



# Uni-directional ESD Protection Product

## 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 $\mu\text{s}$ )
- Protects one I/O line
- Working Voltage : 3.3V, 5V, 8V, 12V, 15V, 24V
- Pb free version, RoHS compliant, and Halogen free

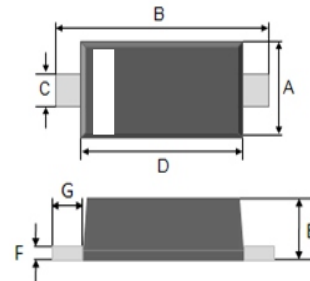
## Mechanical Data

- Case : SOD-523 small outline plastic package
- Terminal: Matte tin plated., solderable per MIL-STD-202, Method 208
- Mounting position : cathode band placed towards the line that is to be protected
- 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

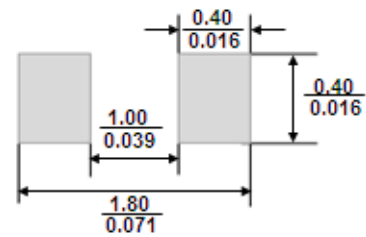


Dimension	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	0.70	0.90	0.0275	0.0354
B	1.50	1.70	0.059	0.0669
C	0.25	0.35	0.010	0.014
D	1.10	1.30	0.0433	0.0511
E	0.51	0.70	0.020	0.028
F	-	0.20	-	0.008
G	0.20REF		0.008 REF	

## Ordering Information

Package	Part No .	Packing	Marking	Configuration
SOD-523	ESDH8V0U	3K/7" Reel	ZE	

## Suggested Pad Lay out



## Maximum Ratings and Electrical Characteristics

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

### Maximum Ratings

Parameter	Symbol	Value	Unit
Peak Pulse Power (tp=8/20 $\mu\text{s}$ waveform)	P <sub>PP</sub>	120	W
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V <sub>ESD</sub>	$\pm 16$ $\pm 8$	KV
Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 ~ 150	°C



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## Electrical Characteristics

Part No.	$V_{RWN}(V)$	$V_{(BR)}(V)$	$I_T(mA)$	$V_C(V)$	$V_C(V)$		$I_R(\mu A)$	$C_J(pF)$
	Max	Min		@ $I_{PP}=1A$	Max	$I_{PP}(A)$		
ESDH8V0U	8	8.5	1	13	19.5	8.8	5	70

## Rating and Characteristic Curves

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

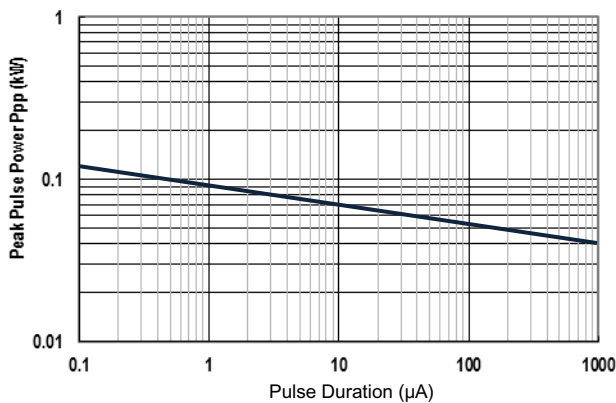


Fig 2 Clamping Voltage vs. Peak Pulse Current

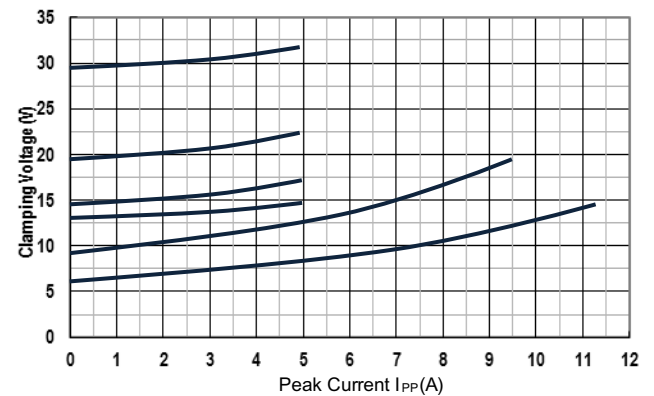


Fig 3 Admissible Power Dissipation Curve

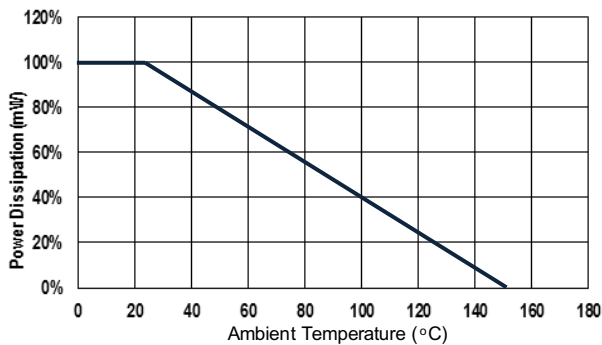


Fig 4 Typical Junction Capacitance

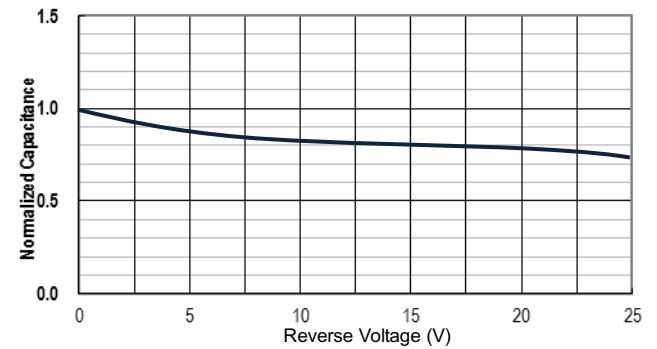
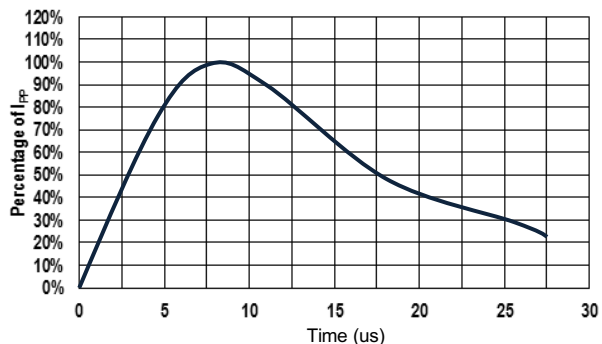


Fig 5 Pulse Waveform





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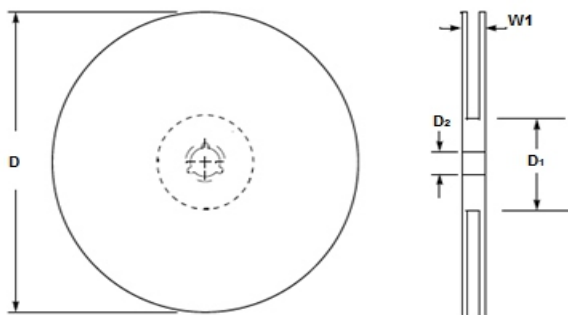
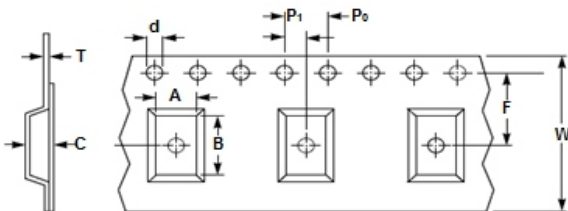
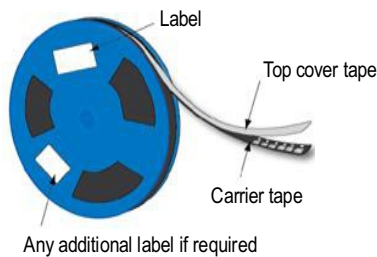
## Applications Information

- 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