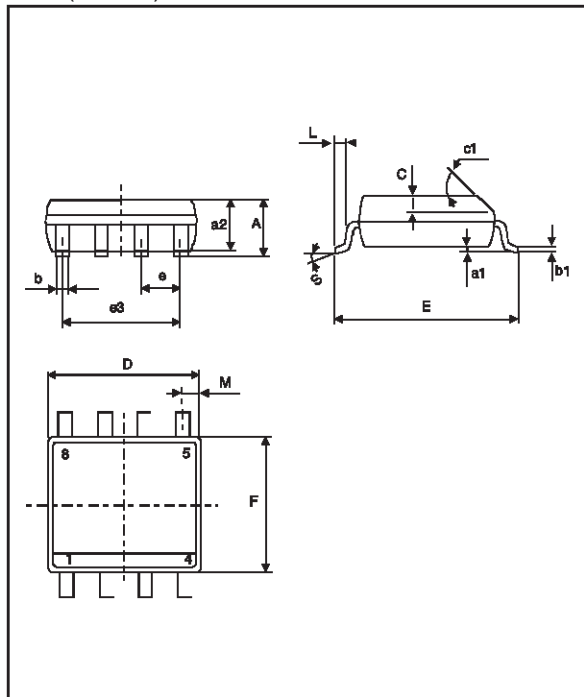
## ORDER CODE



## Marking

Type	Marking
TPN3021	TPN302

## PACKAGE MECHANICAL DATA SO8 (Plastic)



REF.	DIMENSIONS					
	Millimetres			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			1.75			0.069
a1	0.1		0.25	0.004		0.010
a2			1.65			0.065
b	0.35		0.48	0.014		0.019
b1	0.19		0.25	0.007		0.010
C		0.50			0.020	
c1	45° (typ)					
D	4.8		5.0	0.189		0.197
E	5.8		6.2	0.228		0.244
e		1.27			0.050	
e3		3.81			0.150	
F	3.8		4.0	0.15		0.157
L	0.4		1.27	0.016		0.050
M			0.6			0.024
S	8° (max)					

**Packaging** = Products supplied in antistatic tubes or tape and reel.

**Weight** = 0.08 g

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