



Bidirectional ESD Protection Diodes

Features

- Meet IEC61000-4-2 (ESD) $\pm 15\text{kV}$ (air), $\pm 8\text{kV}$ (contact)
- Meet IEC61000-4-4 (EFT) rating. 40A (5/50ns)
- Meet IEC61000-4-5 (Lightning) rating. 24A (8/20 μs)
- Protects one bidirectional I/O line
- Working Voltage : 3.3V, 5V, 8V
- Pb free version, RoHS compliant, and Halogen free

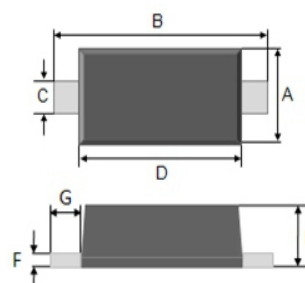
Mechanical Data

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

Applications

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

Outline Drawing SOD-523

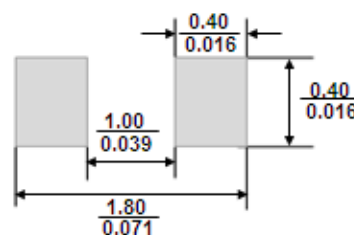


Dimension	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	0.70	0.90	0.0275	0.0354
B	1.50	1.70	0.059	0.0669
C	0.25	0.35	0.010	0.014
D	1.10	1.30	0.0433	0.0511
E	0.50	0.70	0.020	0.028
F	-	0.20	-	0.008
G	0.20 REF		0.008 REF	

Ordering Information

Package	Part No.	Packing	Marking	Configuration
SOD-523	ESDH5V0BS	3K/7" Reel	DT	

Suggested Pad Layout



Maximum Ratings

(Rating at 25°C ambient temperature unless otherwise specified)

Type Number	Symbol	Value	Units
Peak Pulse Power (tp=8/20 μs 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 ~ 150	°C



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Electrical Characteristics

(Rating at 25°C ambient temperature unless otherwise specified)

Part No.	V_{RWN} (V)	$V_{(BR)}$ (V)	I_T (mA)	V_C (V)	V_C (V)		I_R (μ A)	C_i (pF)
	Max	Min		@ $I_{FP}=1A$	Max	I_{PP} (A)		
ESDH5V0BS	5.0	6	1	9.8	20	5	1	10

Rating and Characteristic Curves

Fig 1 NonRepetitive Peak Pulse Power vs. Pulse Time

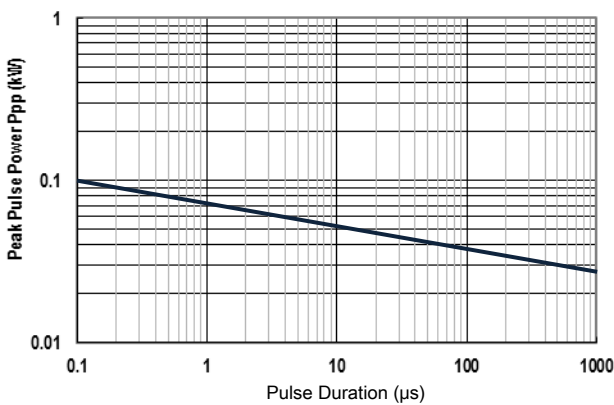


Fig 2 Clamping Voltage vs. Peak Pulse Current

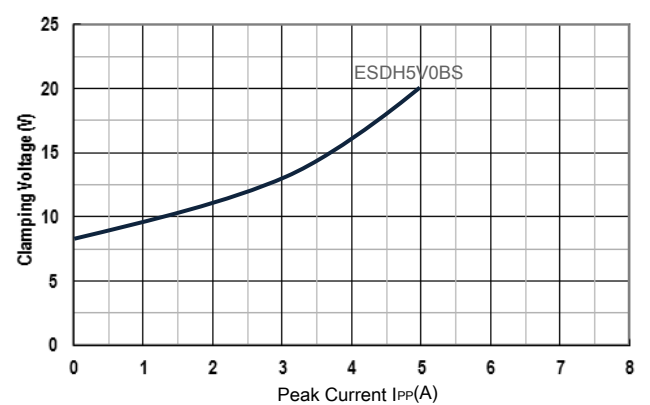


Fig 3 Admissible Power Dissipation Curve

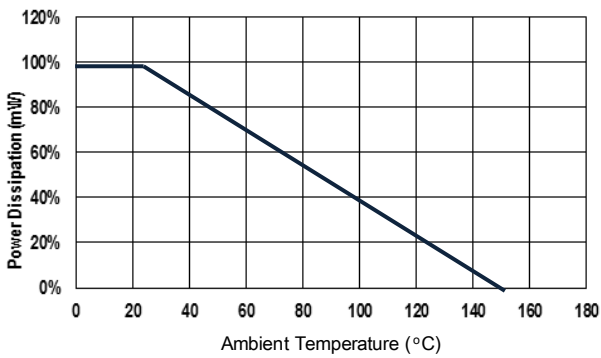


Fig 4 Typical Junction Capacitance

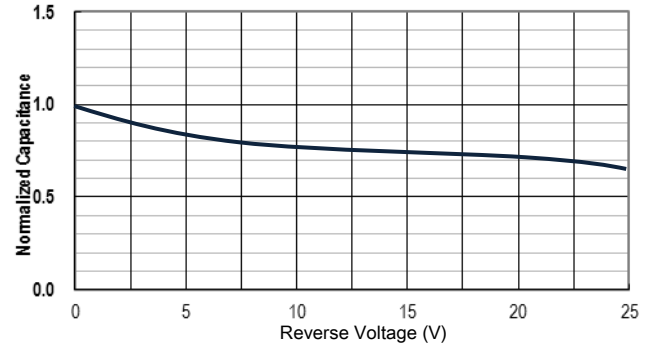
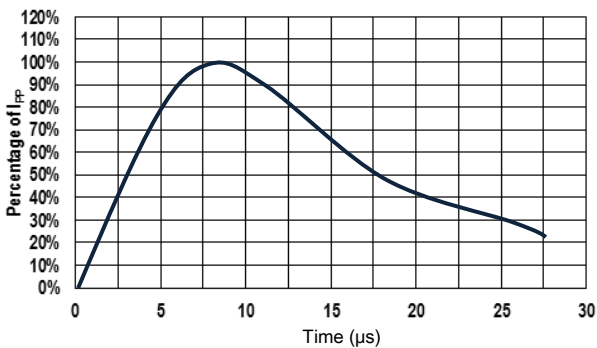


Fig 5 Pulse Waveform





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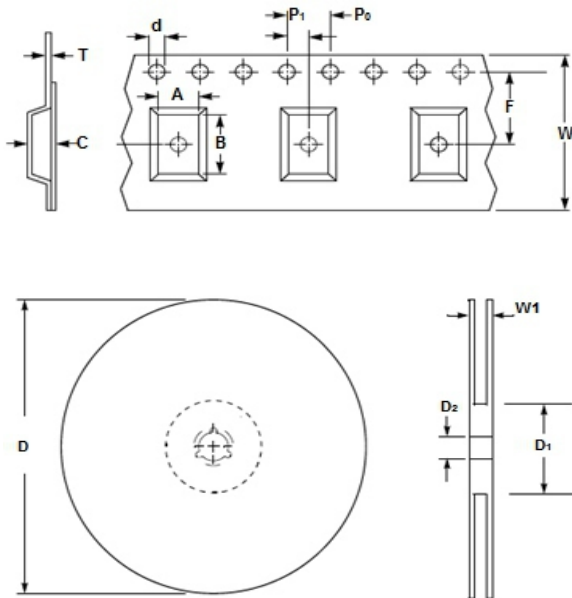
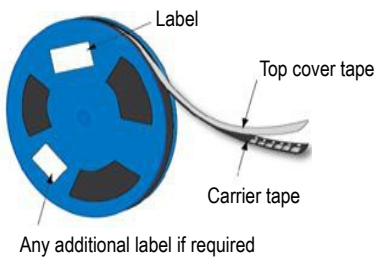
Applications Information

- Protect one data, I/O, or power supply line
- Protect sensitive electronics from damage or latch-up due to ESD
- Replace multilayer varistors (MLVs) in portable applications
- Features cross sectional area junctions for conducting high transient current
- 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

- Place the ESD Protection Diode near the input terminals or connectors to restrict transient coupling.
- Minimize the path length between the 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
- Never run critical signals near board edges
- Use ground planes whenever possible
- Good circuit board layout is critical for the suppression of ESD induced transients

Tape & Reel specification



Item	Symbol	Dimension (mm)
Carrier width	A	0.80 ± 0.10
Carrier length	B	1.95 ± 0.10
Carrier depth	C	0.73 ± 0.05
Sprocket hole	d	0.50 ± 0.05
Reel outside diameter	D	178 ± 1
Reel inner diameter	D1	54.4 ± 0.40
Feed hole width	D2	13.0 ± 0.20
Sprocket hole position	E	1.75 ± 0.10
Punch hole position	F	3.50 ± 0.05
Punch hole pitch	P	4.00 ± 0.10
Sprocket hole pitch	P0	4.00 ± 0.10
Embossment center	P1	2.00 ± 0.05
Overall tape thickness	T	0.254 ± 0.013
Tape width	W	8.10 ± 0.20
Reel width	W1	12.3 ± 0.20