

## Product Summary

V <sub>BR</sub> (Min)	I <sub>PP</sub> (Max)	C <sub>T</sub> (typ)
26.7V	7A	24pF

## 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.

## Applications

- Cellular handsets
- Portable electronics
- Computers and peripherals

## 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)**
- The DIODES™ SD24CQ 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

- 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 ⑥3
- Weight: 0.004 grams (Approximate)

SOD323



Top View



Device Schematic

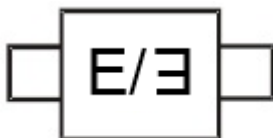
## Ordering Information (Note 4)

Part Number	Package	Marking	Reel Size (inches)	Tape Width (mm)	Packing	
					Qty.	Carrier
SD24CQ-7	SOD323	E/3	7	8	3,000	Tape & Reel

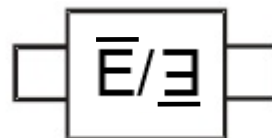
- Notes:
- No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
  - See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  - Halogen- 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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

## Marking Information

Option A: Made in Shanghai



Option B: Made in Chengdu



**E/3** = Product Type Marking Code

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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power	P <sub>PP</sub>	315	W	8/20μs, per Figure 3
Peak Pulse Current	I <sub>PP</sub>	7	A	8/20μs, per Figure 3
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

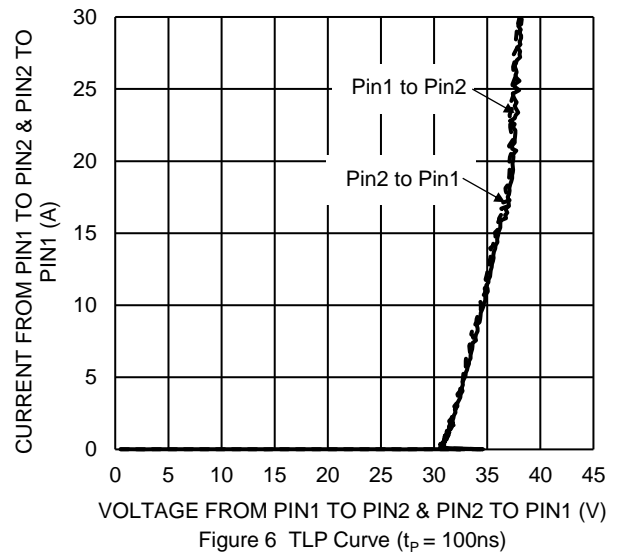
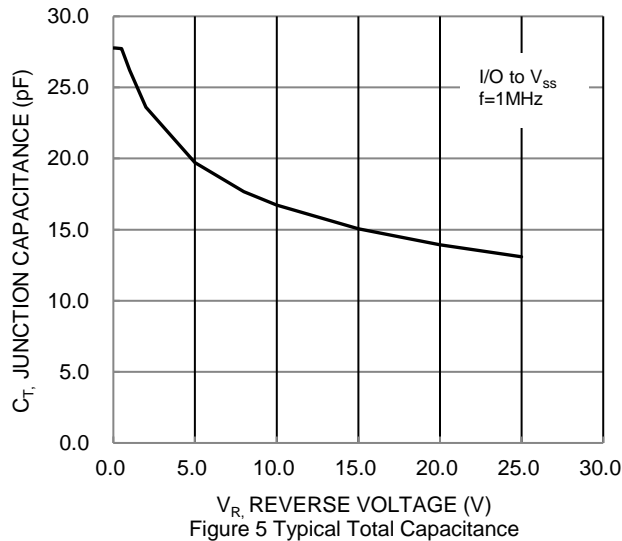
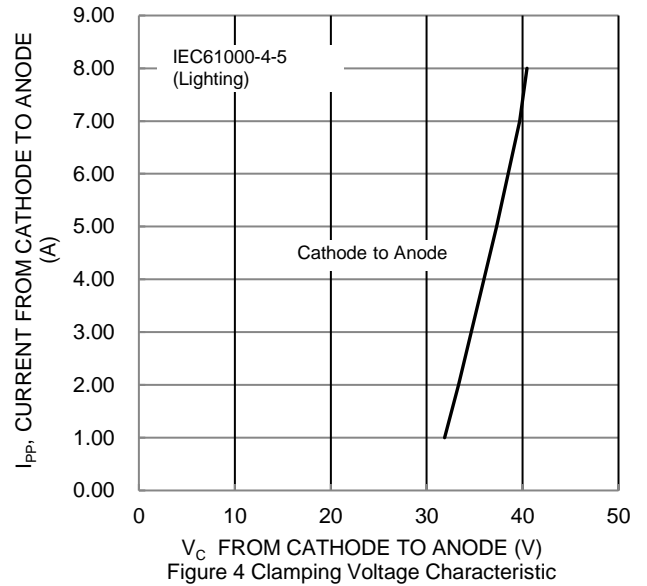
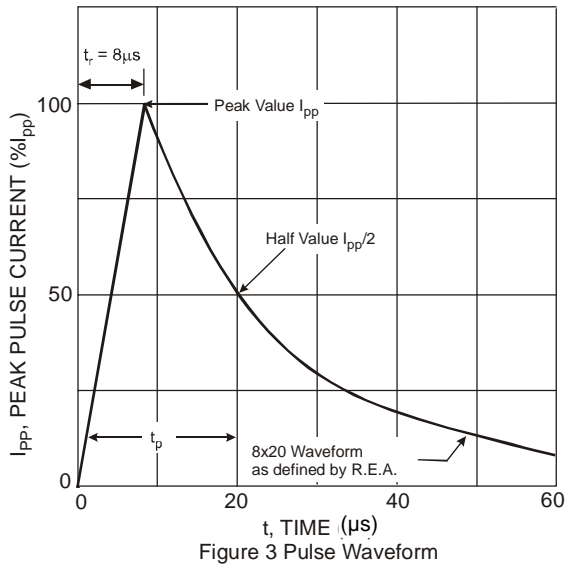
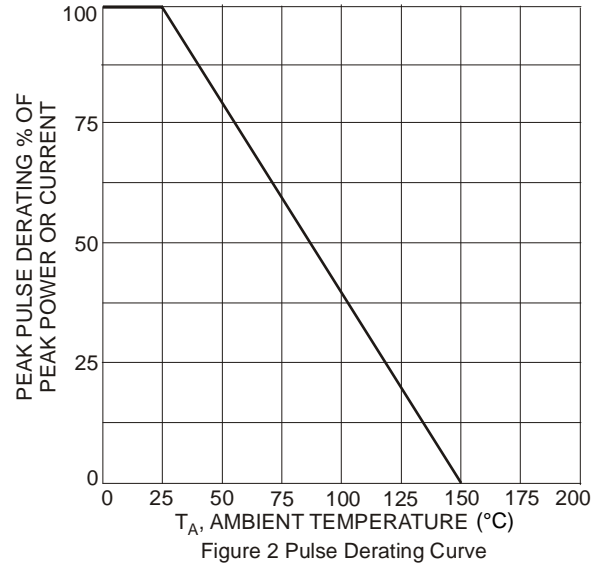
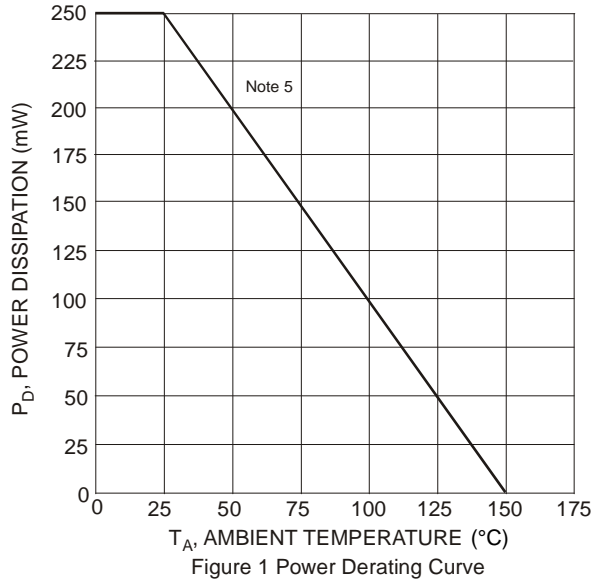
Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 5)	P <sub>D</sub>	250	mW
Thermal Resistance, Junction to Ambient (Note 5)	R <sub>θJA</sub>	500	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions	
Reverse Standoff Voltage	V <sub>RWM</sub>	—	—	24.0	V	—	
Channel Leakage Current (Note 6)	I <sub>RM</sub>	—	5	500	nA	V <sub>R</sub> = 24V	
Breakdown Voltage	V <sub>BR</sub>	26.7	—	—	V	I <sub>R</sub> = 1mA	
Clamping Voltage	V <sub>CL</sub>	—	—	35.0	V	I <sub>PP</sub> = 1A, t <sub>p</sub> = 8/20μs	
		—	—	42.0		I <sub>PP</sub> = 5A, t <sub>p</sub> = 8/20μs	
		—	—	45.0		I <sub>PP</sub> = 7A, t <sub>p</sub> = 8/20μs	
Clamping Voltage (Note 7)		—	36.1	—		I <sub>PP</sub> = 16A, TLP= 10/100ns	
		—	37.9	—		I <sub>PP</sub> = 30A, TLP= 10/100ns	
Channel Input Capacitance	C <sub>T</sub>	—	24	—	pF	V <sub>R</sub> = 0V, f = 1MHz	

Notes:

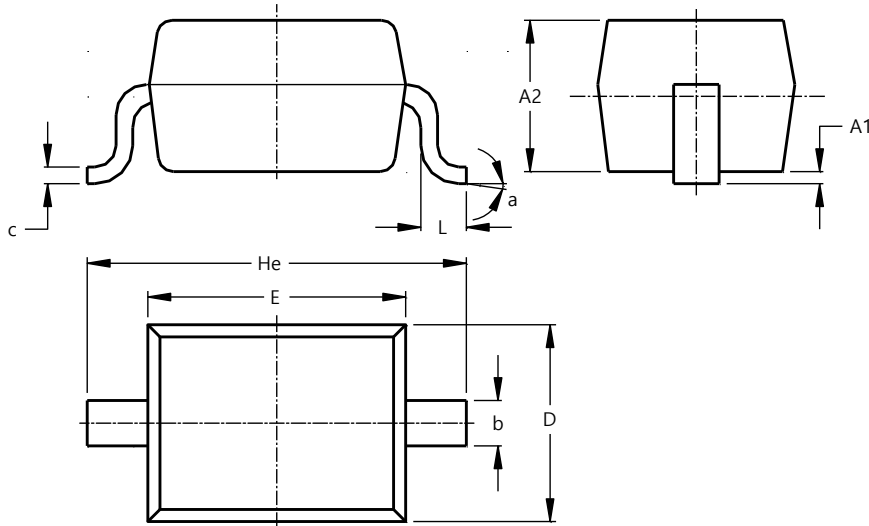
- Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes Incorporated's suggested pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.
- Short duration pulse test used to minimize self-heating effect.
- Transmission Line Pulse Test (TLP) settings: t<sub>p</sub> = 100ns, t<sub>r</sub> = 10ns, I<sub>TLP</sub> and V<sub>TLP</sub> averaging window is from 70ns to 90ns.



## Package Outline Dimensions

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

**SOD323**

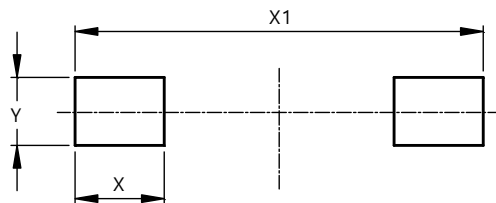


SOD323			
Dim	Min	Max	Typ
A1	--	0.10	0.05
A2	1.00	1.10	1.05
b	0.25	0.35	0.30
c	0.10	0.15	0.11
D	1.20	1.40	1.30
E	1.60	1.80	1.70
He	2.30	2.70	2.50
L	0.20	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

## 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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