

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)**

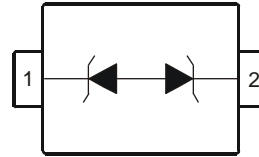
Mechanical Data

- 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

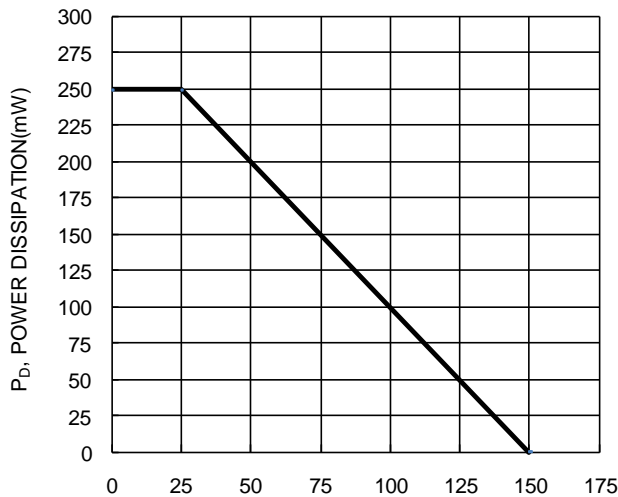
Thermal Characteristics

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

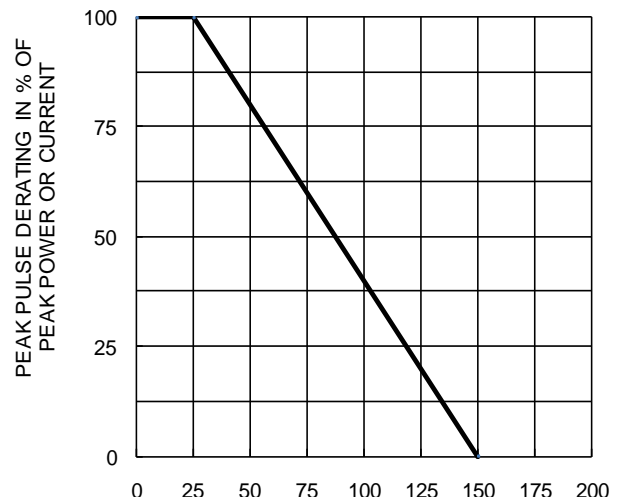
Electrical Characteristics @T_A = 25°C unless otherwise specified

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

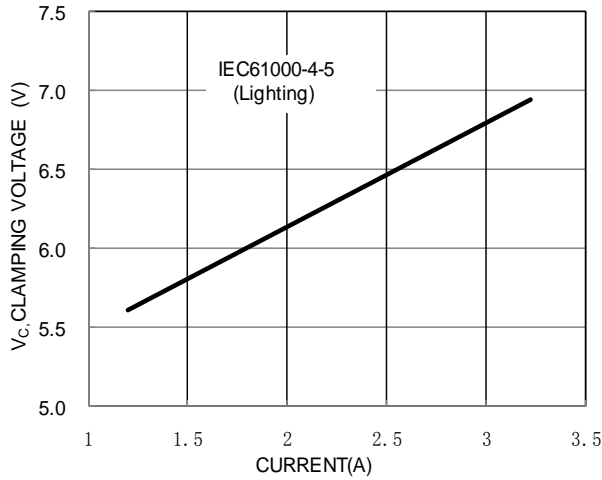


Figure 3. Clamping Voltage Characteristic

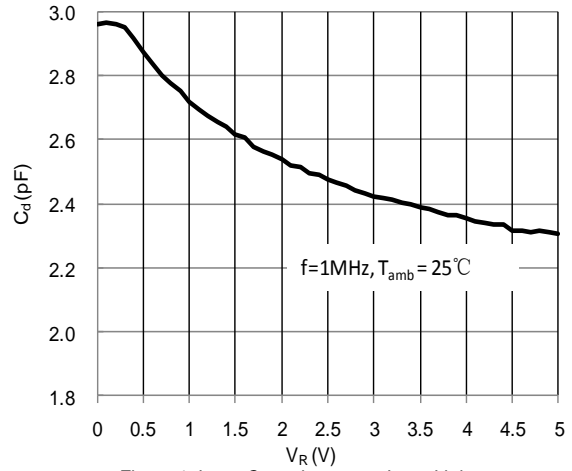


Figure 4. Input Capacitance vs. Input Voltage

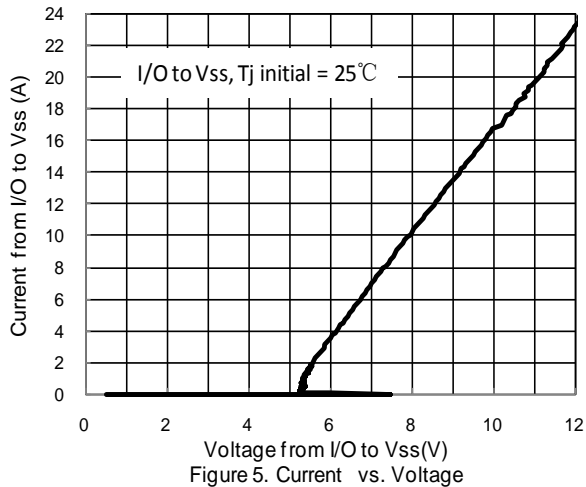


Figure 5. Current vs. Voltage

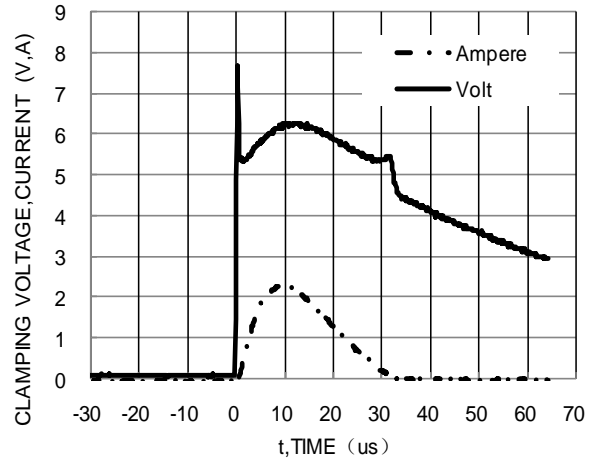


Figure 6. Waveform of Clamping Voltage, Current vs. Time(8/20us, I/O to Vss)

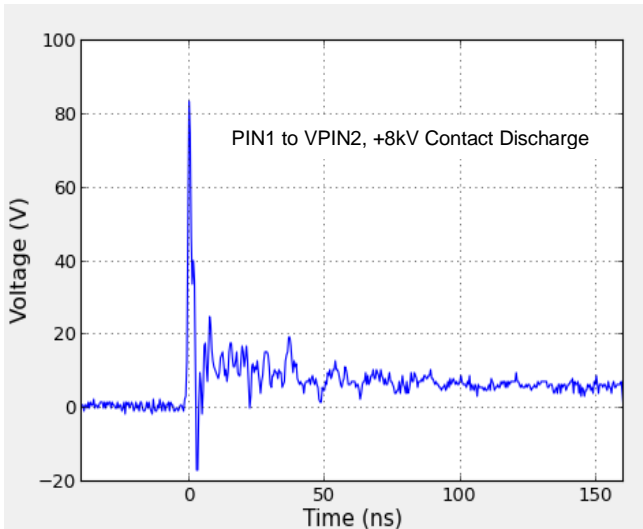


Figure 7 ESD response to IEC 61000-4-2

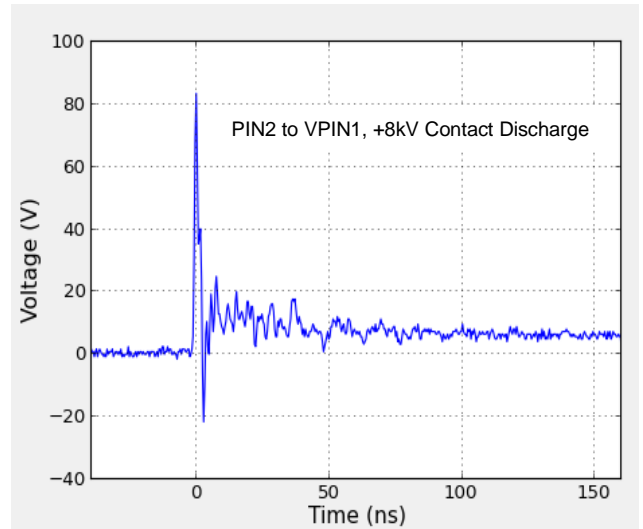
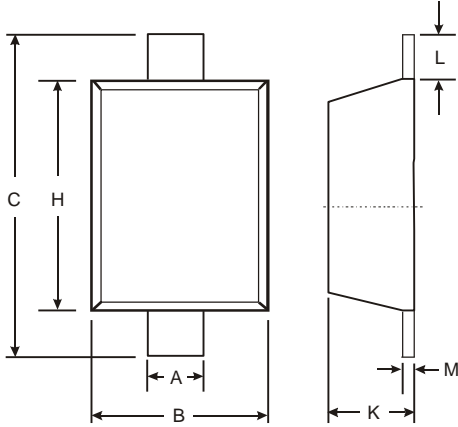


Figure 8 ESD response to IEC 61000-4-2

Package Outline Dimensions

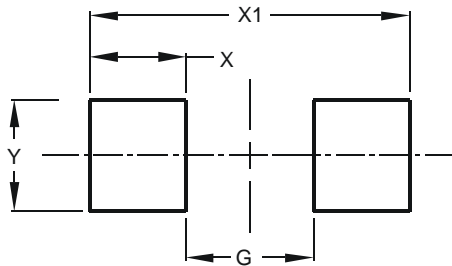
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



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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