

 $\begin{array}{c} \text{Application Specific Discretes} \\ \text{A.S.D.}^{\text{\tiny TM}} \end{array}$

TRIPOLAR PROTECTION FOR NETWORK INTERFACES

FEATURES

- PROTECTS HIGH-SPEED LINE DRIVERS / RECEIVERS
- CROWBAR PROTECTION MODE
- VERY LOW CAPACITANCE : C = 30 pF MAXIMUM
- HIGH SURGE CURRENT CAPABILITY : Ipp = 150A FOR 8/20 μs SURGE



Compatible with all protection standards, the TPN3021 is designed for protecting dataline drivers and receivers against high surges.

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, as well as the traditional types such as RS232 and RS485.

COMPLIES WITH THE FOLLOWING STANDARDS :

- IEC801-2	15kV	(air discharge)
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- IEC801-4 40A (repetitive 2.5kHz)
- IEC801-5 1.2/50μs 4kV 8/20μs 150A



FUNCTIONAL DIAGRAM



ABSOLUTE MAXIMUM RATINGS $(0^{\circ}C \le T_{amb} \le 70^{\circ}C)$

Symbol	Parameter	Value	Unit	
I _{pp}	Peak pulse current	10/1000 μs 8/20 μs	30 150	A A
T _{stg} Tj	Storage temperature range Maximum junction temperature		- 40 to + 150 150	သူ သူ

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
R _{th(j-a)}	Junction to ambient	170	°C/W

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ELECTRICAL CHARACTERISTICS

(Tamb=25°C, unless otherwise specified)

Symbol	Parameter
V _{RM}	Stand-off voltage
V _{BO}	Breakover voltage
Ι _Η	Holding current
I _{BO}	Breakover current
I _{RM}	Leakage current at V _{RM}
IPP	Peak pulse current
С	Capacitance
αΤ	Temperature coefficient



Туре	I _{RM} @ V _{RM} max. note 1		V _{BO} @ I _{BO} max.		I _H min. note 2	V⊤ max. note 3	typ. C max. note 4		αT typ. note 5	
	μΑ	v	v	mA	mA	v	pF	рF	10 ⁻⁴ /°C	
TPN3021	4	28	38	100	30	4	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 (IH) test circuit.

Note 3 : Square pulse : $t_p = 500 \,\mu s$, $I_T = 5A$.

Note 4 : Between any I/O pin and GND or between I/O1 and I/O2 at 0V bias, VRMS = 30 mV, F = 1 MHz.

Note 5 : $\Delta VBO = \alpha T \times (T_{amb} - 25) \times VBO(25^{\circ}C)$.

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FUNCTIONAL HOLDING CURRENT (IH) TEST CIRCUIT : GO-NO GO TEST



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Application 2: RS485 Interface Protection



MARKING

Туре	Marking				
TPN3021	TPN302				

Application 3 : RS232 Interface Protection





TPN3021

PACKAGE MECHANICAL DATA

SO8 (Plastic)

RFF	M	llimate	DIMEN	ISIONS	Inchoo			DEE	DIMENSIONS					
	Min.	Typ.	Max.	Min.	Typ.	Max.			Min.	Typ.	Max.	Min.	Typ.	Max.
A			1.75		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	0.069		D	4.8	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	5.0	0.189		0.197
a1	0.1		0.25	0.004		0.010		Е	5.8		6.2	0.228		0.244
a2			1.65			0.065		е		1.27			0.050	
a3	0.65		0.85	0.026		0.033		e3		3.81			0.150	
b	0.35		0.48	0.014		0.019		F	3.8		4.0	0.15		0.157
b1	0.19		0.25	0.007		0.010		L	0.4		1.27	0.016		0.050
С	0.25		0.5	0.010		0.020		М			0.6			0.024
c1 45°(typ)								S			8° (r	max)		

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