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[Diodes Incorporated](#)
[DESD5V0U1BB-7](#)

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DESD5V0U1BB

LOW CAPACITANCE BIDIRECTIONAL TVS DIODE

Features

- Provides ESD Protection per IEC 61000-4-2 Standard: Contact $\pm 10\text{kV}$
- 1 Channel of ESD Protection
- High Peak Pulse Current per IEC 61000-4-5 Standard
- Low Channel Input Capacitance
- Typically used in Cellular Handsets, Portable Electronics, Communication Systems, Computers and Peripherals
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

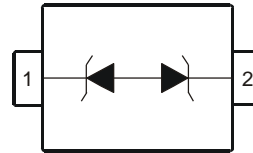
Mechanical Data

- Case: SOD523
- Case Material: Molded Plastic, "Green" Molding Compound; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Alloy 42 Leadframe (Lead-Free Plating). Solderable per MIL-STD-202, Method 208⁽³⁾
- Weight: 0.001 grams (Approximate)

SOD523



Top View



Device Schematic

Ordering Information (Note 4)

Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
DESD5V0U1BB-7 (Note 5)	Standard	K / M	7	8	3,000/Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
 2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.
 5. Dispensed every other cavity of the carrier tape.

Marking Information

SOD523



K / M = Product Type Marking Code

Maximum Ratings (@T_A = +25°C unless otherwise specified.)

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Current	I _{PP}	3	A	8/20μs, per Figure 3
ESD Protection – Contact Discharge	V _{ESD_Contact}	±10	kV	IEC 61000-4-2 Standard

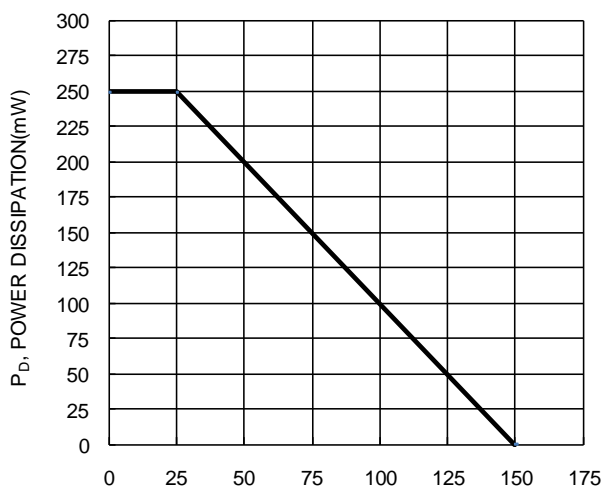
Thermal Characteristics

Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 6)	P _D	250	mW
Thermal Resistance, Junction to Ambient (Note 6)	R _{θJA}	500	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-65 to +150	°C

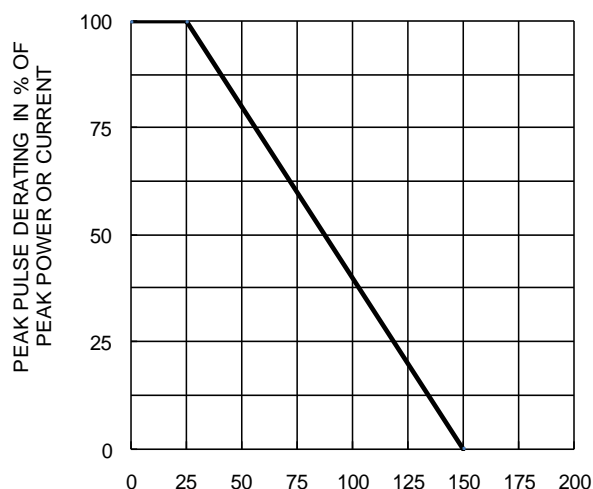
Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Standoff Voltage	V _{RWM}	-	-	5	V	-
Channel Leakage Current (Note 7)	I _{RM}	-	5	100	nA	V _{RWM} = 5V
Clamping Voltage	V _{CL}	-	7.2	-	V	I _{PP} = 3A, t _p = 8/20μs
Breakdown Voltage	V _{BR}	5.5	7	9.5	V	I _R = 5mA
Differential Resistance	R _{DIF}	-	-	100	Ω	I _R = 1mA
Dynamic Impedance	R _{dyn}	-	0.3	-	Ω	TLP, 20A, t _p = 100 ns
Channel Input Capacitance	C _T	-	2.9	-	pF	V _R = 0V, f = 1MHz
		-	1.9	-		V _R = 5V, f = 1MHz

Notes: 6. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes, Inc. suggested pad layout AP02001, which can be found on our website at <http://www.diodes.com>.
 7. Short duration pulse test used to minimize self-heating effect.



T_A, AMBIENT TEMPERATURE (°C)
 Figure 1. Power Derating Curve



T_A, AMBIENT TEMPERATURE (°C)
 Figure 2. Pulse Derating Curve



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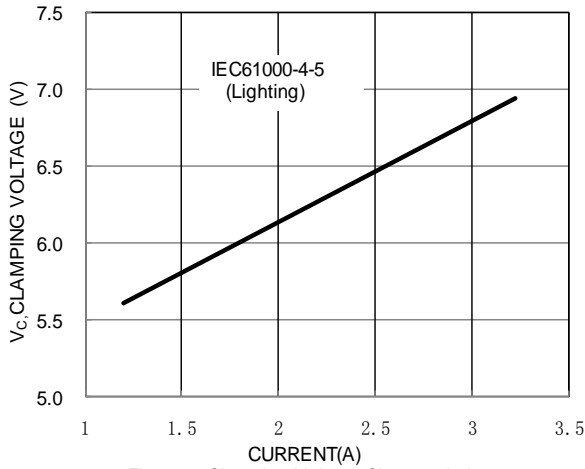


Figure 3. Clamping Voltage Characteristic

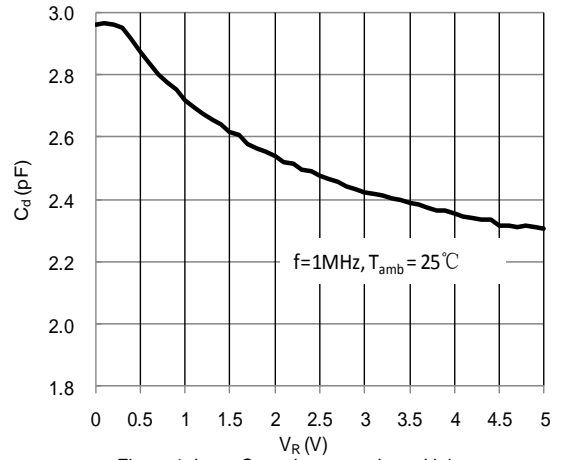


Figure 4. Input Capacitance vs. Input Voltage

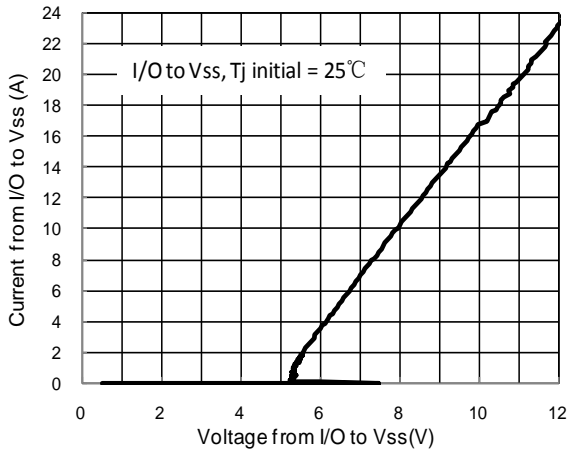


Figure 5. Current vs. Voltage

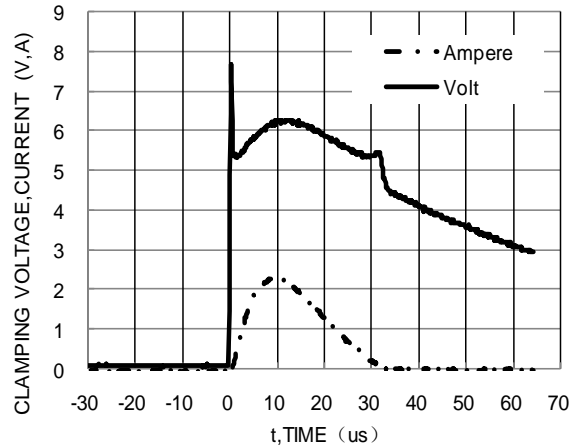


Figure 6. Waveform of Clamping Voltage, Current vs. Time(8/20us, I/O to Vss)

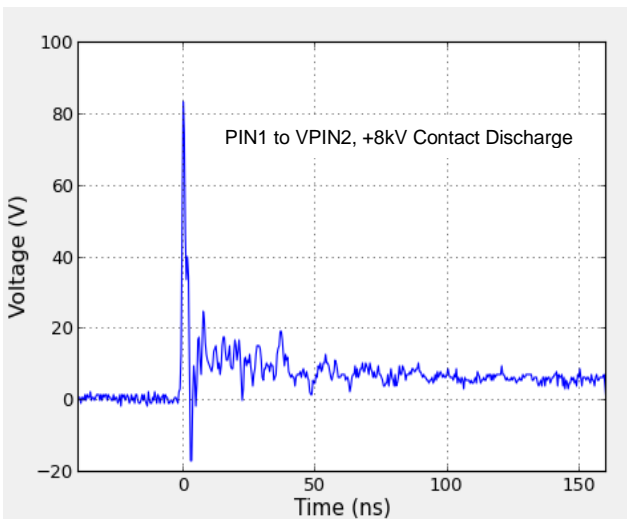


Figure 7 ESD response to IEC 61000-4-2

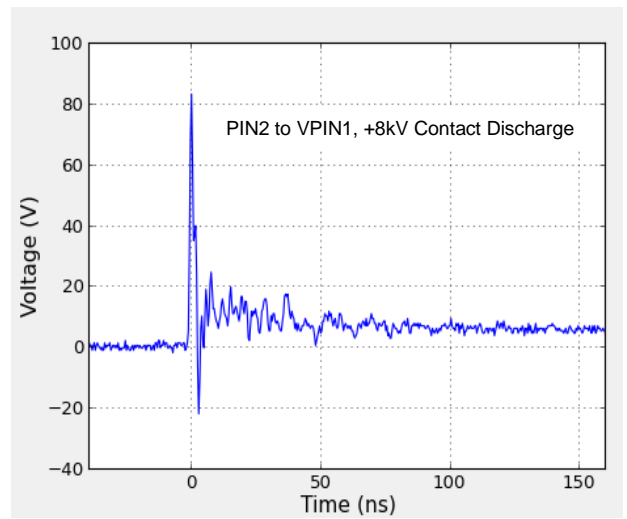
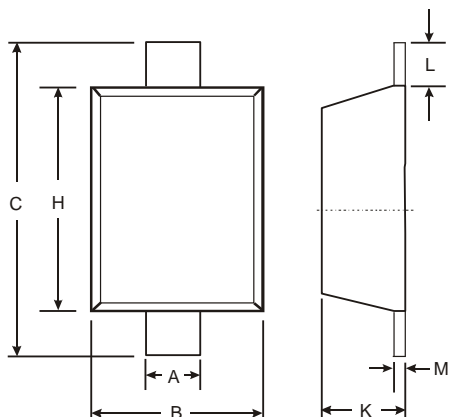


Figure 8 ESD response to IEC 61000-4-2

Package Outline Dimensions

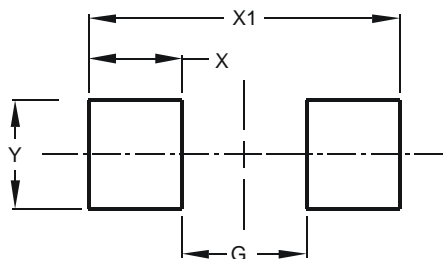
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



SOD523		
Dim	Min	Max
A	0.25	0.35
B	0.70	0.90
C	1.50	1.70
H	1.10	1.30
K	0.55	0.65
L	0.10	0.30
M	0.10	0.12
All Dimensions in mm		

Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



Dimensions	Value (in mm)
G	0.80
X	0.60
X1	2.00
Y	0.70

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