

Small Signal Diode



Features

- ✧ Meet IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- ✧ Meet IEC61000-4-4 (EFT) rating. 40A (5/50ns)
- ✧ Protects one bi-directional I/O line
- ✧ Working Voltage : 5V
- ✧ Pb free version, RoHS compliant, and Halogen free

Mechanical Data

- ✧ Case : SOD-523F flat lead small outline plastic package
- ✧ Terminal: Matte tin plated, lead free., solderable per MIL-STD-202, Method 208 guaranteed
- ✧ High temperature soldering guaranteed: 260°C/10s
- ✧ Mounting position: Any
- ✧ Weight :2 mg (approximately)
- ✧ Marking Code : DT

Applications

- ✧ Cell Phone Handsets and Accessories
- ✧ Notebooks, Desktops, and Servers
- ✧ Keypads, Side Keys, USB 2.0, LCD Displays
- ✧ Portable Instrumentation
- ✧ Microprocessor based equipment

Ordering Information

Part No.	Package	Packing	Packing Code	Marking
TESDD5V0	SOD-523F	3K / 7" Reel	RKG	DT

Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

Maximum Ratings

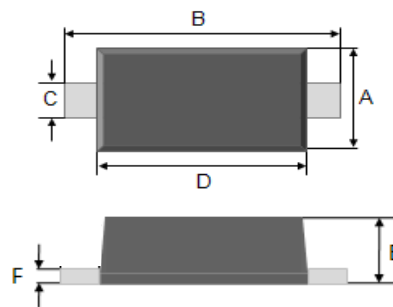
Type Number	Symbol	Value	Units
Peak Pulse Power (tp=8/20µs waveform)	P _{PP}	100	W
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V _{ESD}	±15 ±8	KV
Junction and Storage Temperature Range	T _J , T _{STG}	-55 to + 150	°C

Electrical Characteristics

Type Number	Symbol	Min	Max	Units
Reverse Stand-Off Voltage	V _{RWM}	-	5	V
Reverse Breakdown Volta	I _R = 1mA V _(BR)	6	-	V
Reverse Leakage Curren	V _R = 5V I _R	-	1	uA
Clamping Voltage	I _{PP} = 1A I _{PP} = 3A	-	9.8	V
		-	15	
Junction Capacitance	V _R =0V, f=1.0MHz C _J	13 (Typ.)		pF

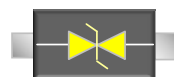
Notes: 1. The suggested land pattern dimensions have been provided for reference only, as actual pad layouts may vary depending on application.

SOD-523F

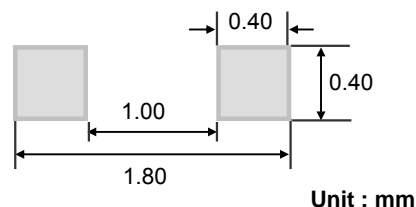


Dimensions	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	0.70	0.90	0.028	0.035
B	1.50	1.70	0.059	0.067
C	0.25	0.35	0.010	0.014
D	1.10	1.30	0.043	0.051
E	0.60	0.70	0.024	0.028
F	0.10	0.14	0.004	0.006

Pin Configuration



Suggested PAD Layout



Small Signal Diode

Rating and Characteristic Curves

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

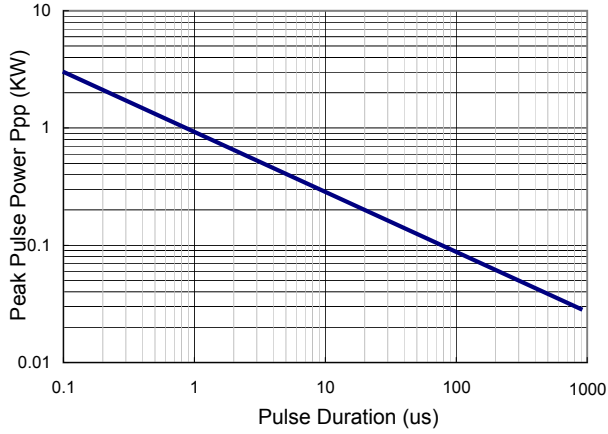


FIG 2 Pulse Waveform

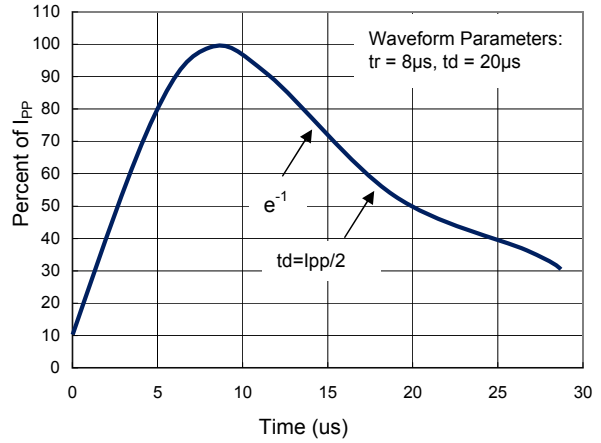


FIG 3 Admissible Power Dissipation Curve

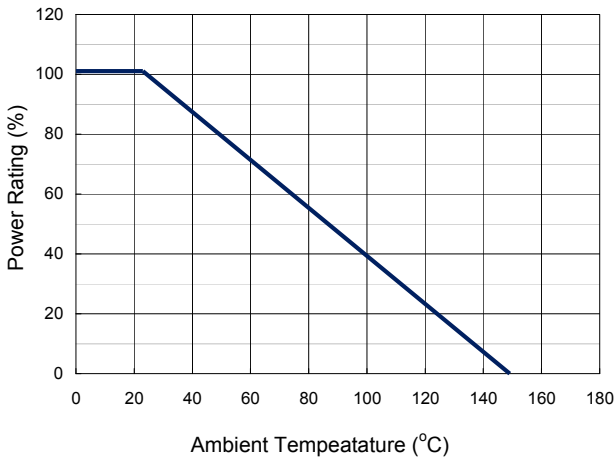


FIG 4 Typical Junction Capacitance

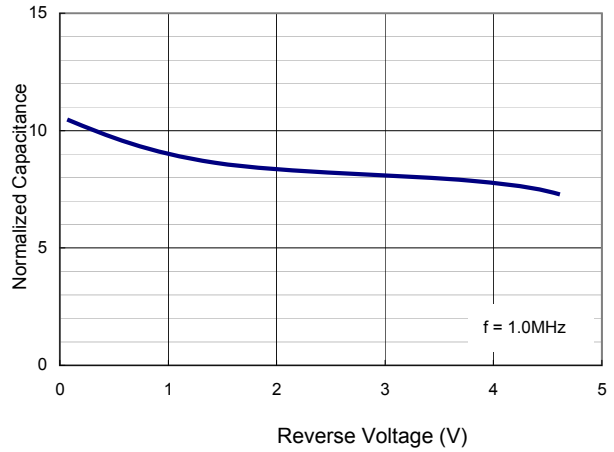
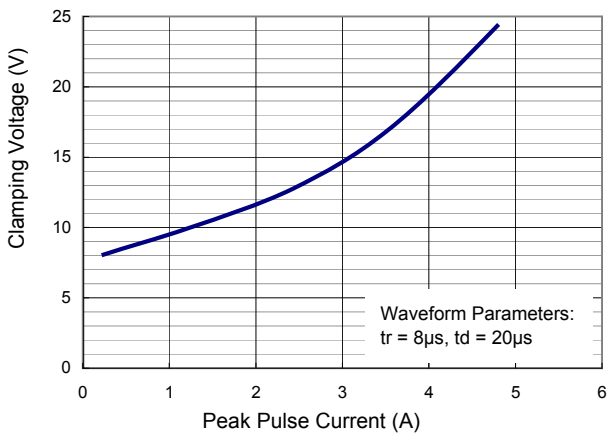


FIG 5 Clamping Voltage vs. Peak Pulse Current)



Small Signal Diode

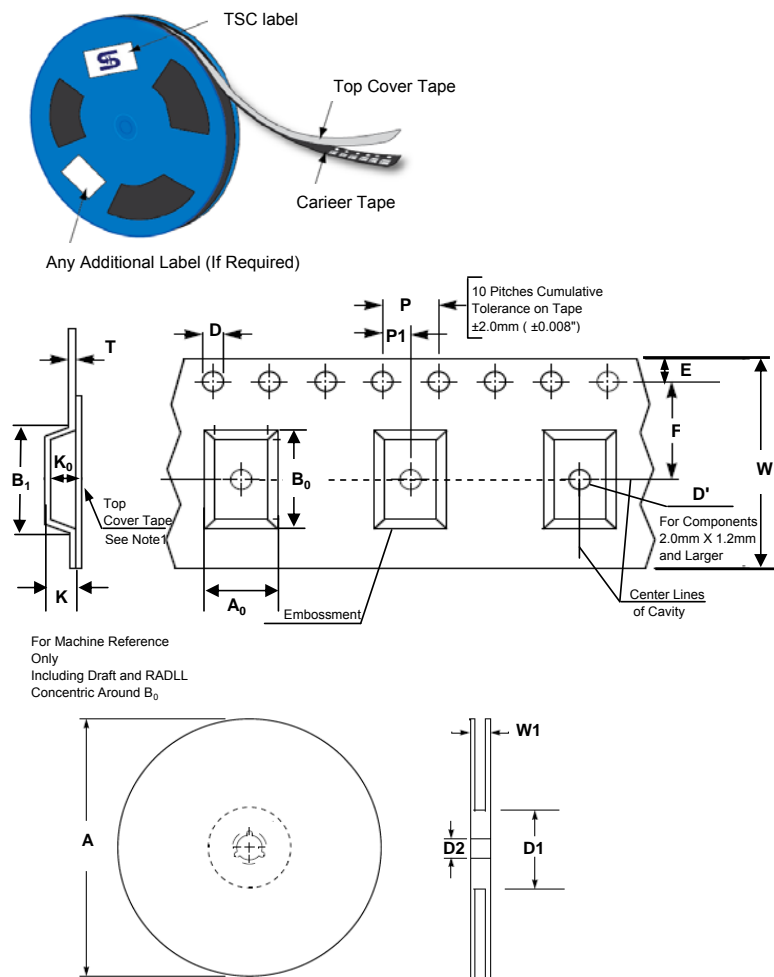
Applications Information

- ◇ Designed to protect one data, I/O, or power supply line.
- ◇ Designed to protect sensitive electronics from damage or latch-up due to ESD
- ◇ Designed to replace multilayer varistors (MLVs) in portable applications
- ◇ Offers superior electrical characteristics such as lower clamping voltage and no device degradation when compared to MLVs
- ◇ The combination of small size and high ESD surge capability makes them ideal for use in portable applications.

Circuit Board Layout Recommendations

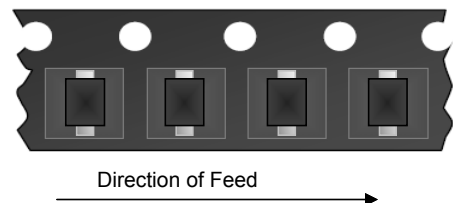
- Good circuit board layout is critical for the suppression of ESD induced transients.
- ◇ Place the ESD Protection Diode near the input terminals or connectors to restrict transient coupling.
 - ◇ Minimize the path length between the ESD Protection Diode and the protected line.
 - ◇ Minimize all conductive loops including power and ground loops.
 - ◇ The ESD transient return path to ground should be kept as short as possible.

Tape & Reel specification



Item	Symbol	Dimension (mm)
Carrier depth	K	2.40 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
Punch hole position	F	3.50 ±0.05
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.

For Machine Reference Only
Including Draft and RADLL
Concentric Around B₀



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.