LOW CAPACITANCE BIDIRECTIONAL TVS DIODE

Features

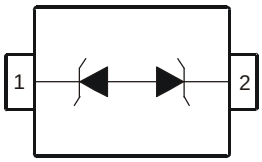
- Provides ESD Protection per IEC 61000-4-2 Standard: Air ±30kV, Contact ±30kV
- 1 Channel of ESD Protection
- High Peak Pulse Current per IEC 61000-4-5 Standard
- Low Channel Input Capacitance
- Typically Used in Cellular Handsets, Portable Electronics, Communication Systems, Computers and Peripherals
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **An automotive-compliant part is available under separate datasheet (DESD5V0S1BAQ)**

Mechanical Data

- Package: SOD323
- Package 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 e3
- Weight: 0.005 grams (Approximate)

SOD323

Top View



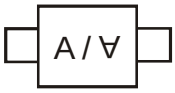
Device Schematic

Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
DESD5V0S1BA-7	SOD323	3000	Tape & Reel

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See https://www.diodes.com/quality/lead-free/ 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 https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information



A / ∀ = Product Type Marking Code

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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation	P_{PP}	130	W	8/20µs, per Figure 1
Peak Pulse Current	I_{PP}	12	A	8/20µs, per Figure 1
ESD Protection – Contact Discharge	$V_{ESD\_Contact}$	±30	kV	IEC 61000-4-2 Standard
ESD Protection – Air Discharge	V_{ESD_Air}	±30	kV	IEC 61000-4-2 Standard

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 5)	P_D	200	mW
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	625	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 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 6)	I_{RM}	—	5	100	nA	V_{RWM} = 5V
Clamping Voltage	V_{CL}	— —	— —	10 14	V	I_{PP} = 1A, tp = 8/20µs I_{PP} = 12A, tp = 8/20µs
Breakdown Voltage	V_{BR}	5.5	—	9.5	V	I_R = 1mA
Differential Resistance	R_{DIF}	—	0.4	—	Ω	I_R = 10A, tp = 8/20µs
Channel Input Capacitance	C_T	—	35	45	pF	V_R = 0, f = 1MHz

Notes: 5. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes Incorporated's suggested pad layout, which can be found on our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.
6. Short duration pulse test used to minimize self-heating effect.

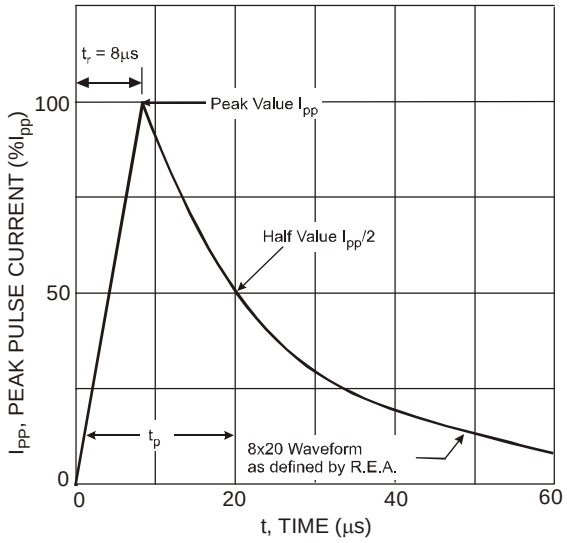


Figure 1. Pulse Waveform

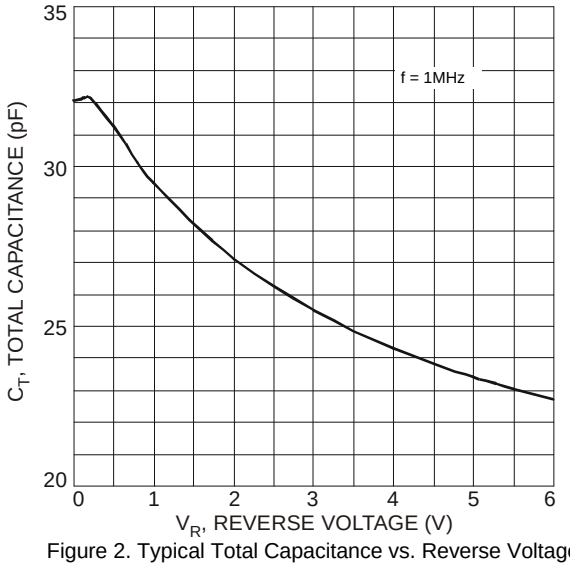


Figure 2. Typical Total Capacitance vs. Reverse Voltage

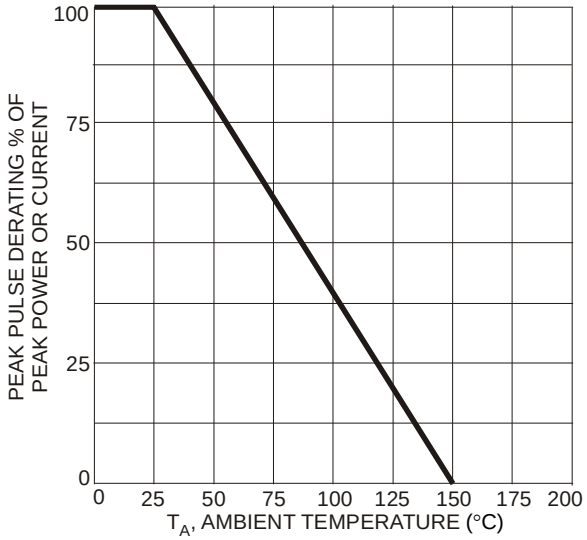


Figure 3. Power Dissipation vs. Ambient Temperature

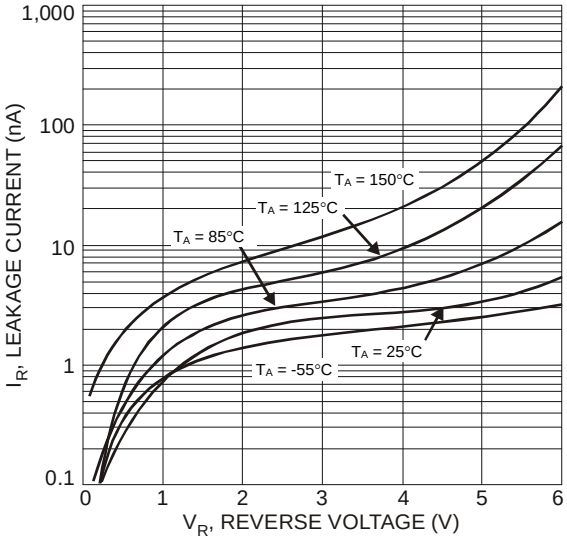
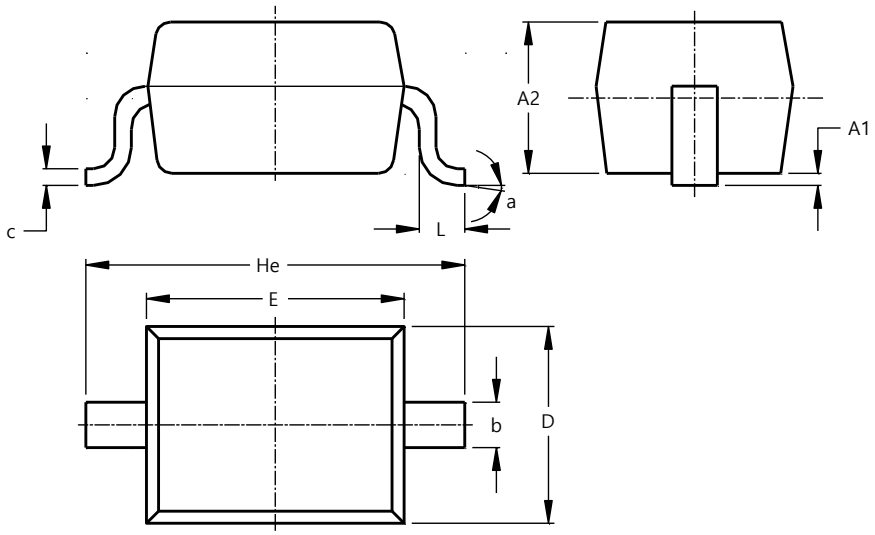


Figure 4. Typical Reverse Characteristics

Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOD323

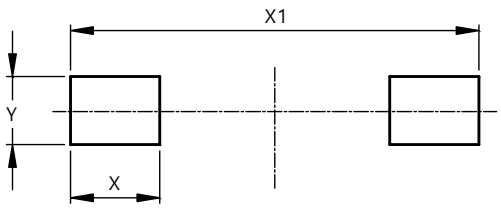


SOD323			
Dim	**Min**	**Max**	**Typ**
A1	--	0.10	0.05
A2	1.00	1.10	1.05
b	0.25	0.35	0.30
c	0.10	0.15	0.11
D	1.20	1.40	1.30
E	1.60	1.80	1.70
He	2.30	2.70	2.50
L	0.20	0.40	0.30
a	0º	8º	--
All Dimensions in mm			

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOD323



Dimensions	Value (in mm)
X	0.590
X1	2.700
Y	0.450

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