

Product Summary (@ T_A = +25°C)

V _{RRM} (V)	I _o (A)	V _{F(MAX)} (V)	I _{R(MAX)} (mA)
20	0.5	0.4	0.07

Features and Benefits

- Ultra-Low Forward Voltage Drop
- Superior Reverse Avalanche Capability
- Patented Super-Barrier Rectifier Technology (SBR[®])
- Soft, Fast Switching Capability
- +150°C Operating Junction Temperature
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability.
<https://www.diodes.com/quality/product-definitions/>
- An automotive-compliant part is available under separate datasheet ([SBRT05U20S3Q](#))

Description and Applications

Packaged in the compact SOD323 package, the TrenchSBR SBRT05U20S3 provides ultra-low forward voltage drop (V_F) and provides excellent low-reverse-leakage stability at high temperatures. It is ideal for use as a rectification, freewheeling or polarity protection diode in applications such as:

- SMPS DC-DC converters
- Reverse polarity protections
- General switching applications

Mechanical Data

- Package: SOD323
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Polarity: Cathode Band Terminals: Finish - NiPdAu over Copper Leadframe.
Solderable per MIL-STD-202, Method 208 @4
- Weight: 0.004 grams (Approximate)

SOD323



Top View

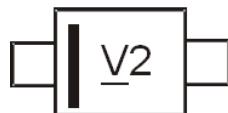
Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
SBRT05U20S3-7	SOD323	3,000	Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
 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/>.

Marking Information

SOD323



V2 = Product Type Marking Code

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

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

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V _{RRM}	20	V
Working Peak Reverse Voltage	V _{RWM}		
DC Blocking Voltage	V _{RM}		
RMS Reverse Voltage	V _{R(RMS)}	14	V
Average Rectified Output Current (See Figure 1)	I _O	500	mA
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine Wave Superimposed on Rated Load	I _{FSM}	10	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	R _{θJA}	365	°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 Condition
Reverse Breakdown Voltage (Note 6)	V _{(BR)R}	20	—	—	V	I _R = 50μA
Forward Voltage Drop	V _F	—	0.28	0.33	V	I _F = 0.1A, T _J = +25°C
		—	0.31	0.35		I _F = 0.2A, T _J = +25°C
		—	0.36	0.40		I _F = 0.5A, T _J = +25°C
Leakage Current (Note 6)	I _R	—	6	70	μA	V _R = 20V, T _J = +25°C
		—	2.5	30	mA	V _R = 20V, T _J = +150°C

Notes:
5. Device mounted on 1inch square copper pad, 2oz.
6. Short duration pulse test used to minimize self-heating effect.

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OBsolete

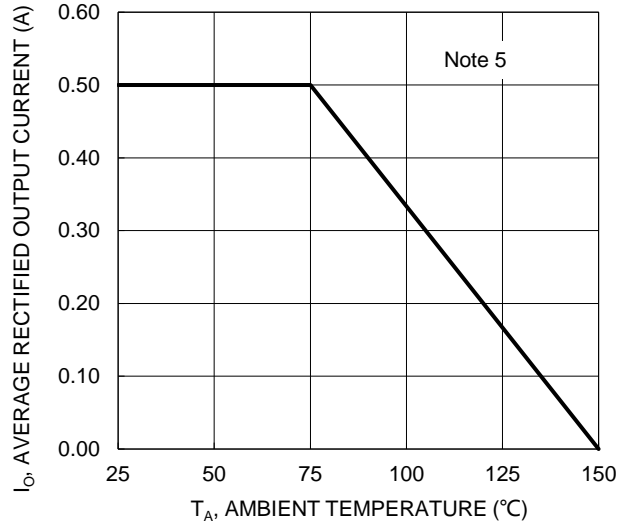


Figure 1. DC Forward Current Derating

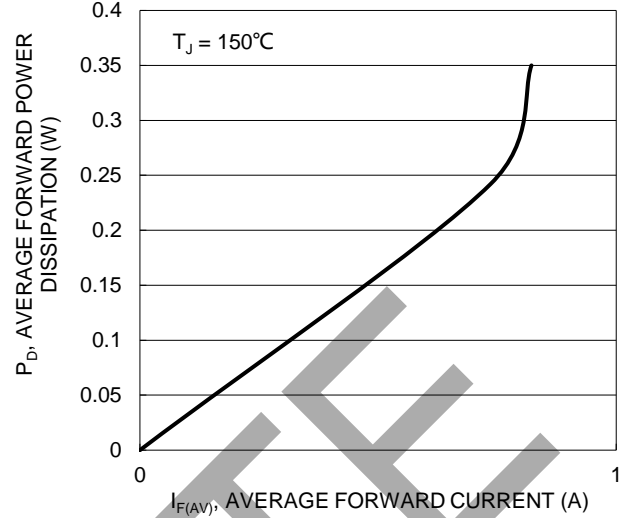


Figure 2. Forward Power Dissipation

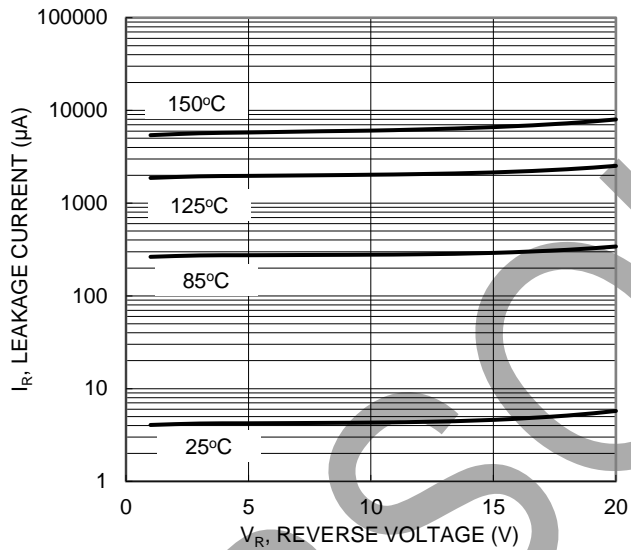


Figure 3. Typical Reverse Characteristics

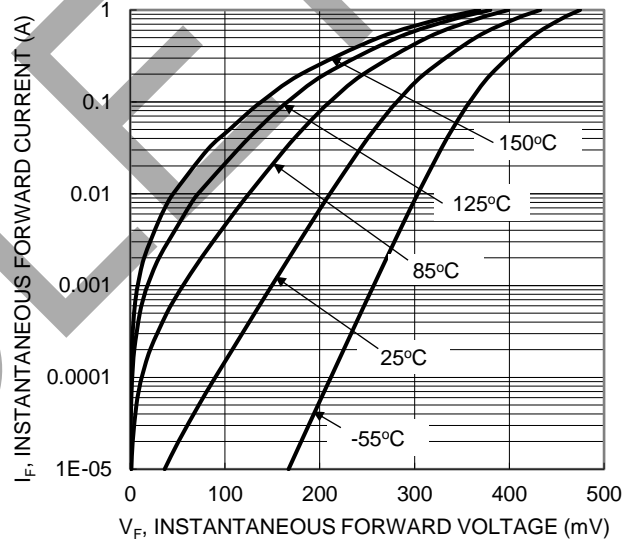


Figure 4. Typical Forward Characteristics

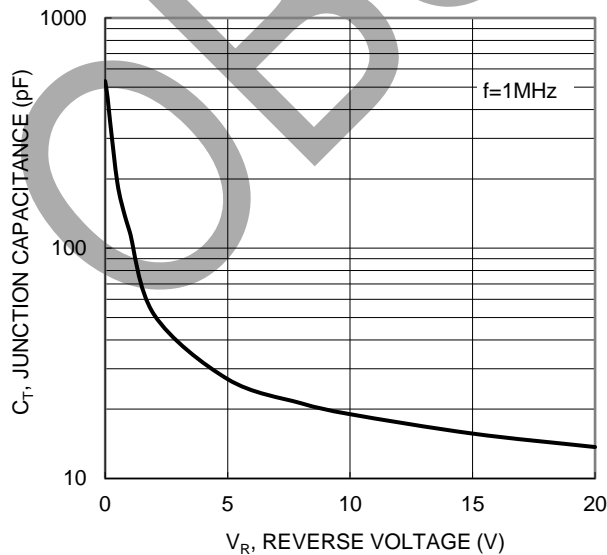


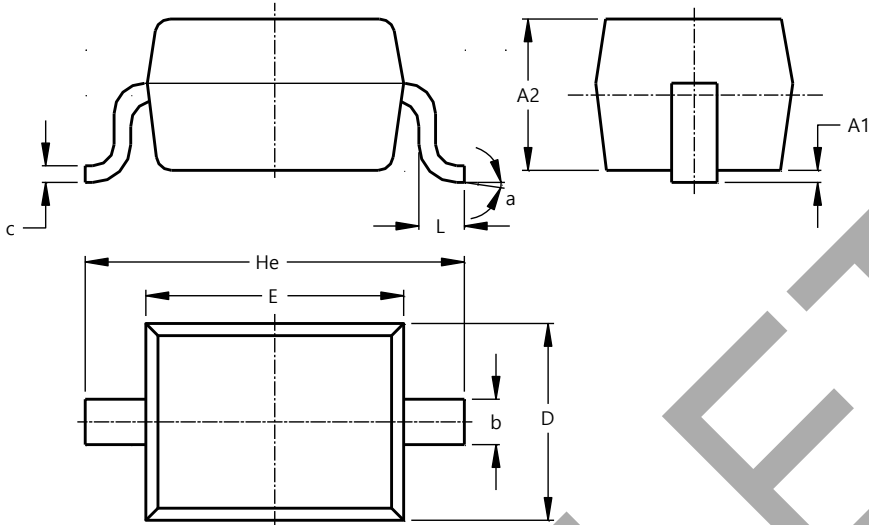
Figure 5. Typical Junction Capacitance

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Package Outline Dimensions

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

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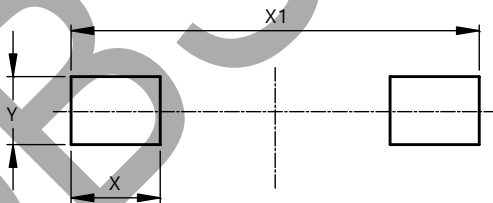


SOD323			
Dim	Min	Max	Typ
A1	--	0.10	0.05
A2	1.00	1.10	1.05
b	0.25	0.35	0.30
c	0.10	0.15	0.11
D	1.20	1.40	1.30
E	1.60	1.80	1.70
He	2.30	2.70	2.50
L	0.20	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

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

SOD323



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

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