

## Product Summary

VBR (MIN)	IPP (MAX)	CT (TYP)
28.9V	6A	17.3pF

## Features and Benefits

- Provides ESD Protection per IEC 61000-4-2 Standard: Air  $\pm 25\text{kV}$ , Contact  $\pm 22\text{kV}$
- One Channel of ESD Protection
- Low Channel Input Capacitance
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The DIODES™ D24V0S1B2TQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**

<https://www.diodes.com/quality/product-definitions/>

## Description and Applications

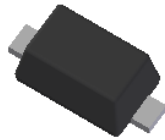
This new generation TVS is designed to protect sensitive electronics from the damage due to ESD. The combination of small size and high ESD surge capability makes it ideal for use in portable applications such as:

- USB modules
- HDMI ports
- LVDs

## Mechanical Data

- Package: SOD523
- 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 Lead-Frame (Lead-Free Plating). Solderable per MIL-STD-202, Method 208 (e3)
- Weight: 0.001 grams (Approximate)

SOD523



Top View



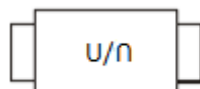
Device Schematic

## Ordering Information (Note 4)

Part Number	Package	Marking	Reel Size (inches)	Tape Width (mm)	Packing	
					Qty.	Carrier
D24V0S1B2TQ-7	SOD523	U/U Inverted	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



U/n = 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>	360	W	8/20μs, per Figure 1
Peak Pulse Current	I <sub>PP</sub>	6	A	8/20μs, per Figure 1
ESD Protection — Contact Discharge	V <sub>ESD_Contact</sub>	±22	kV	IEC 61000-4-2 Standard
ESD Protection — Air Discharge	V <sub>ESD_Air</sub>	±25	kV	IEC 61000-4-2 Standard

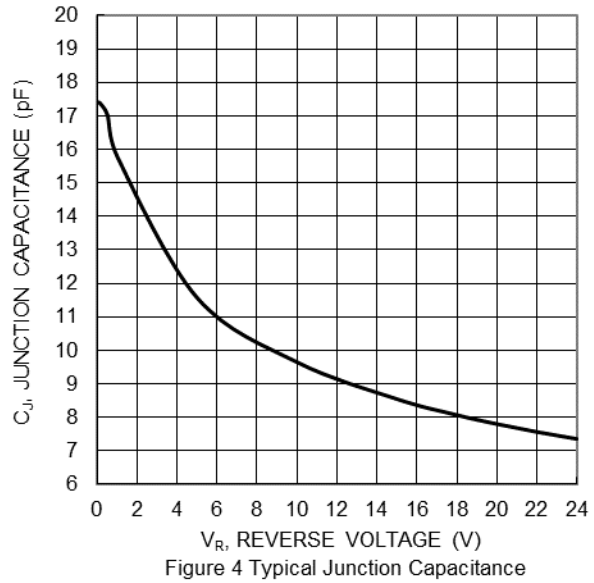
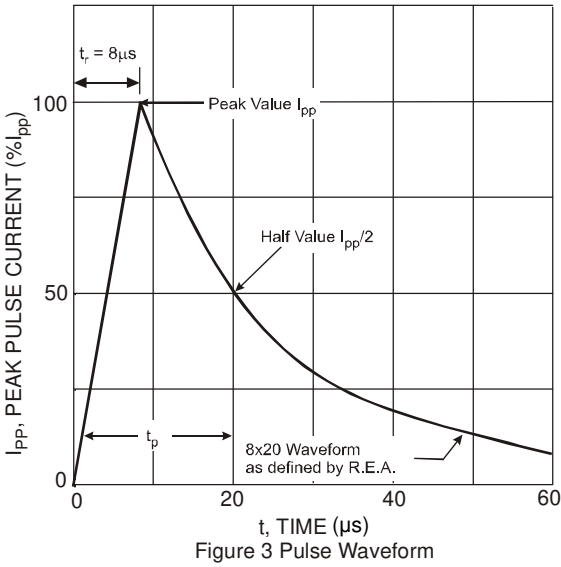
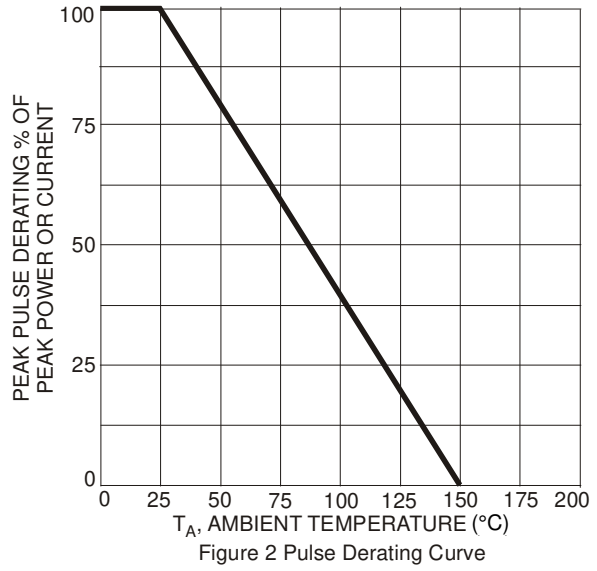
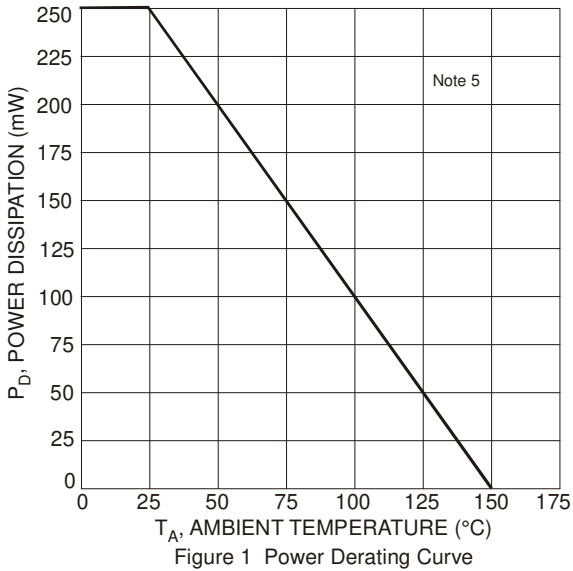
**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 5)	P <sub>D</sub>	450	mW
Thermal Resistance, Junction to Ambient (Note 5)	R <sub>θJA</sub>	350	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 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>	—	—	24	V	—
Channel Leakage Current (Note 6)	I <sub>RM</sub>	—	—	200	nA	V <sub>RWM</sub> = 24V
Clamping Voltage, IEC 61000-4-5	V <sub>CL</sub>	—	—	40	V	I <sub>PP</sub> = 1A, t <sub>P</sub> = 8/20μs
Breakdown Voltage	V <sub>BR</sub>	—	—	60	V	I <sub>PP</sub> = 6A, t <sub>P</sub> = 8/20μs
		28.9	—	33.7	V	I <sub>R</sub> = 1mA
Channel Input Capacitance	C <sub>T</sub>	—	17.3	—	pF	V <sub>R</sub> = 0V, f = 1MHz

Notes: 5. Device mounted on FR-4 PCB pad layout (2oz copper), 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.

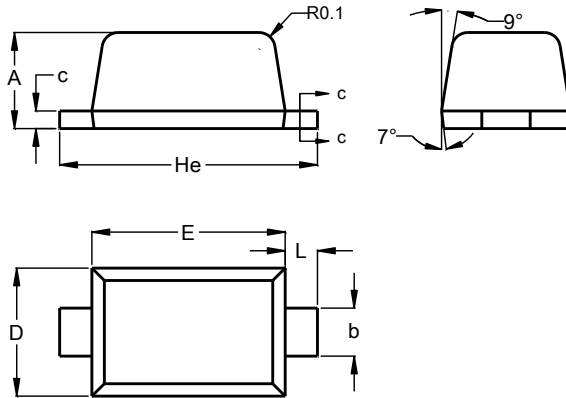


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## Package Outline Dimensions

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

SOD523

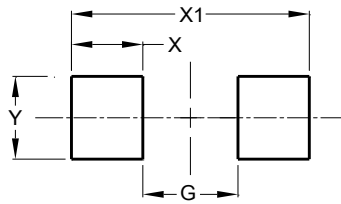


SOD523		
Dim	Min	Max
A	0.55	0.65
b	0.26	0.34
c	0.11	0.17
D	0.75	0.85
E	1.15	1.25
He	1.55	1.65
L	0.10	0.30
All Dimensions in mm		

## Suggested Pad Layout

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

SOD523



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

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