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SD09C

400W BIDIRECTIONAL TVS DIODE

Product Summary

V_{BR} (Min)	I_{PP} (Max)	C_T (Typ)
10V	20A	68pF

Description

This new generation TVS is designed to protect sensitive electronics from the damage due to ESD. The combination of small size and high ESD surge capability makes it ideal for use in portable applications such as cellular phones, digital cameras, and MP3 players.

Features

- Provides ESD Protection per IEC 61000-4-2 Standard: Air ±30kV, Contact ±30kV
- Bidirectional Configuration
- Ultra Low Channel Input Capacitance
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative. https://www.diodes.com/quality/product-definitions/**

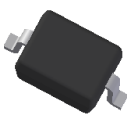
Applications

- Cellular Handsets
- Portable Electronics
- Computers and Peripheral

Mechanical Data

- Case: SOD323
- 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 e3
- Weight: 0.004 grams (Approximate)

SOD323



Top View



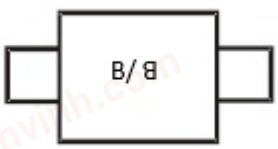
Device Schematic

Ordering Information (Note 4)

Part Number	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
SD09C-7	Commercial	B/B (Reversed)	7	8	3,000/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



B/B (Reversed) = Product Type Marking Code

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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power	P_{PP}	400	W	8/20µs, per Figure 3
Peak Pulse Current	I_{PP}	20	A	8/20µs, per Figure 3
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	250	mW
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	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}	—	—	9.0	V	—
Channel Leakage Current (Note 6)	I_{RM}	—	—	1	µA	V_{RWM} = 9.0V
Breakdown Voltage	V_{BR}	10.0	—	—	V	I_R = 1mA
Clamping Voltage	V_{CL}	—	—	14.5	V	I_{PP} = 1A, t_p = 8/20µs
		—	—	17		I_{PP} = 10A, t_p = 8/20µs
		—	—	20.0		I_{PP} = 20A, t_p = 8/20µs
Channel Input Capacitance	C_T	—	68	—	pF	V_R = 0V, f = 1MHz

Notes:
5. Device mounted on FR-4 PCB pad layout (2oz copper) as shown in Diodes Incorporated's package outline PDFs, which can be found on our website at http://www.diodes.com/package-outlines.html.
6. Short duration pulse test used to minimize self-heating effect.

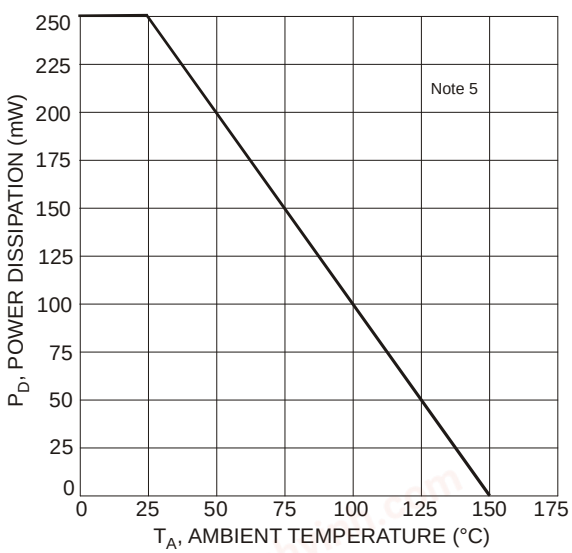


Figure 1 Power Derating Curve

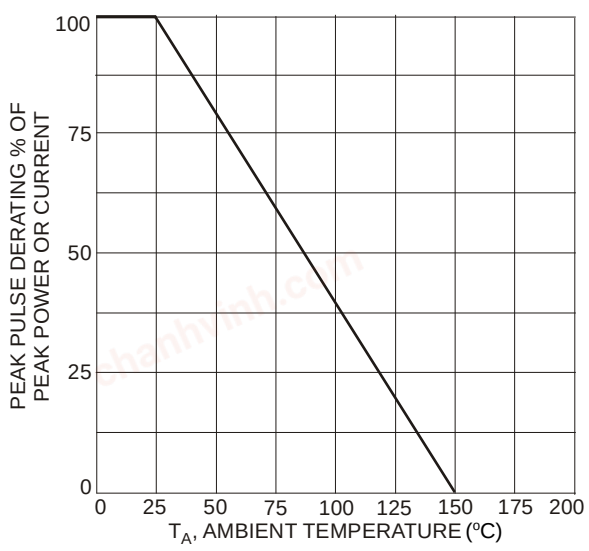


Figure 2 Pulse Derating Curve

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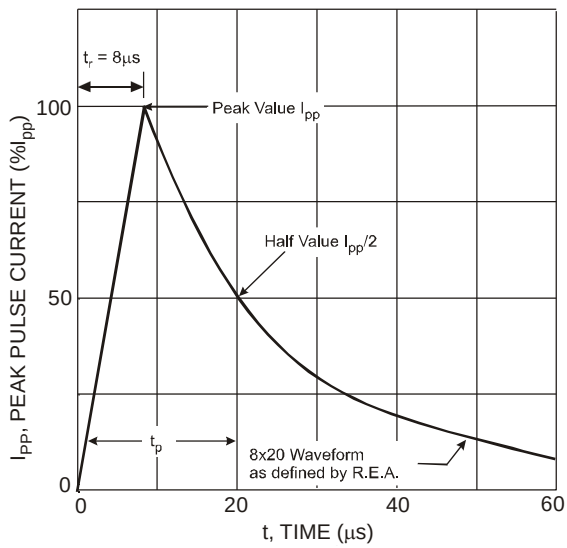


Figure 3 Typical 8 × 20µs Pulse Waveform

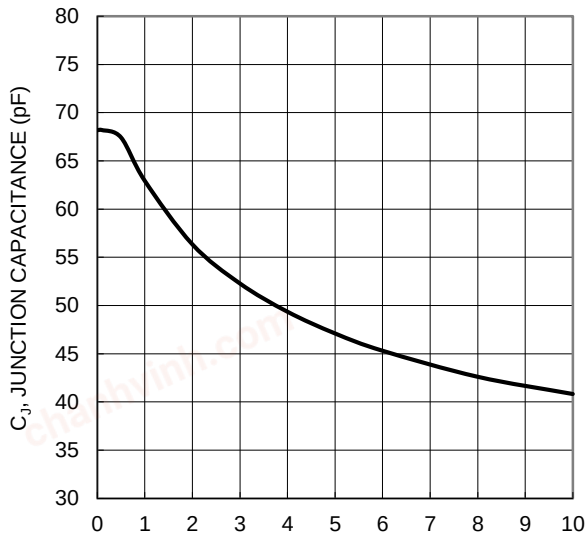


Figure 4 Typical Junction Capacitance

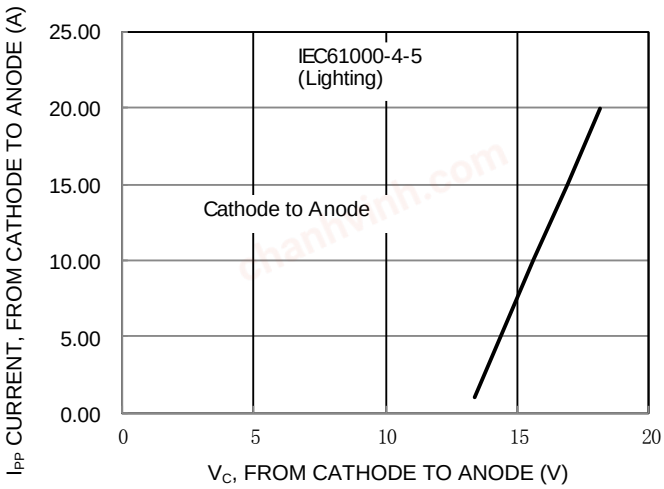


Figure 5 Clamping Voltage Characteristic

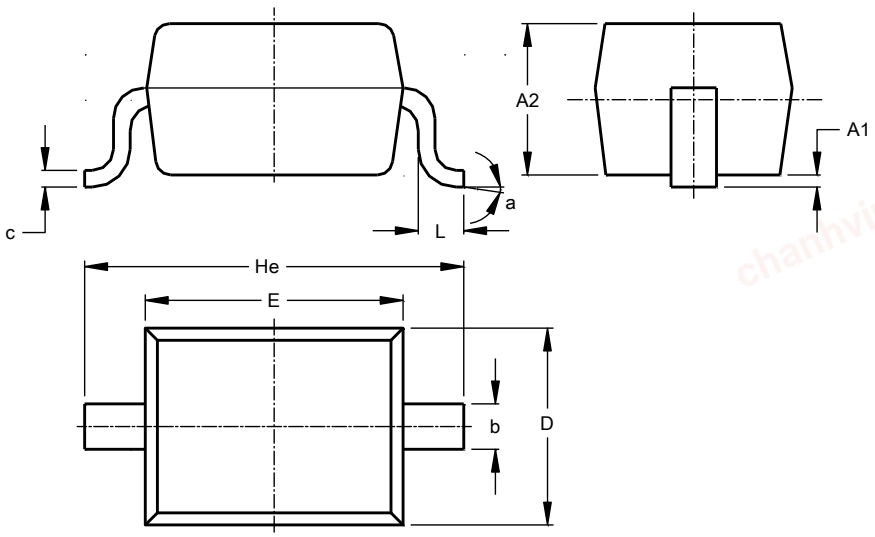
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Package Outline Dimensions

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

SOD323

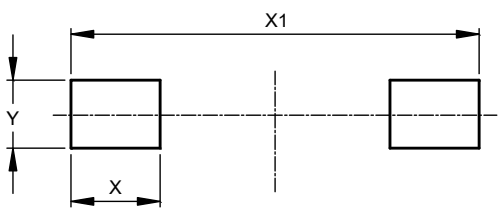


SOD323			
Dim	**Min**	**Max**	**Typ**
A1	--	0.10	0.05
A2	1.00	1.10	1.05
b	0.25	0.35	0.30
c	0.10	0.15	0.11
D	1.20	1.40	1.30
E	1.60	1.80	1.70
He	2.30	2.70	2.50
L	0.20	0.40	0.30
a	0º	8º	--
All Dimensions in mm			

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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