NEW PRODUCT

Product Summary

$V_{BR\ min}$	$I_{pp\ max}$	$C_{in\ typ}$
13V	4A	20pF

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

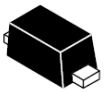
Features

- 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)**

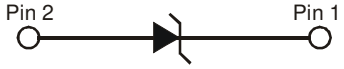
Mechanical Data

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

SOD923



Top View



Device Schematic

Ordering Information (Note 4)

Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
D12V0M1U2S9-7	Standard	TM	7	8	10,000/Tape & Reel

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

Marking Information

TM = 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}	100	W	8/20µs, Figure 3
Peak Pulse Current	I_{PP}	4	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

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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}	—	—	12	V	—
Channel Leakage Current (Note 6)	I_{RM}	—	1	100	nA	V_{RWM} = 12V
Clamping Voltage, IEC 61000-4-5	V_{CL}	—	—	20	V	I_{PP} = 1A, tp = 8/20μS
		—	—	25		I_{PP} = 4A, tp = 8/20μS
Breakdown Voltage	V_{BR}	13	—	—	V	I_R = 1mA
Channel Input Capacitance	C_T	—	20	26	pF	V_R = 0V, f = 1MHz

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.

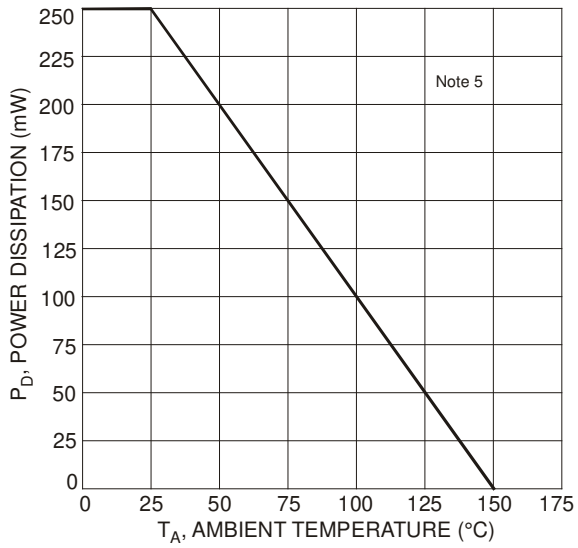

Figure 1 Power Derating Curve

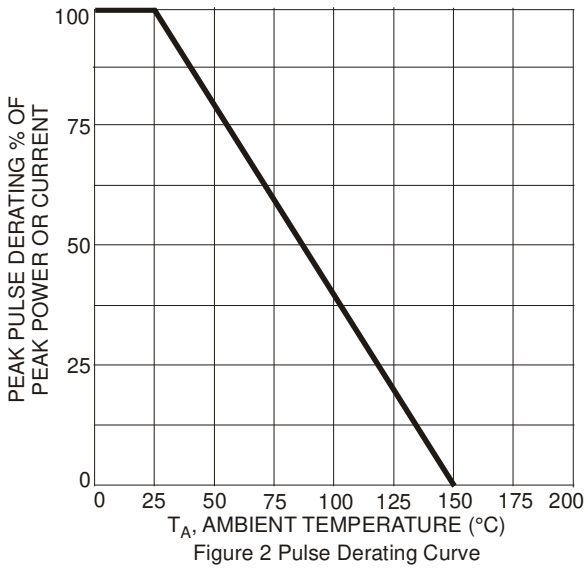

Figure 2 Pulse Derating Curve

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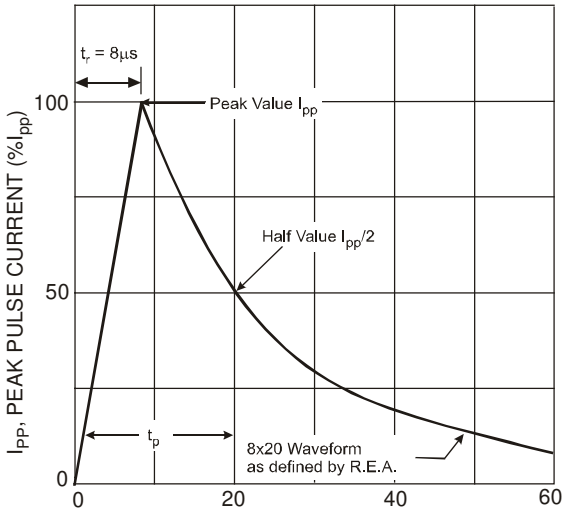

Figure 3 Pulse Waveform

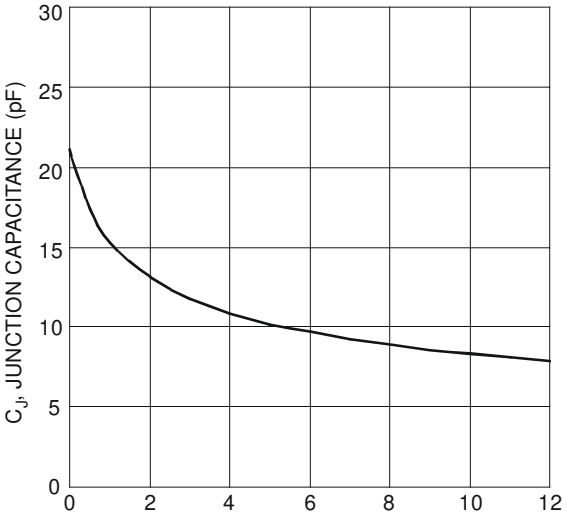

Figure 4 Typical Junction Capacitance

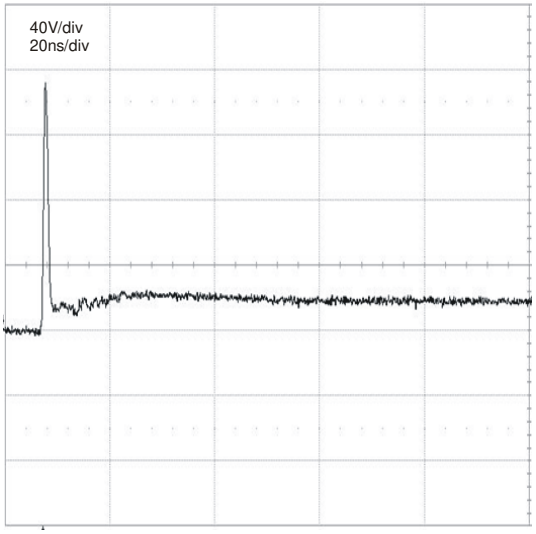

Figure 5 ESD Response to IEC 61000-4-2
(+8kV Contact Discharge)

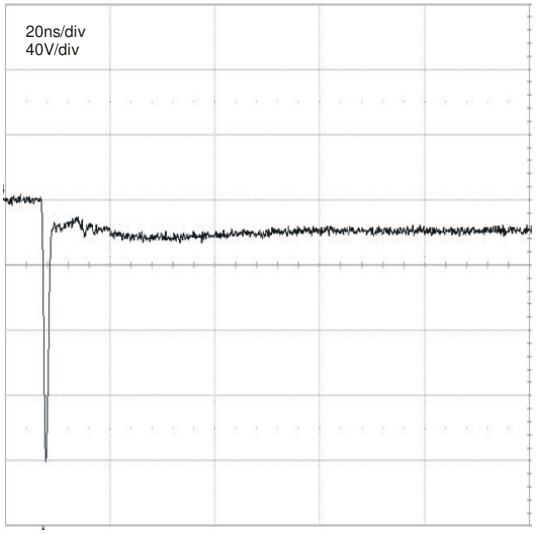

Figure 6 ESD Response to IEC 61000-4-2
(-8kV Contact Discharge)

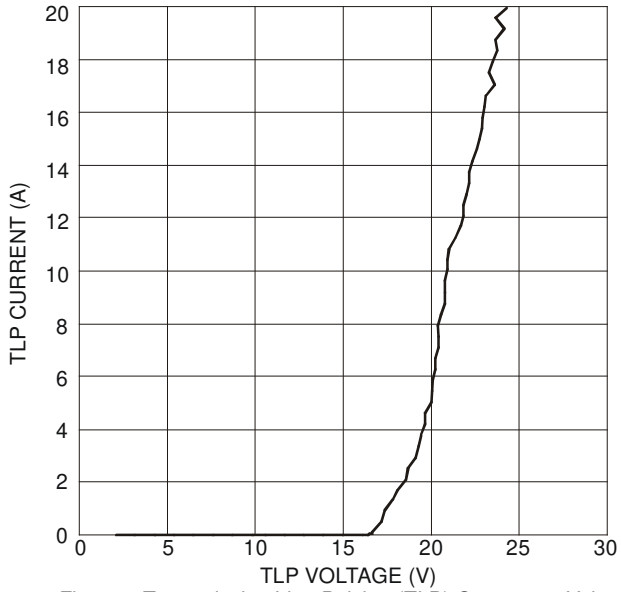

Figure 7 Transmission Line Pulsing (TLP) Current vs. Voltage

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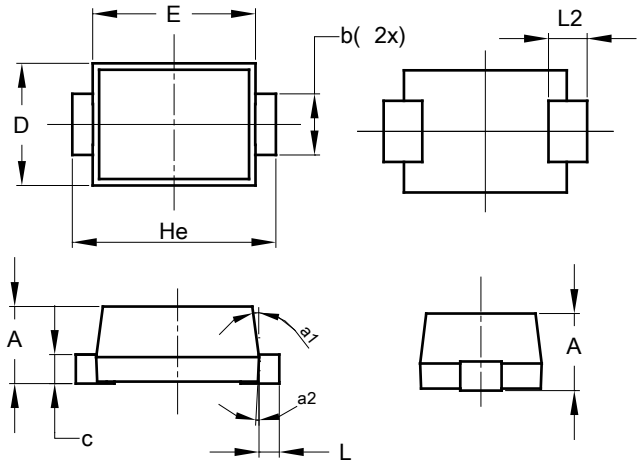
Package Outline Dimensions

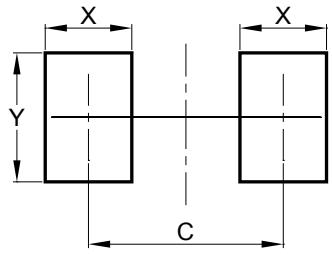
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



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

NEW PRODUCT

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