

TESDF5V0A Bi-Directional ESD Protection Array

Small Signal Diode



Features

- ♦Meet IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- Meet IEC61000-4-5 (Lightning) rating. 12A (8/20µs)
- ♦Protects two directional I/O lines
- ♦Working Voltage : 5V
- ♦Pb free version, RoHS compliant, and Halogen free

Mechanical Data

- ♦Case :SOT-23 standard package, molded plastic
- Terminal: Matte tin plated, lead free., solderable per MIL-STD-202, Method 202 guaranteed
- ♦High temperature soldering guaranteed: 260°C/10s
- ♦Weight : 0.008gram (approximately)
- ♦Marking Code : L50

Applications

- ♦Cell Phone Handsets and Accessories
- Microprocessor based equipment
- ♦Industrial Controls
- Notebooks, Desktops, and Servers



Ordering Information

Part No.	Package	Packing	Packing Code	Marking
TESDF5V0A	SOT-23	3K / 7" Reel	RFG	L50

Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

Maximum Ratings

Type Number	Symbol	Value	Units
Peak Pulse Power (tp=8/20µs waveform)	Ppp	100	W
Peak Pulse Current (tp = 8/20µs)	PP	2.5	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	Vesd	±15 ± 8	KV
Junction and Storage Temperature Range	TJ, TSTG	-55 to + 150	°C

Electrical Characteristics

Type Number			Symbol	Min	Max	Units
Reverse Stand-Off Voltage			VRWM	-	5	V
Reverse Breakdown Voltag	l _R = ŕ	1mA	V(BR)	6	-	V
Reverse Leakage Current	V _R =	5V	IR	-	1	uA
Clamping Voltage	I _{PP} =	1A	Ve	-	9.8	V
Clamping voltage	I _{PP} =	2.5A	VC	-	15	
Junction Capacitance	V _R =0V, f=1	1.0MHz	CJ	10 (Тур.)	pF





Dimensione	Unit	(mm)	Unit (inch)		
Dimensions	Min	Max	Min	Max	
A	2.80	3.00	0.110	0.118	
В	1.20	1.40	0.047	0.055	
С	0.30	0.50	0.012	0.020	
D	1.80	2.00	0.071	0.079	
E	2.25	2.55	0.089	0.100	
F	0.90	1.20	0.035	0.043	

Pin Configutation





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Rating and Characteristic Curves



FIG 1 Non-Repetitive Peak Pulse Power vs. Pulse Time

FIG 2 Pulse Waveform



FIG 3 Admissible Power Dissipation Curve



FIG 5 Clamping Voltage vs. Peak Pulse Current



FIG 4 Typical Junction Capacitance





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Applications Information

♦Designed for the bi-directional protection of 2 lines from the damage caused by Electro Static Discharge (ESD) and surge pulses

 $\diamond \mathsf{Be}$ used on lines where the signal polarities are above and below ground

 $\diamond \mathsf{Provides}$ a surge capability of 100 Watts peak Ppp per line for an 8/20 ms waveform.

Circuit Board Layout Recommendations

 $\diamond \mathsf{P}\mathsf{lace}$ the ESD protection array as close to the input terminal or connector as possible

♦Keep parallel signal paths to a minimum

Minimize all printed-circuit board conductive loops including power and group loops

 $\diamond \mathsf{Avoid}$ using shared transient return paths to a common ground point

 $\diamond \textsc{Ground}$ planes should be used. For multilayer printed-circuit boards, use ground vias

 $\diamond \mathsf{Below}$ picture is the typical application for bi-directional protection of two lines





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Tape & Reel specification



Any Additional Label (If Required)



Item	Symbol	Dimension (mm)
Carrier depth	K	1.22 Max.
Sprocket hole	D	1.50 +0.10
Reel outside diameter	A	180 ± 1
Reel inner diameter	D1	50 Min.
Feed hole width	D2	13.0 ± 0.5
Sprocke hole position	E	1.75 ±0.10
Sprocke hole pitch	P0	4.00 ±0.10
Embossment center	P1	2.00 ±0.10
Overall tape thickness	Т	0.6 Max.
Tape width	W	8.30 Max.
Reel width	W1	14.4 Max.



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Direction of Feed

Suggested PAD Layout



Dimensions	Unit (inch)	Unit (mm)
А	0.079	2.00
В	0.037	0.95
С	0.035	0.90
D	0.031	0.80

Note 1: A₀, B₀, and K₀ are determined by component size. The clearance between the components and the cavity must be

within 0.05 mm min. to 0.5 mm max. The component cannot rote more than 10 $^{\circ}$ within the determined cavity. Note 2: If B₁ exceeds 4.2 mm(0.165") for 8 mm embossed tape, the tape may not feed through all tape feeders.

Note 3: The suggested land pattern dimensions have been provided for reference only, as actual pad layouts

may vary despending on application.