

Product Summary (@T_A = +25°C)

V _{RRM} (V)	I _O (mA)	V _{F(MAX)} (V)	I _{R(MAX)} (μA)
40	250	0.6	5

Features and Benefits

- Low Forward-Voltage Drop
- Guard-Ring Construction for Transient Protection
- Negligible Reverse-Recovery Time
- Low Reverse Capacitance
- **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 4)**

Applications

- SMPS
- DC-DC Converter
- Freewheeling Diodes
- Reverse Polarity Protection
- Blocking Diodes

Mechanical Data

- Case: SOD523
- Case Material: Molded Plastic, "Green" Molding Compound, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Cathode Band
- Terminals: Finish—Matte Tin Annealed over Alloy 42 Leadframe. Solderable per MIL-STD-202, Method 208 **e3**
- Weight: 0.002 grams (Approximate)



Top View



Ordering Information (Note 5)

Part Number	Packaging	Shipping
SDM20U40Q-7	SOD523	3,000/Tape & Reel
SDM20U40Q-13	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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to <https://www.diodes.com/quality/>.
 5. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



S4 = Product Type Marking Code

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

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V _{RRM}	40	V
Working Peak Reverse Voltage	V _{RWM}		
DC Blocking Voltage	V _R		
RMS Reverse Voltage	V _{R(RMS)}	28	V
Forward Continuous Current (Note 6)	I _O	250	mA
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I _{FSM}	1.0	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P _D	150	mW
Thermal Resistance, Junction to Ambient Air (Note 6)	R _{θJA}	667	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-65 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}	40	—	—	V	I _R = 10μA
Forward Voltage Drop	V _F	—	—	0.35 0.37 0.60	V	I _F = 10mA I _F = 20mA I _F = 200mA
Peak Reverse Current (Note 7)	I _R	—	—	5 1	μA μA	V _R = 30V V _R = 10V
Total Capacitance	C _T	—	50	—	pF	V _R = 0V, f = 1.0MHz
Reverse Recovery Time	t _{RR}	—	10	—	ns	I _F = I _R = 200mA, I _{RR} = 0.1 × I _R , R _L = 100Ω

Notes: 6. Device mounted on FR-4 board with recommended pad layout, which can be found at <http://www.diodes.com/package-outlines.html>.
7. Short duration pulse test used so as to minimize self-heating effect.

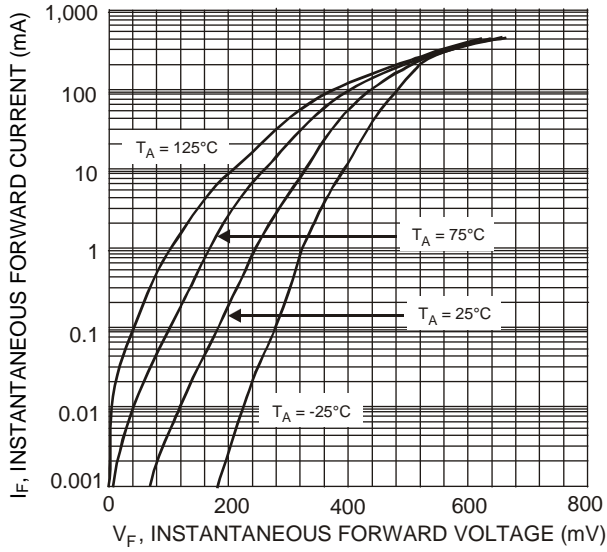


Figure 1 Typical Forward Characteristics

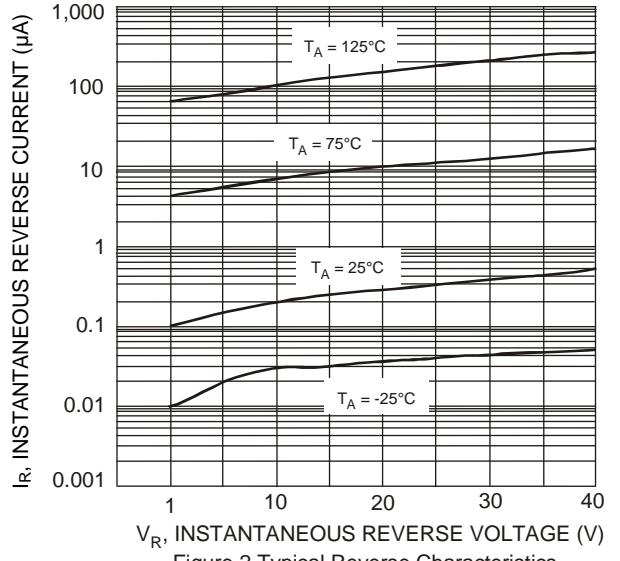


Figure 2 Typical Reverse Characteristics

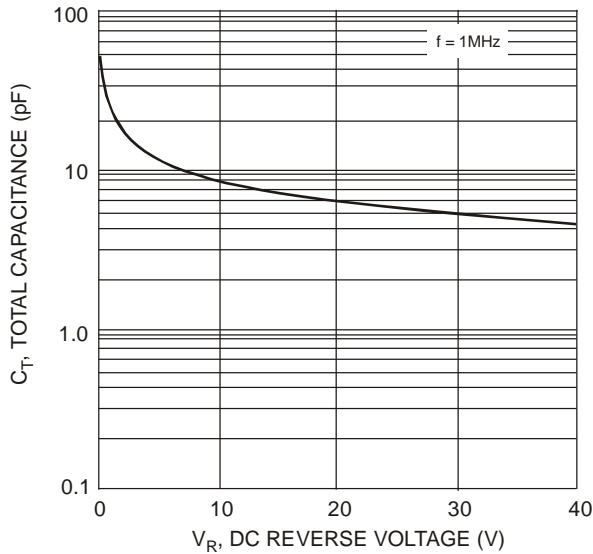


Figure 3 Total Capacitance vs. Reverse Voltage

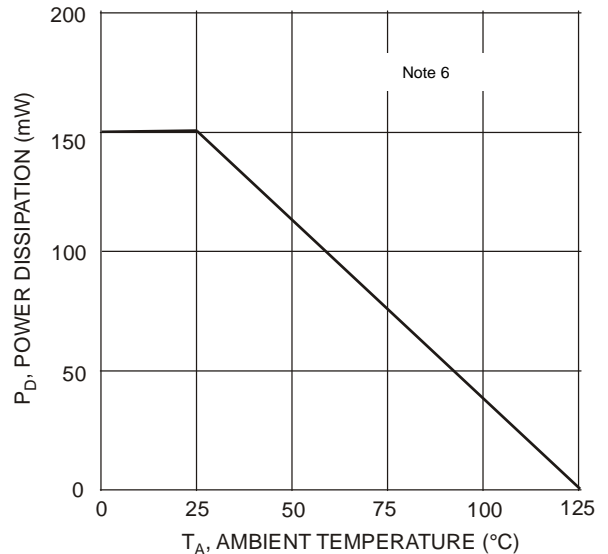
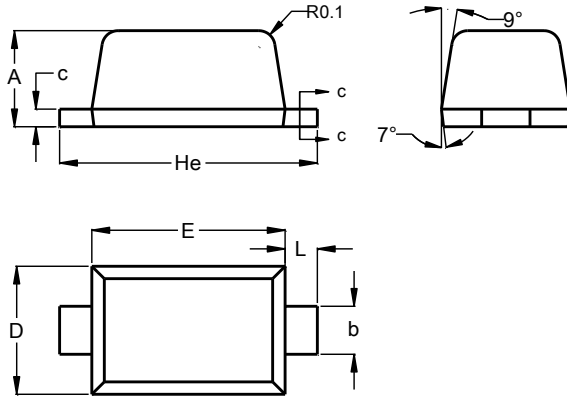


Figure 4 Power Derating Curve

Package Outline Dimensions

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

SOD523

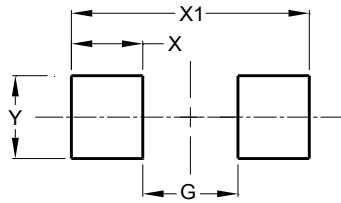


SOD523		
Dim	Min	Max
A	0.55	0.65
b	0.26	0.34
c	0.11	0.17
D	0.75	0.85
E	1.15	1.25
He	1.55	1.65
L	0.10	0.30
All Dimensions in mm		

Suggested Pad Layout

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

SOD523



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

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