



**THE DATASHEET OF
B0530WSQ-13-F**



SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

Product Summary

$V_R(V)$	$I_F(A)$	$V_F \text{ Max (V)}$ @ +25°C	$I_R \text{ Max } (\mu A)$ @ +25°C
30	0.5	0.45	500

Applications

- DC-DC Converters
- Mobile Telecommunications
- Blocking Diodes
- Reverse Polarity Protection

Features and Benefits

- Low Forward Voltage Drop
- Guard Ring Construction for Transient Protection
- High Conductance
- **Totally Lead-Free Finish & 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 4)**

Mechanical Data

- Case: SOD323
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Lead-Free Plating (Matte Tin Finish Annealed over Alloy 42 Leadframe). Solderable per MIL-STD-202, Method 208 (E3)
- Polarity: Cathode Band
- Weight: 0.004 grams (Approximate)

SOD323



Top View

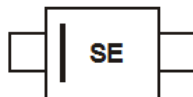
Ordering Information (Note 5)

Part Number	Compliance	Case	Packaging
B0530WSQ-13-F	Automotive	SOD323	10,000/Tape & Reel
B0530WSQ-7-F	Automotive	SOD323	3,000/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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to http://www.diodes.com/quality/product_compliance_definitions/.
 5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information

SOD323



SE = Product Type Marking Code

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

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitance load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V _{R(RM)} V _{R(WM)} V _R	30	V
RMS Reverse Voltage	V _{R(RMS)}	21	V
Average Rectified Output Current (See Figure 1)	I _O	0.5	A
Peak Repetitive Forward Current t _P = 8.3ms, Half Sine-Wave	I _{FRM}	3.5	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I _{FSM}	2	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P _D	235	mW
Typical Thermal Resistance Junction to Ambient (Note 6)	R _{θJA}	426	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-40 to +125	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Breakdown Voltage (Note 7)	V _{(BR)R}	30	—	—	V	I _R = 500μA
Forward Voltage Drop	V _F	—	— 0.40	0.36 0.45	V	I _F = 0.1A I _F = 0.5A
Leakage Current (Note 7)	I _R	—	—	80 100 500	μA	V _R = 15V V _R = 20V V _R = 30V
Total Capacitance	C _T	—	58	—	pF	f = 1MHz, V _R = 0V DC

Notes: 6. Part mounted on FR-4 PC board with recommended pad layout, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
7. Short duration pulse test used to minimize self-heating effect.

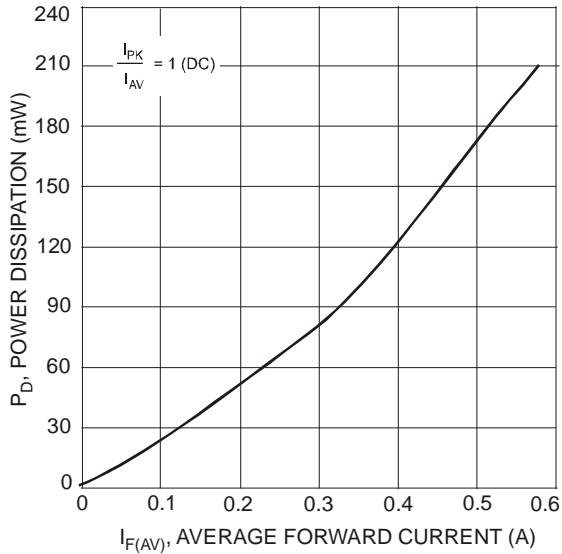


Fig. 1 Forward Power Dissipation

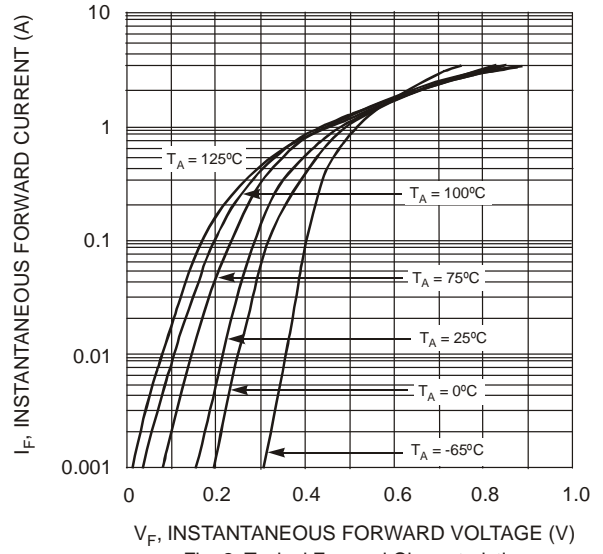


Fig. 2 Typical Forward Characteristics

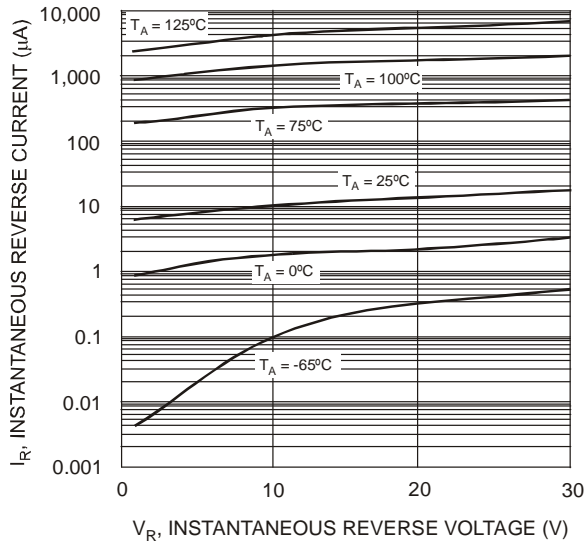


Fig. 3 Typical Reverse Characteristics

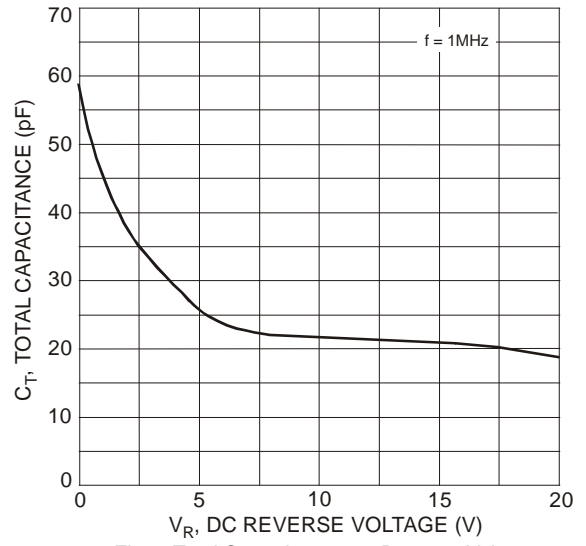


Fig. 4 Total Capacitance vs. Reverse Voltage

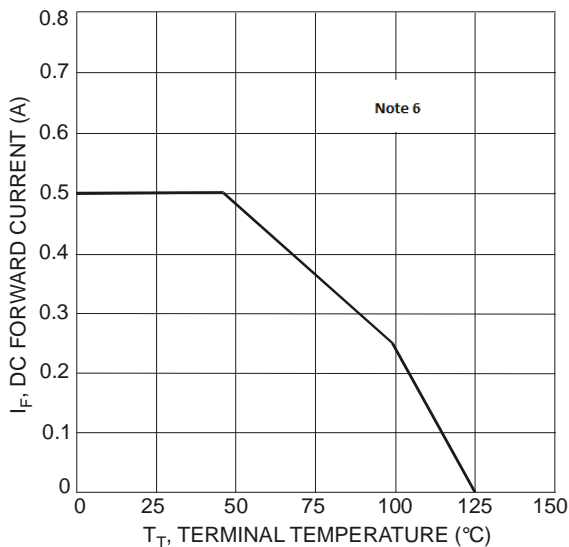
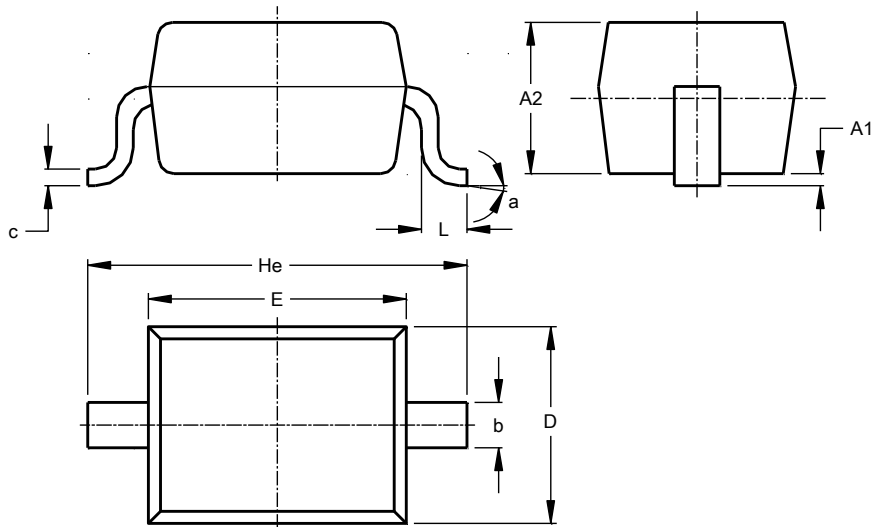


Fig. 5 Forward Current Derating Curve

Package Outline Dimensions

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

SOD323

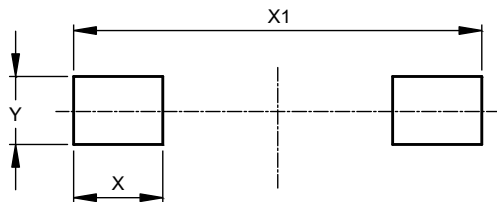


SOD323			
Dim	Min	Max	Typ
A1	–	0.10	0.05
A2	1.00	1.10	1.05
b	0.25	0.35	0.30
c	0.10	0.15	0.11
D	1.20	1.40	1.30
E	1.60	1.80	1.70
He	2.30	2.70	2.50
L	0.20	0.40	0.30
a	0°	8°	–
All Dimensions in mm			

Suggested Pad Layout

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

SOD323



Dimensions	Value (in mm)
X	0.590
X1	2.700
Y	0.450

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