

Product Summary

V_{BR} min	I_{pp} max	C_{in} typ
5.0V	12A	70pF

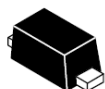
Description

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 Peripheral

SOD923



Top View

Features

- Provides ESD Protection per IEC 61000-4-2 Standard:
Air ±30kV, Contact ±30kV
- 1 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)**

Mechanical Data

- Case: SOD923
- 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 (e3)
(Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Weight: 0.001 grams (Approximate)



Device Schematic

Ordering Information (Note 4)

Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
D3V3M1U2S9-7	Standard	TN	7	8	10,000/Tape & Reel

- Notes:
- No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
 - See http://www.diodes.com/quality/lead_free.html 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 <http://www.diodes.com/products/packages.html>.

Marking Information



TN = Product Type Marking Code
Line Denotes Pin 1 or Cathode Side

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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation	P _{pp}	120	W	8/20μs, Figure 3
Peak Pulse Current	I _{pp}	12	A	8/20μs, 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	$^{\circ}\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	$^{\circ}\text{C}$

Electrical Characteristics (@ $T_A = +25^{\circ}\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Standoff Voltage	V_{RWM}	—	—	3.3	V	—
Channel Leakage Current (Note 6)	I_{RM}	—	—	2.0	μA	$V_{RWM} = 3.3\text{V}$
Clamping Voltage, IEC 61000-4-5	V_{CL}	—	—	8	V	$I_{PP} = 1\text{A}, t_p = 8/20\mu\text{S}$
		—	—	10		$I_{PP} = 12\text{A}, t_p = 8/20\mu\text{S}$
Breakdown Voltage	V_{BR}	5.0	—	—	V	$I_R = 1\text{mA}$
Channel Input Capacitance	C_T	—	70	80	pF	$V_R = 0\text{V}, f = 1\text{MHz}$

Notes: 5. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes, Inc. suggested pad layout AP02001, which can be found on our website at <http://www.diodes.com>.
 6. Short duration pulse test used to minimize self-heating effect.

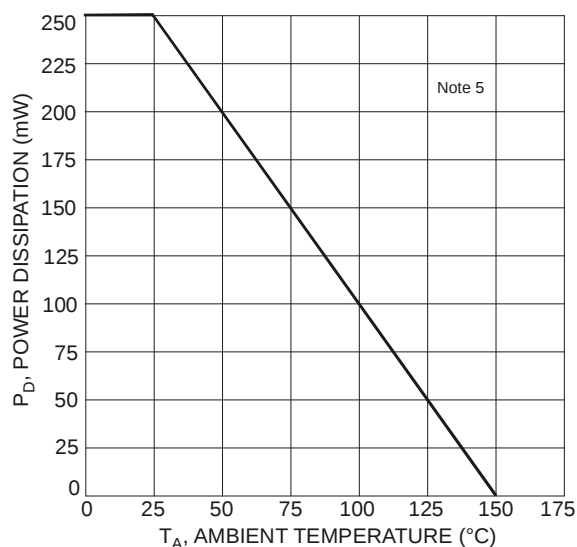


Figure 1 Power Derating Curve

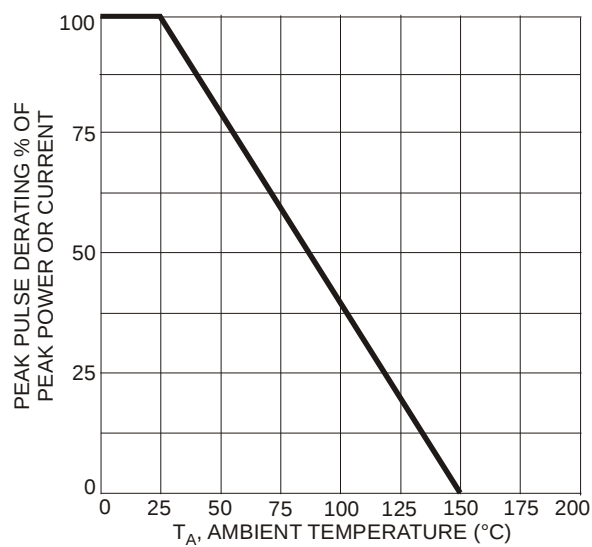


Figure 2 Pulse Derating Curve

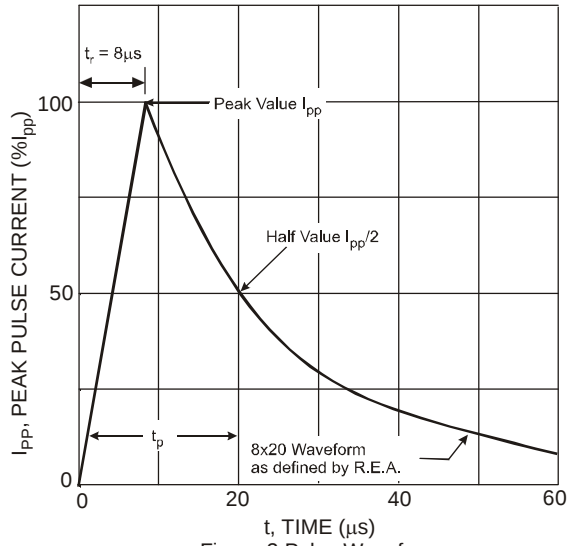


Figure 3 Pulse Waveform

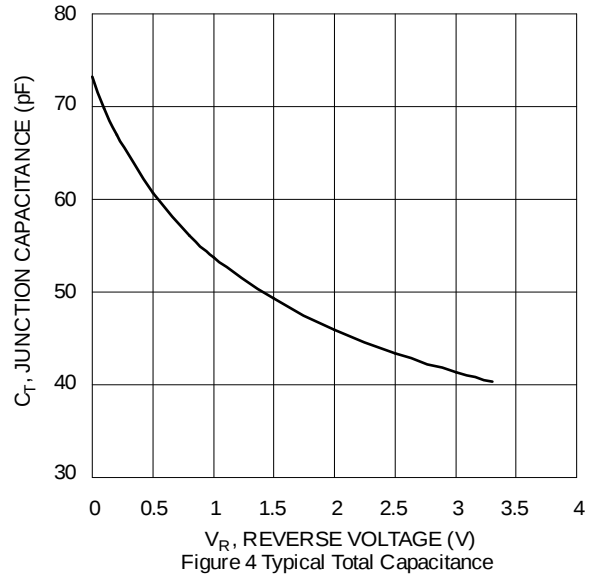
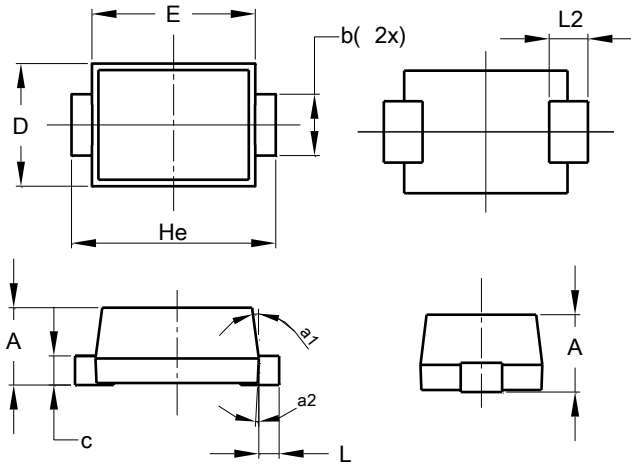


Figure 4 Typical Total Capacitance

Package Outline Dimensions

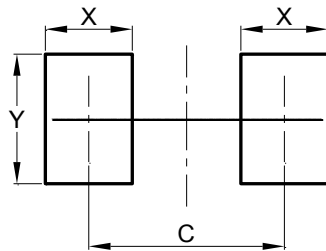
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



SOD923 (0.3mm Lead Width)			
Dim	Min	Max	Typ
A	0.34	0.40	0.37
b	0.25	0.35	0.30
c	0.05	0.15	0.10
D	0.55	0.65	0.60
E	0.75	0.85	0.80
He	0.95	1.05	1.00
L	0.05	0.15	0.10
L2	0.190 REF		
a1	0°	8°	7°
a2	2°	4°	3°
All Dimensions in mm			

Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for latest version.



Dimensions	Value (in mm)
C	0.900
X	0.400
Y	0.600

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