





#### **Features**

- Fast Switching Speed: max. 50ns
- High Reverse Breakdown Voltage: 300V
- Low Leakage Current: 100nA at Room Temperature
- Ultra-Small Plastic SMD Package
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)

#### **Mechanical Data**

- Case: SOD-523
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Cathode Bar
- Terminals: Finish—Matte Tin Annealed over Alloy 42 Leadframe.
- Solderable per MIL-STD-202, Method 208 @3
- Weight: 0.0014 grams (Approximate)

SOD523







**Device Schematic** 

### Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
BAS521-7	Standard	SOD523	3000/Tape & Reel (Note 5)
BAS521-13	Standard	SOD523	10,000/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/
- 5. Dispensed in every other cavity of the tape.

### **Marking Information**



99 = Product Type Marking Code Bar Denotes Cathode Side

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

Characteristic	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	$V_{RRM}$	300	V
Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RWM</sub>	300	V
Forward Current (Note 6)	l <sub>F</sub>	250	mA
Non-Repetitive Peak Forward Surge Current @ t = 1.0μs	I <sub>FSM</sub>	4.5	А
Repetitive Peak Forward Current (Note 6)	I <sub>FRM</sub>	1	Α

## **Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	$P_{D}$	325	mW
Thermal Resistance Junction to Ambient Air (Note 6)	$R_{ heta JA}$	385	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

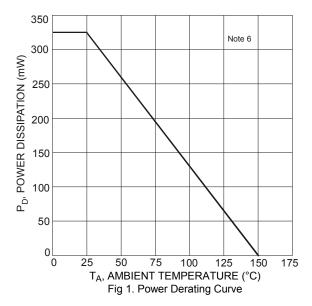
## **Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

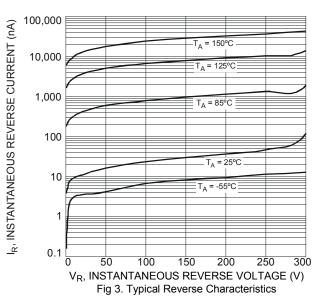
Characteristic	Symbol	Min	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	$V_{(BR)R}$	300	_	V	I <sub>R</sub> = 100μA
Forward Voltage	$V_{F}$	_	1.1	V	I <sub>F</sub> = 100mA
Reverse Current (Note 7)	I <sub>R</sub>	_ _ _	50 150 100	nA nA μA	$V_R = 5V$ $V_R = 250V$ $V_R = 250V, T_J = +150^{\circ}C$
Total Capacitance	Ст	_	5	pF	$V_R = 0$ , $f = 1.0MHz$
Reverse Recovery Time	t <sub>rr</sub>	_	50	ns	$I_F = I_R = 30 \text{mA},$ $I_{rr} = 0.1 \times I_R, R_L = 100 \Omega$

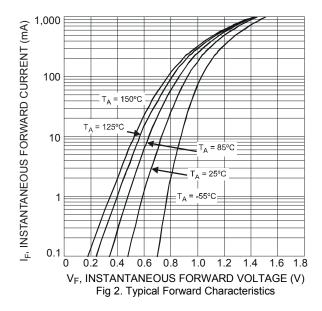
Notes:

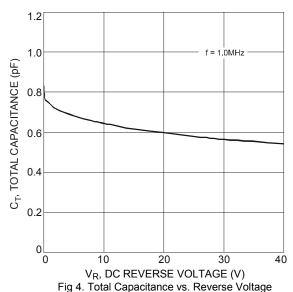
<sup>6.</sup> Part mounted on FR-4 board with recommended pad layout, which can be found on our website at http://www.diodes.com. 7. Short duration pulse test used to minimize self-heating effect.









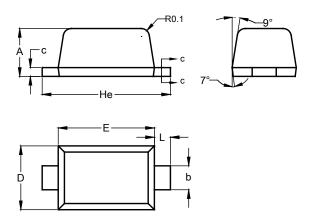




## **Package Outline Dimensions**

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

#### SOD523

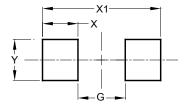


SOD523			
Dim	Min	Max	
Α	0.55	0.65	
b	0.26	0.34	
С	0.11	0.17	
D	0.75	0.85	
Е	1.15	1.25	
He	1.55	1.65	
Ĺ	0.10	0.30	
All Dimensions in mm			

# **Suggested Pad Layout**

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

#### SOD523



Dimensions	Value (in mm)
G	0.80
Х	0.60
X1	2.00
Υ	0.70



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