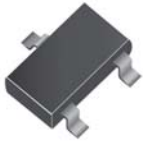


Small Signal Diode



Features

- ↪ Meet IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- ↪ Meet IEC61000-4-4 (EFT) rating. 40A (5/50ns)
- ↪ 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
- ↪ Low leakage current

Mechanical Data

- ↪ Case : JEDEC 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 : 8mg (approx.)
- ↪ Marking Code : Y D05

Applications

- ↪ USB Power & Data Line Protection
- ↪ Ethernet 10BaseT
- ↪ T1/E1 secondary IC Side Protection
- ↪ ISDN S/T Interface
- ↪ WAN/LAN Equipment

Ordering Information

Part No.	Package	Packing	Packing Code	Marking
TESDA5V0A	SOT-23	3K / 7" Reel	RFG	Y D05

Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

Maximum Ratings

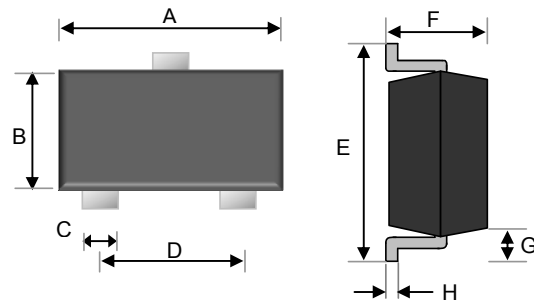
Type Number	Symbol	Value	Units
Peak Pulse Power (tp=8/20μs waveform)	P _{PP}	350	W
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V _{ESD}	±15 ± 8	KV
Junction and Storage Temperature Range	T _J , T _{STG}	-55 to + 150	°C

Electrical Characteristics

Type Number	Symbol	Min	Max	Units
Reverse Stand-Off Voltage	V _{RWM}	-	5	V
Reverse Breakdown Voltage	V _(BR)	6	-	V
Reverse Leakage Current	I _R	-	1	μA
Clamping Voltage	V _C	I _{PP} = 1A	9.8	V
		I _{PP} = 5A	12	
Junction Capacitance	C _J	1 (Typ.)		pF

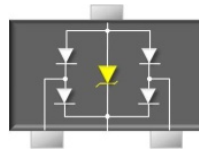
Notes: 1. The suggested land pattern dimensions have been provided for reference only, as actual pad layouts may vary depending on application.

SOT-23

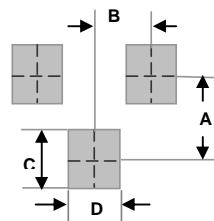


Dimensions	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	2.80	3.00	0.110	0.118
B	1.20	1.40	0.047	0.055
C	0.30	0.50	0.012	0.020
D	1.80	2.00	0.071	0.079
E	2.25	2.55	0.089	0.100
F	0.90	1.20	0.035	0.047
G	0.550 REF		0.022 REF	
H	0.08	0.19	0.003	0.01

Pin Configuration



Suggested PAD Layout



Dimensions	Value (in mm)
A	2.00
B	0.95
C	0.90
D	0.80

Small Signal Diode

Rating and Characteristic Curves

FIG 1 Admissible Power Dissipation Curve

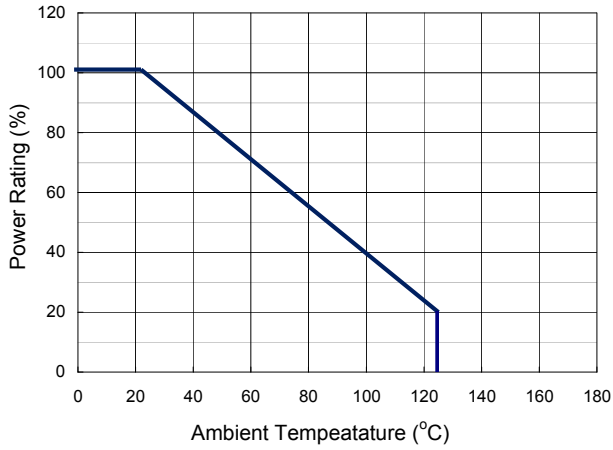


FIG 2 Pulse Waveform

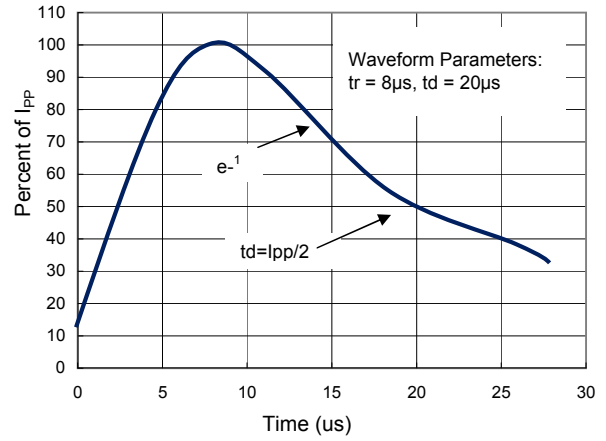


FIG 3 Clamping Voltage vs. Peak Pulse Current

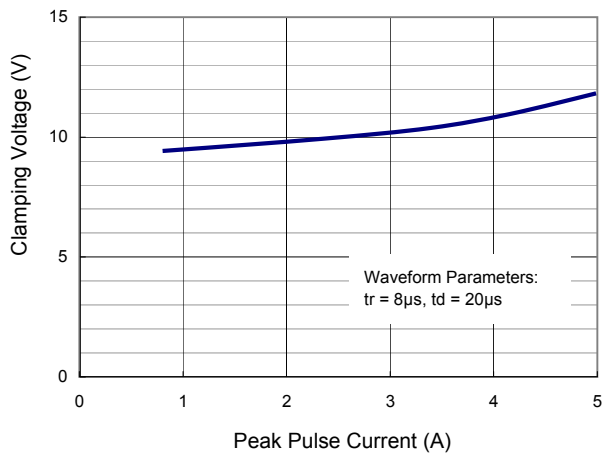
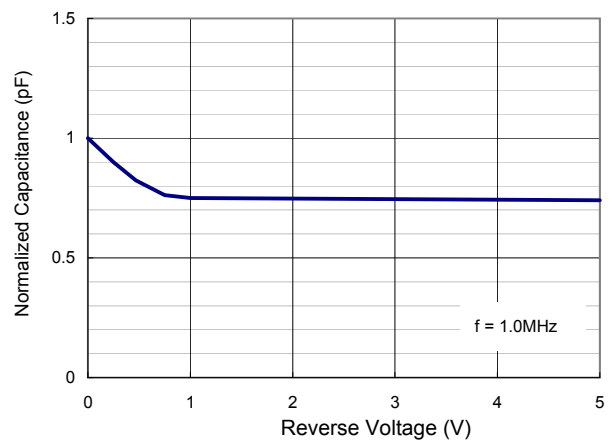


FIG 4 Typical Junction Capacitance



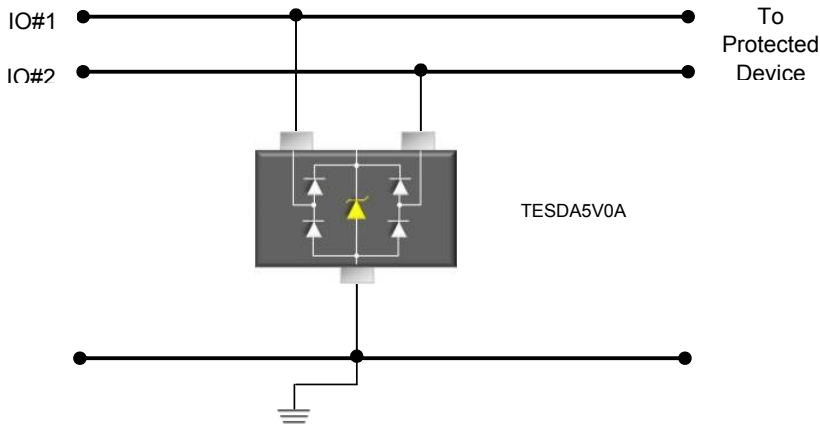
Small Signal Diode

Applications Information

- ◇Designed for the bi-directional protection of 2 lines from the damage caused by Electro Static Discharge (ESD) and surge pulses
- ◇Be used on lines where the signal polarities are above and below ground
- ◇Provides a surge capability of 350 Watts peak Ppp per line for an 8/20 ms waveform.

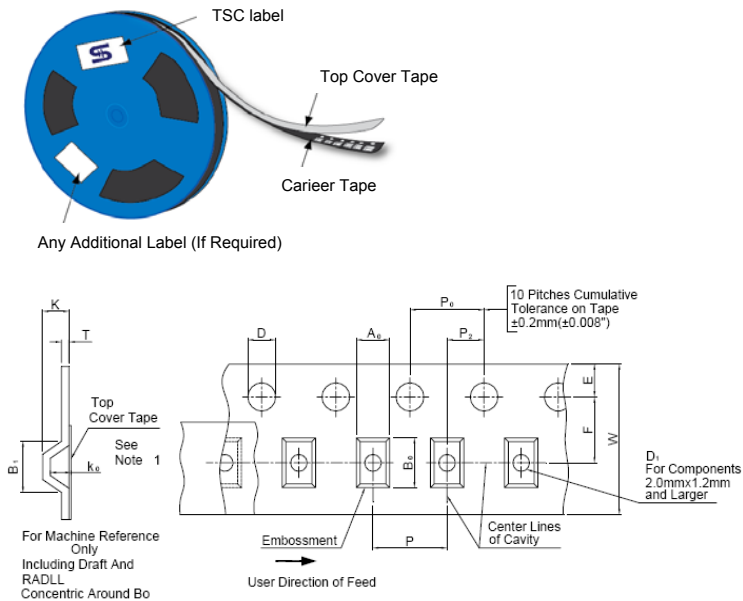
Circuit Board Layout Recommendations

- ◇Place 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
- ◇Avoid using shared transient return paths to a common ground point
- ◇Ground planes should be used. For multilayer printed-circuit boards, use ground vias
- ◇Below picture is the typical application for bi-directional protection of two lines

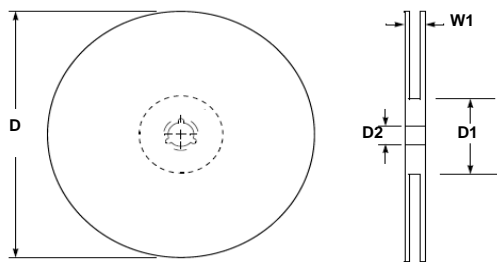
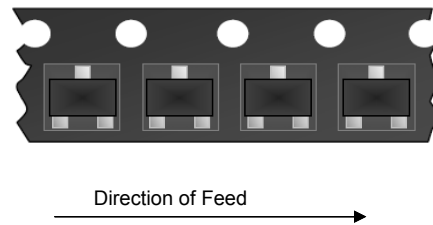


Small Signal Diode

Carrier & Reel specification



Item	Symbol	Dimension(mm)
Carrier depth	K	1.2 Max.
Sprocket hole	D	1.50 +0.10
Reel outside diameter	A	178 ± 1
Reel inner diameter	D1	50 Min.
Feed hole width	D2	13.0 ± 0.5
Sprocket hole position	E	1.75 ± 0.10
Sprocket hole pitch	P0	4.00 ± 0.10
Embossment center	P1	2.00 ± 0.10
Overall tape thickness	T	0.6 Max.
Tape width	W	8.30 Max.
Reel width	W1	14.4 Max.



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 rotate more than 10° 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.