NEW PRODUCT

Lead-free Green

SDM05U20S3

0.5A SCHOTTKY BARRIER RECTIFIER

Product Summary (@T_A = +25°C)

V_{RRM} (V)	I_O (A)	V_F Max (V)	I_R Max (µA)
20	0.5	0.39	160

Description

This is a 0.5A, 20V Schottky rectifier packaged in a small SOD323 package.

Applications

Providing low V_F and low reserve leakage, this device is ideal for use in general rectification applications such as:

- Low Voltage Rectification
- High-Efficiency DC-DC Conversion
- Switch Mode Power Supply
- Inverse Polarity Protection

Features and Benefits

- Low Forward Voltage Drop (V_F)
- Better Efficiency and Cooler Operation
- Reduced High-Temperature Reverse Leakage
- **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**

Mechanical Data

- Case: SOD323
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Alloy 42 Leadframe. Solderable per MIL-STD-202, Method 208 e3
- Polarity: Cathode Band
- Weight: 0.006 grams (Approximate)

SOD323



Top View

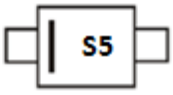
Ordering Information (Note 4)

Part Number	Case	Packaging
SDM05U20S3-7	SOD323	3,000/Tape & Reel

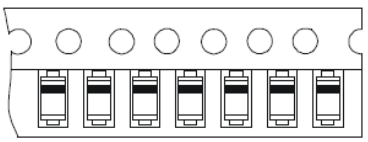
Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information

SOD323



S5 = Product Type Marking Code
Cathode Band Denotes Polarity



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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 Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_{RM}	20	V
Average Rectified Output Current	I_O	0.5	A
Repetitive Peak Forward Current, t_p = 1ms Square Wave with 25% Duty Cycle	I_{FRM}	4.5	A
Non-Repetitive Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	18	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	400	°C/W
Typical Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	240	°C/W
Typical Thermal Resistance Junction to Case (Note 5)	$R_{\theta JC}$	130	°C/W
Typical Thermal Resistance Junction to Case (Note 6)	$R_{\theta JC}$	70	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V_F	— —	0.28 0.35	— 0.39	V	I_F = 0.1A, T_J = +25°C I_F = 0.5A, T_J = +25°C
Leakage Current (Note 7)	I_R	— —	16 35	— 160	μA μA	V_R = 10V, T_J = +25°C V_R = 20V, T_J = +25°C
Total Capacitance	C_T	—	60	—	pF	V_R = 5V, f = 1MHz

Notes: 5. Device mounted on FR-4 substrate, 2oz. Copper; minimum recommended pad layout per http://www.diodes.com/product_compliance_definitions.html.
6. Device mounted on FR-4 substrate, 2oz. Copper, 1-inch square Cu pad.
7. Short duration pulse test used to minimize self-heating effect.

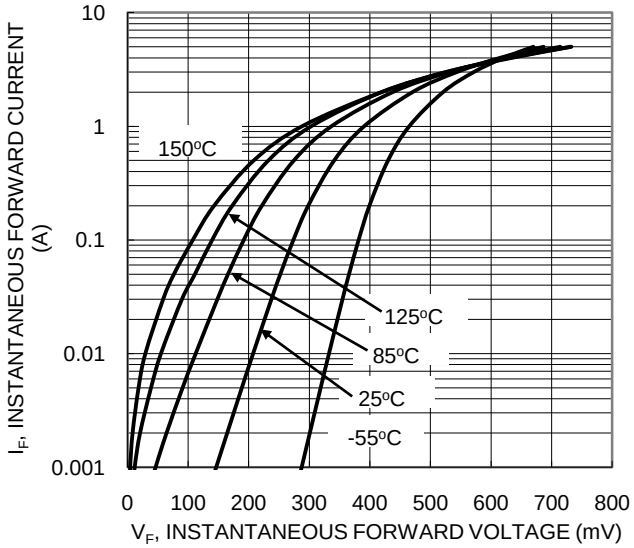


Figure 1. Typical Forward Characteristics

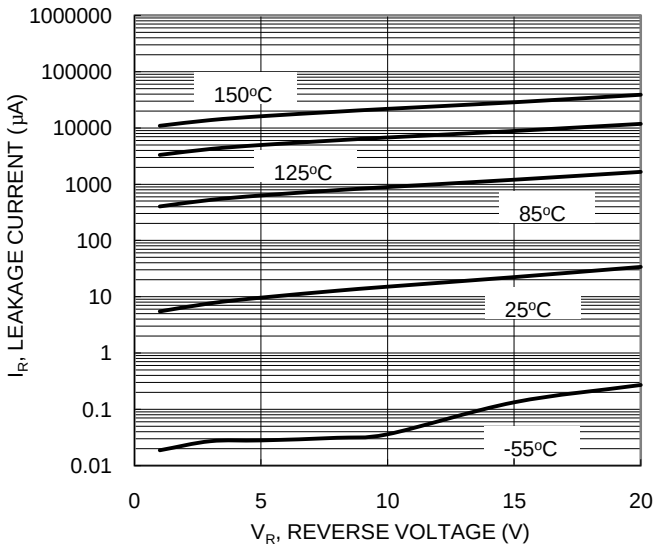


Figure 2. Typical Reverse Characteristics

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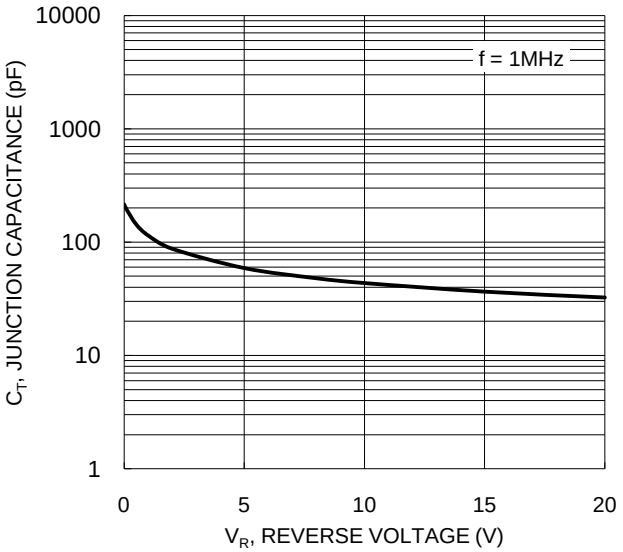


Figure 3. Typical Junction Capacitance

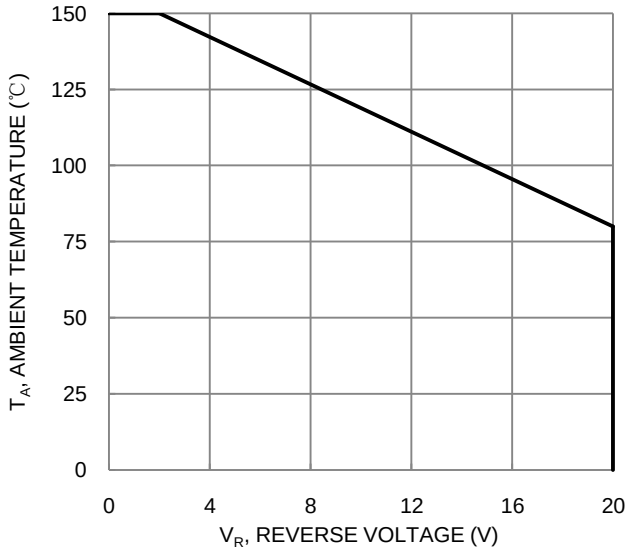


Figure 4. Operating Temprature Derating

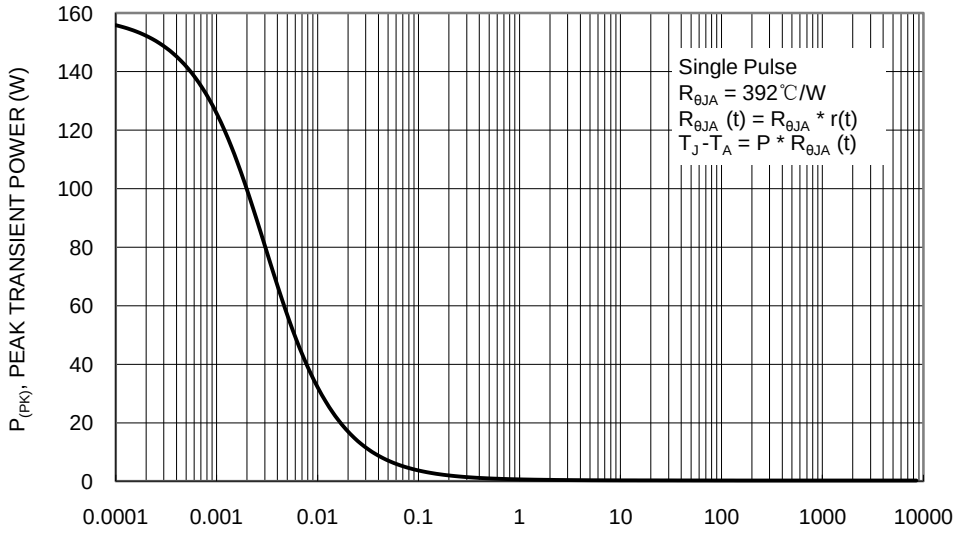


Figure 5. Single Pulse Maximum Power Dissipation

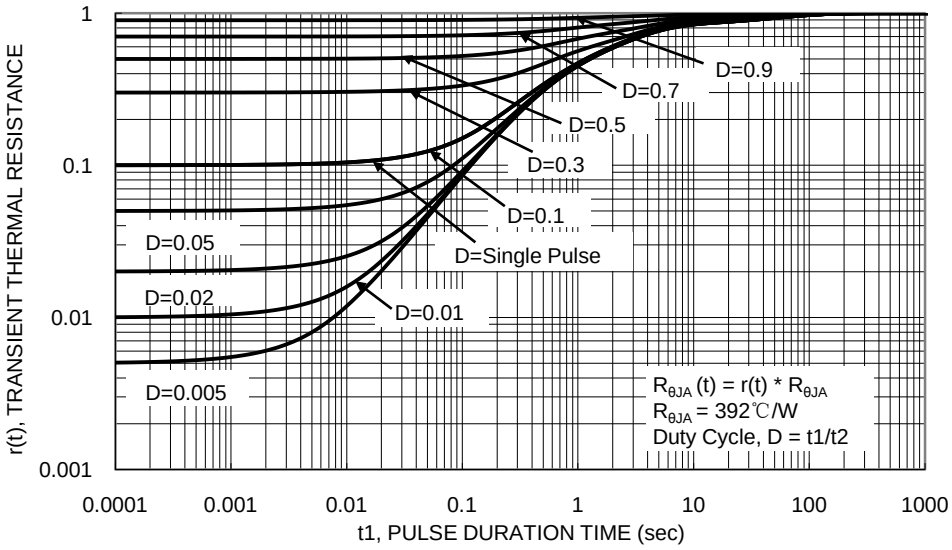


Figure 6. Transient Thermal Resistance

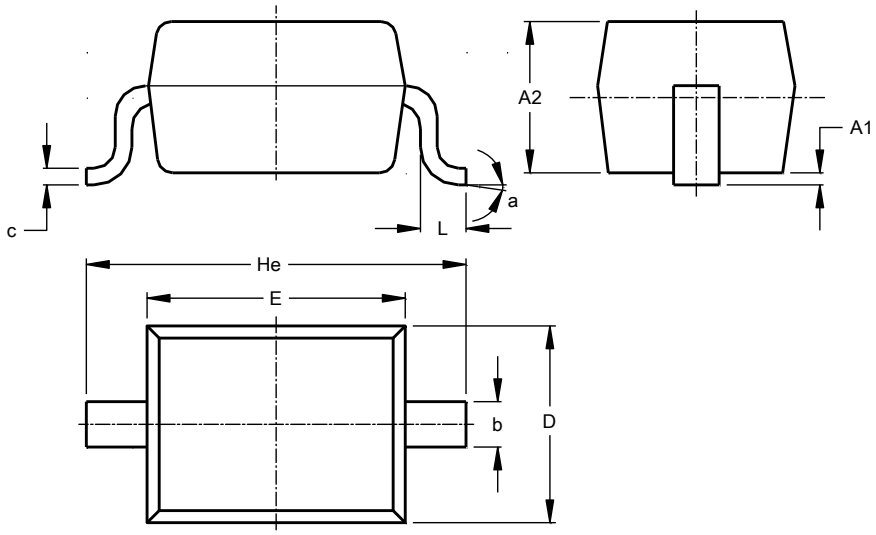
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Package Outline Dimensions

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

SOD323

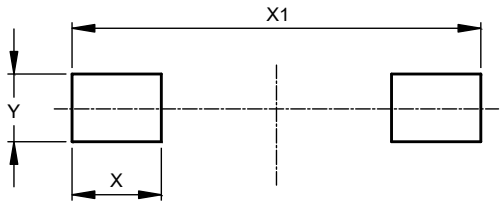


SOD323			
Dim	**Min**	**Max**	**Typ**
A1	--	0.10	0.05
A2	1.00	1.10	1.05
b	0.25	0.35	0.30
c	0.10	0.15	0.11
D	1.20	1.40	1.30
E	1.60	1.80	1.70
He	2.30	2.70	2.50
L	0.20	0.40	0.30
a	0º	8º	--
All Dimensions in mm			

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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