Features

- Fast Switching Speed: max. 50 ns
- 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)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 5)**

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 e3
- Weight: 0.0014 grams (Approximate)

SOD523

Top View

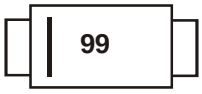
Device Schematic

Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging (Note 6)
BAS521Q-13	Automotive	SOD523	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 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 http://www.diodes.com/products/packages.html.
5. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to http://www.diodes.com/quality/product_compliance_definitions/.
6. Dispensed in every other cavity of the tape.

Marking Information



99 = Product Type Marking Code
Bar Denotes Cathode Side

Maximum Ratings (@T_A = +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_{RWM}	300	V
Forward Current (Note 7)	I_F	250	mA
Non-Repetitive Peak Forward Surge Current @ t = 1.0µs	I_{FSM}	4.5	A
Repetitive Peak Forward Current (Note 7)	I_{FRM}	1	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 7)	P_D	325	mW
Thermal Resistance Junction to Ambient Air (Note 7)	$R_{\theta JA}$	385	°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	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 8)	$V_{(BR)R}$	300	—	V	I_R = 100µA
Forward Voltage	V_F	—	1.1	V	I_F = 100mA
Reverse Current (Note 8)	I_R	— — —	50 150 100	nA nA µA	V_R = 5V V_R = 250V V_R = 250V, T_J = +150°C
Total Capacitance	C_T	—	5	pF	V_R = 0, f = 1.0MHz
Reverse Recovery Time	t_{rr}	—	50	ns	I_F = I_R = 30mA, I_{rr} = 0.1 x I_R, R_L = 100Ω

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

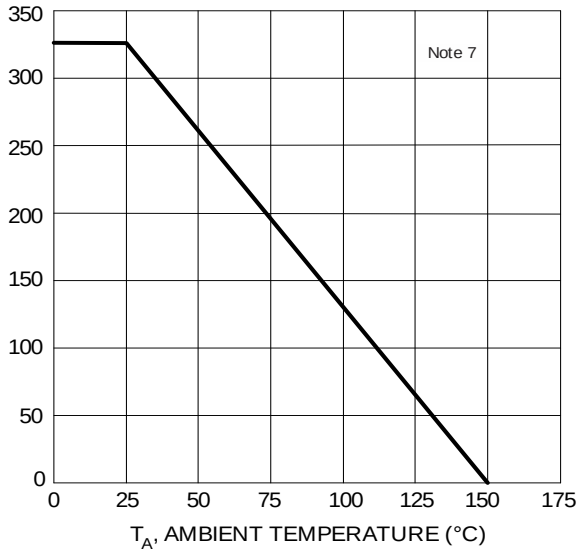


Figure 1 Power Derating Curve, Total Package

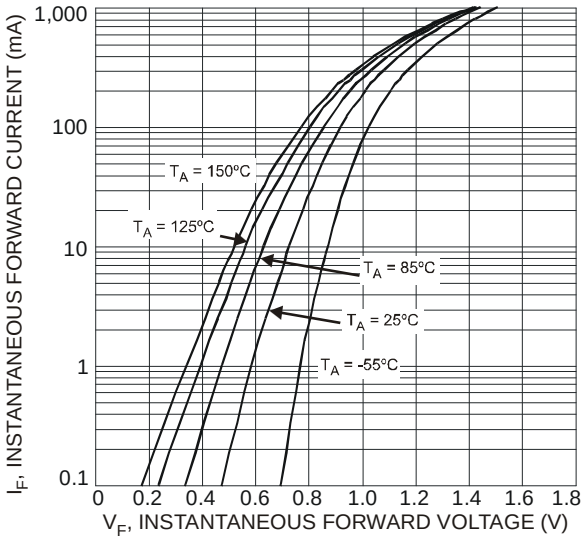


Fig. 2 Typical Forward Characteristics, Per Element

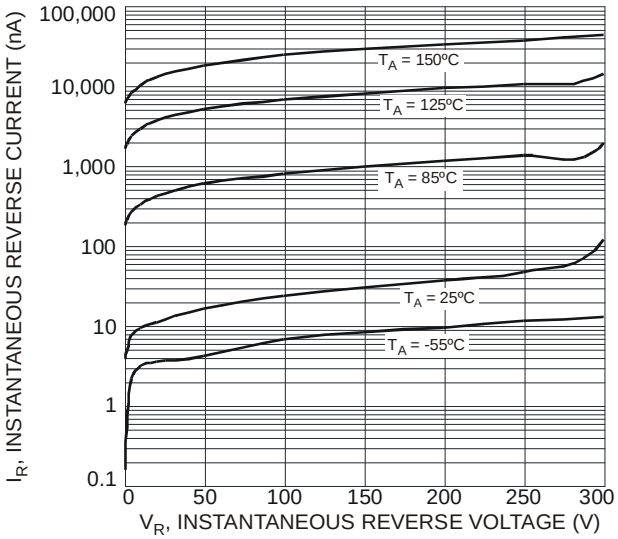


Fig. 3 Typical Reverse Characteristics, Per Element

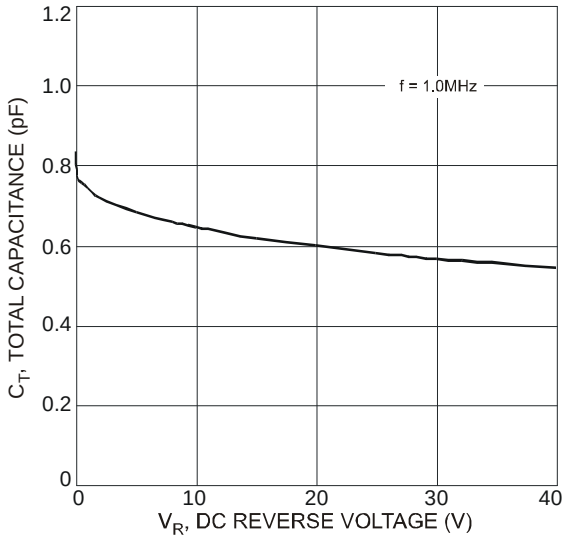
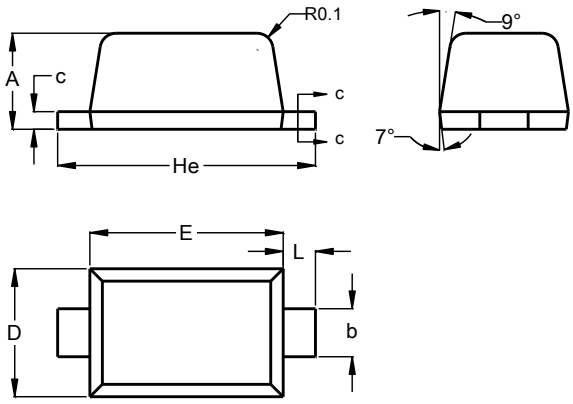


Fig. 4 Total Capacitance vs. Reverse Voltage, Per Element

Package Outline Dimensions

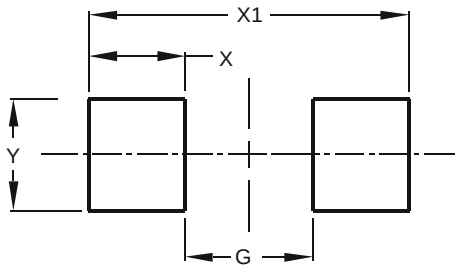
Please see http://www.diodes.com/package-outlines.html for the latest version.



SOD523		
Dim	**Min**	**Max**
A	0.55	0.65
b	0.26	0.34
c	0.11	0.17
D	0.75	0.85
E	1.15	1.25
He	1.55	1.65
L	0.10	0.30
All Dimensions in mm		

Suggested Pad Layout

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



Dimensions	Value (in mm)
G	0.80
X	0.60
X1	2.00
Y	0.70

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