


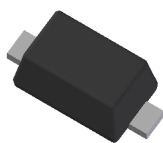
**LOW CAPACITANCE BIDIRECTIONAL TVS DIODE**
**Features**

- Provides ESD Protection per IEC 61000-4-2 Standard:  
Air  $\pm 30\text{kV}$ , Contact  $\pm 30\text{kV}$
- 1 Channel of ESD Protection
- 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)**

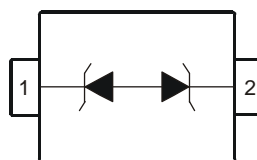
**Mechanical Data**

- 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 
- Weight: 0.001 grams (Approximate)

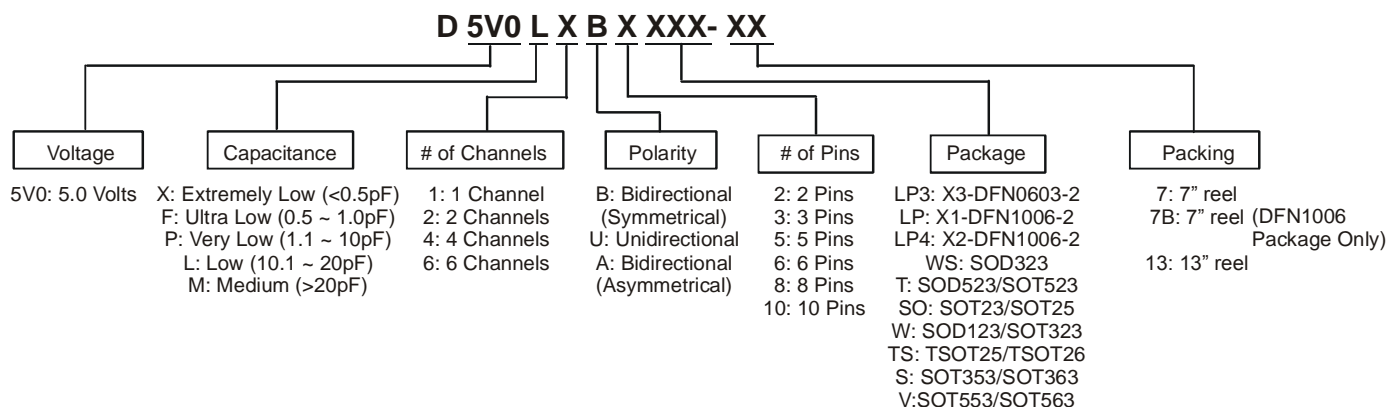
SOD523



Top View

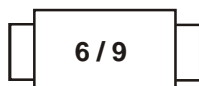


Device Schematic

**Ordering Information (Note 4)**


Part Number	Case	Packaging
D5V0L1B2T-7 (Note 5)	SOD523	3000/Tape & Reel

- Notes:
- No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  - See [http://www.diodes.com/quality/lead\\_free.html](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.
  - Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  - For packaging details, go to our website at <http://www.diodes.com/products/packages.html>
  - Dispensed every other cavity of the carrier tape.

**Marking Information**


6 / 9 = Product Type Marking Code

**Maximum Ratings** (@T<sub>A</sub> = +25°C unless otherwise specified.)

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation	P <sub>PP</sub>	84	W	8/20μs, per Figure 2
Peak Pulse Current	I <sub>PP</sub>	6	A	8/20μs, per Figure 2
ESD Protection – Contact Discharge	V <sub>ESD, Contact</sub>	±30	kV	IEC 61000-4-2 Standard
ESD Protection – Air Discharge	V <sub>ESD, Air</sub>	±30	kV	IEC 61000-4-2 Standard

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 6)	P <sub>D</sub>	275	mW
Thermal Resistance, Junction to Ambient (Note 6)	R <sub>θJA</sub>	454	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

**Electrical Characteristics** (@T<sub>A</sub> = +25°C unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Standoff Voltage	V <sub>RWM</sub>	-	-	5	V	-
Channel Leakage Current (Note 7)	I <sub>RM</sub>	-	10	100	nA	V <sub>RWM</sub> = 5V
Clamping Voltage, Positive Transients	V <sub>CL</sub>	-	7.0 8.7 10.5 11.5	9.0 10.7 12.0 14.0	V	I <sub>PP</sub> = 1A, t <sub>p</sub> = 8/20μs I <sub>PP</sub> = 3A, t <sub>p</sub> = 8/20μs I <sub>PP</sub> = 5A, t <sub>p</sub> = 8/20μs I <sub>PP</sub> = 6A, t <sub>p</sub> = 8/20μs
Breakdown Voltage	V <sub>BR</sub>	6	7	8	V	I <sub>R</sub> = 1mA
Differential Resistance	R <sub>DIF</sub>	-	0.2	-	Ω	I <sub>R</sub> = 1A, t <sub>p</sub> = 8/20μs
Channel Input Capacitance	C <sub>IN</sub>	-	15	20	pF	V <sub>R</sub> = 0V, 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.

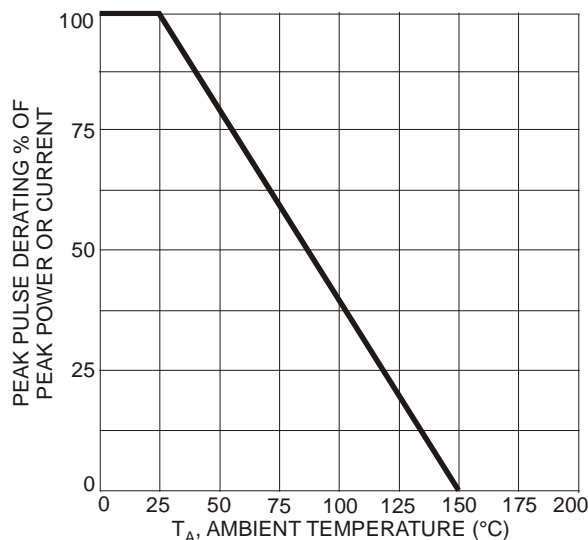


Fig. 1 Power Dissipation vs. Ambient Temperature

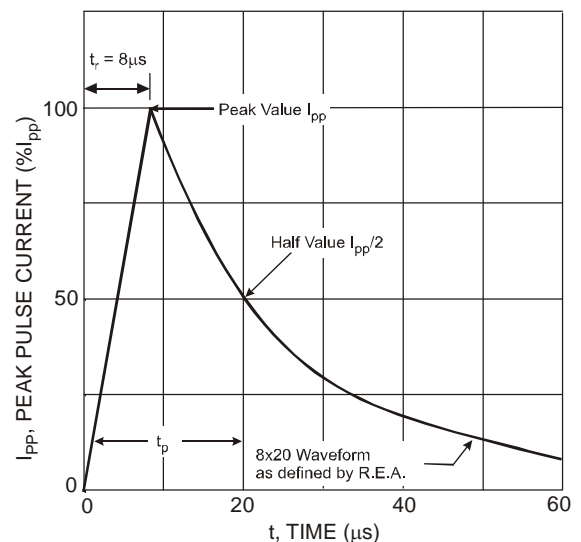


Fig. 2 Pulse Waveform

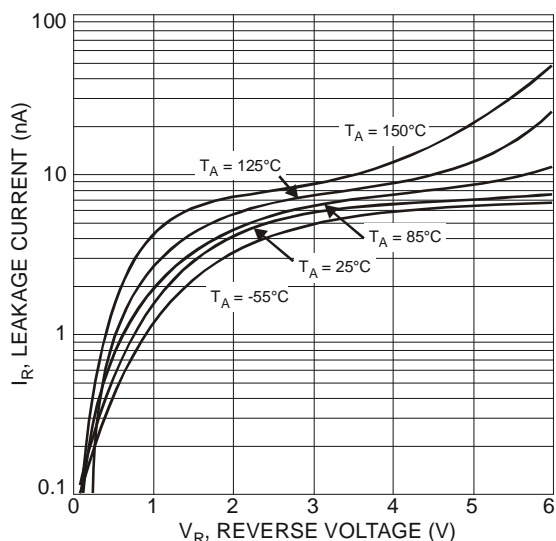


Fig. 3 Typical Reverse Characteristics

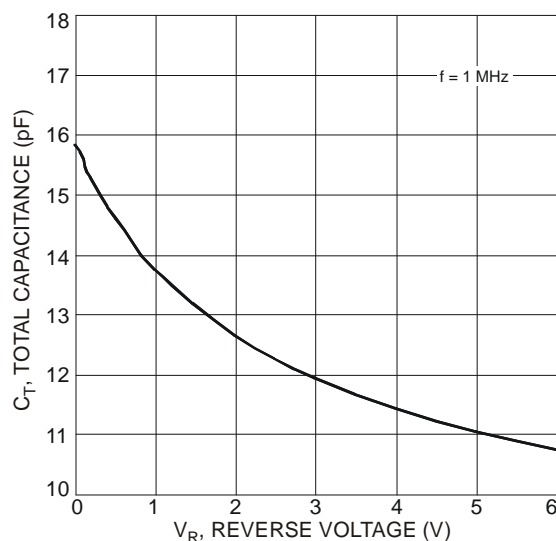
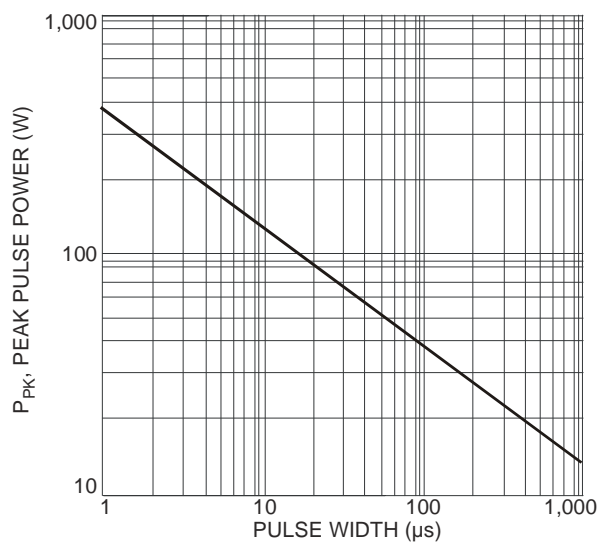
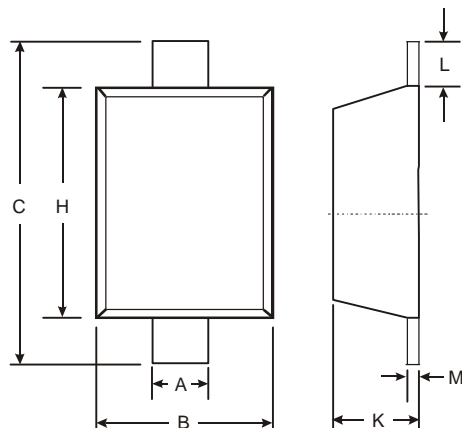


Fig. 4 Typical Total Capacitance vs. Reverse Voltage


 Fig. 5 Pulse Rating Curve vs. Pulse Width  
 Power is defined as  $P_{PK} = V_C \times I_{PP}$ 

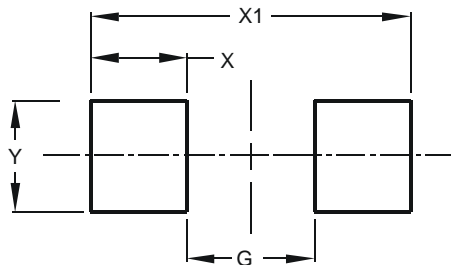
## Package Outline Dimensions

 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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