

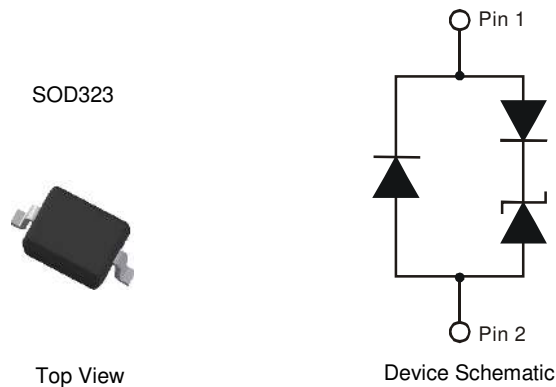
## Features

- IEC 61000-4-2 (ESD): Air  $\pm 30$ kV, Contact  $\pm 25$ kV
- 1 Channel of ESD Protection
- Low Channel Input Capacitance of 0.85pF Typical
- Typically Used at High Speed Ports such as USB 2.0, IEEE1394, Serial ATA, DVI™, HDMI™, PCI™
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The D1213A-01WSQ 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/>

## 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
- Weight: 0.004 grams (Approximate)

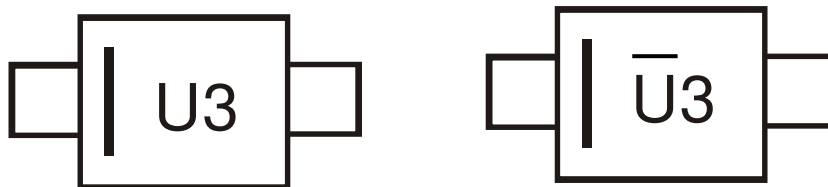


## Ordering Information (Note 4)

Part Number	Case	Packaging
D1213A-01WSQ-7	SOD323	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



"U3" or "U $\bar{3}$ " = Product Type Marking Code  
Bar Denotes Pin 1

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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Current	I <sub>PP</sub>	5	A	8/20μs, Per Figure 3
ESD Protection – Contact Discharge	V <sub>ESD_CONTACT</sub>	±25	kV	Standard IEC 61000-4-2
ESD Protection – Air Discharge	V <sub>ESD_AIR</sub>	±30	kV	Standard IEC 61000-4-2

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 5)	P <sub>D</sub>	250	mW
Thermal Resistance, Junction to Ambient (Note 5)	R <sub>θJA</sub>	500	°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 Working Voltage	V <sub>RWM</sub>	—	—	3.3	V	—
Reverse Current (Note 6)	I <sub>R</sub>	—	0.1	1.0	μA	V <sub>R</sub> = V <sub>RWM</sub> = 3.3V
Reverse Breakdown Voltage	V <sub>BR</sub>	6.0	—	—	V	I <sub>R</sub> = 1mA
Forward Voltage	V <sub>F</sub>	0.6	0.8	0.95	V	I <sub>F</sub> = 8mA
Reverse Clamping Voltage, Positive Transients	V <sub>CL1</sub>	—	10.0	—	V	I <sub>PP</sub> = 1A, t <sub>P</sub> = 8/20μs
Reverse Clamping Voltage, Negative Transients	V <sub>CL2</sub>	—	-1.7	—	V	I <sub>PP</sub> = -1A, t <sub>P</sub> = 8/20μs
Dynamic Resistance	R <sub>DYN</sub>	—	0.9	—	Ω	I <sub>R</sub> = 1A, t <sub>P</sub> = 8/20μs
Capacitance	C <sub>T</sub>	—	0.85	1.2	pF	V <sub>R</sub> = 1.65V, 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 <http://www.diodes.com/package-outlines.html>.
  6. Short duration pulse test used to minimize self-heating effect.

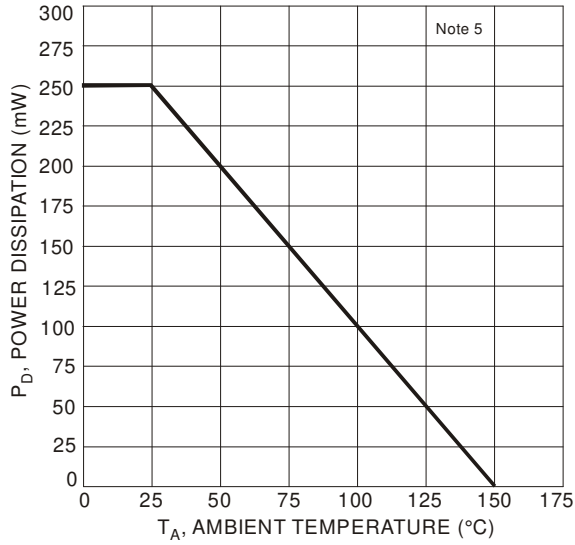


Figure 1 Power Derating Curve

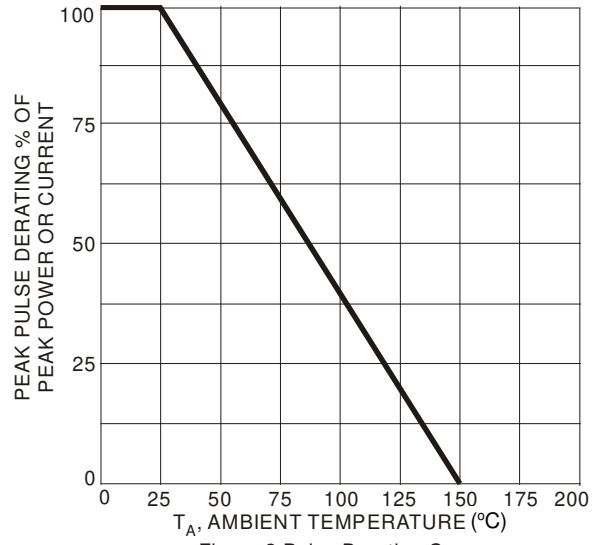


Figure 2 Pulse Derating Curve

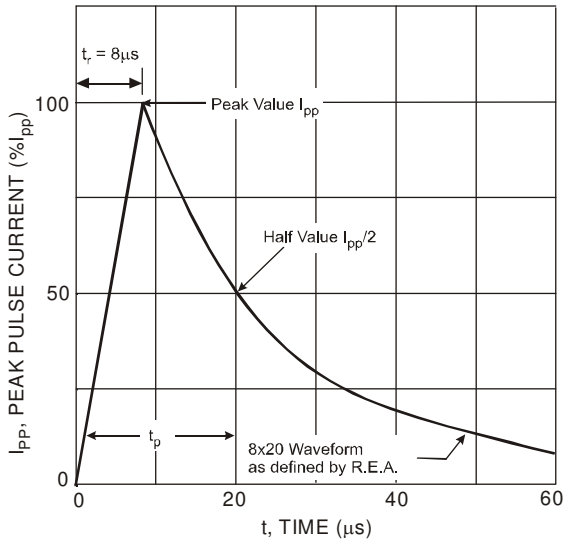


Figure 3 Pulse Waveform

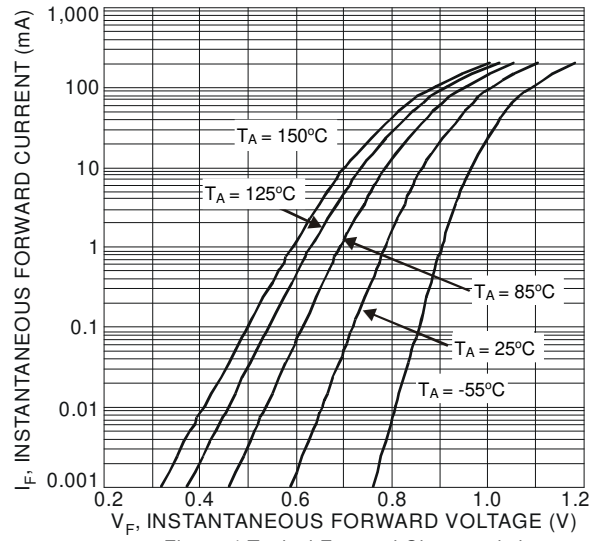


Figure 4 Typical Forward Characteristics

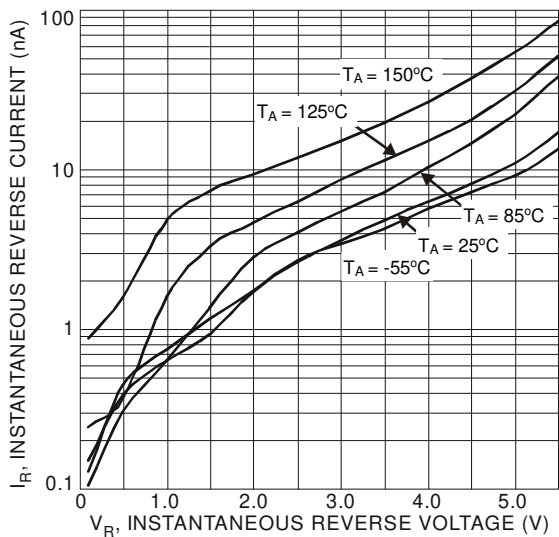


Figure 5 Typical Reverse Characteristics

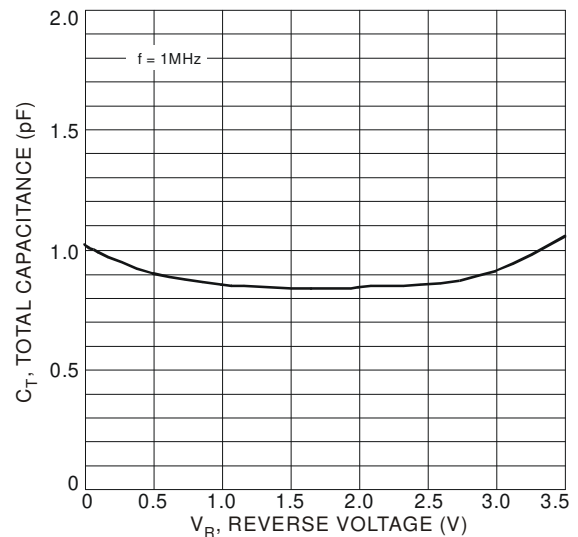
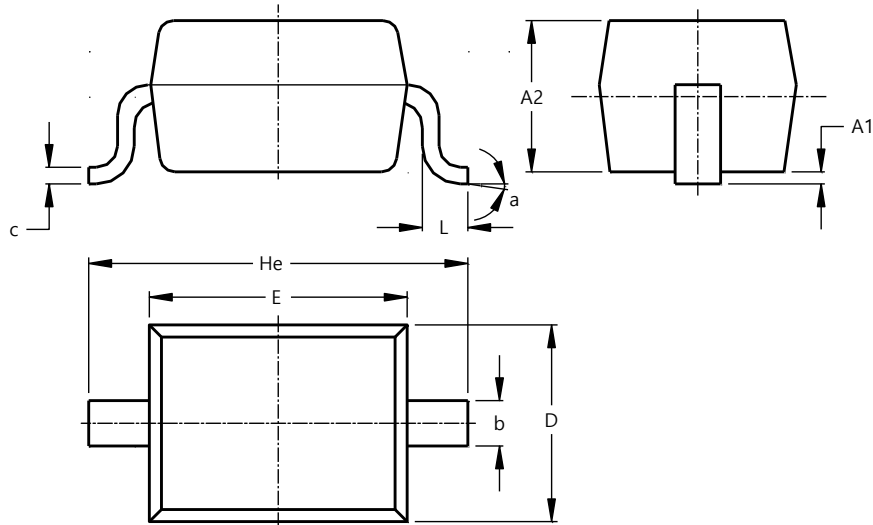


Figure 6 Typical Total Capacitance vs. Reverse Voltage

## Package Outline Dimensions

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

### SOD323

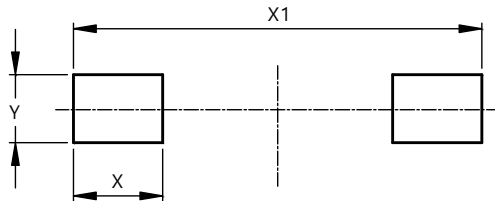


SOD323			
Dim	Min	Max	Typ
A1	--	0.10	0.05
A2	1.00	1.10	1.05
b	0.25	0.35	0.30
c	0.10	0.15	0.11
D	1.20	1.40	1.30
E	1.60	1.80	1.70
He	2.30	2.70	2.50
L	0.20	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

## 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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