

**Product Summary** (@ $T_A = +25^\circ\text{C}$ )

$V_{RRM}$ (V)	$I_O$ (mA)	$V_F$ MAX (V)	$I_R$ MAX ( $\mu\text{A}$ )
40	250	0.725	2.0

**Description**

The BAT64T5Q 250mA surface mount Schottky Barrier Diode in SOD523 package offers low turn-on voltage and fast switching capability, designed with PN Junction Guard Ring for Transient Protection.

**Features**

- Low Forward Voltage Drop
- Fast Switching
- Ultra-Small Surface Mount Package
- PN Junction Guard Ring for Transient Protection
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The BAT64T5Q is suitable for automotive applications requiring specific change control and is AEC-Q101 qualified, is PPAP capable, and is manufactured in IATF16949:2016 certified facilities.**

**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: Matte Tin Finish Annealed over Alloy 42 Leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208<sup>(3)</sup>
- Polarity: See Diagrams Below
- Weight: 0.006 grams (Approximate)

SOD523

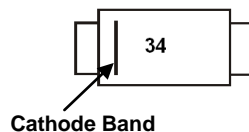


Top View

**Ordering Information** (Note 4)

Part Number	Compliance	Case	Packaging
BAT64T5Q-7-F	Automotive	SOD523 (Note 5)	3,000/Tape & Reel
BAT64T5Q-13-F	Automotive	SOD523 (Note 5)	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. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.
  5. Dispensed in every other cavity of the tape.

**Marking Information**


34 = Product Type Marking Code

**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	40	V
Forward Continuous Current (Note 6)	I <sub>F</sub>	250	mA
Repetitive Peak Forward Current (Note 6)	I <sub>FRM</sub>	300	mA
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load (Note 6)	I <sub>FSM</sub>	1,200	mA

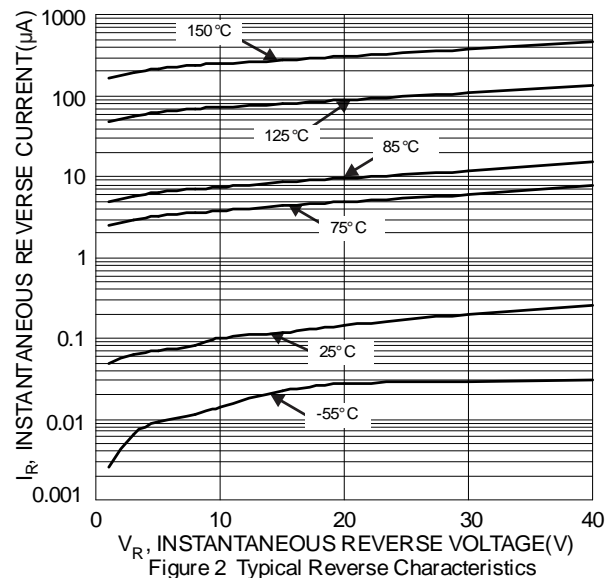
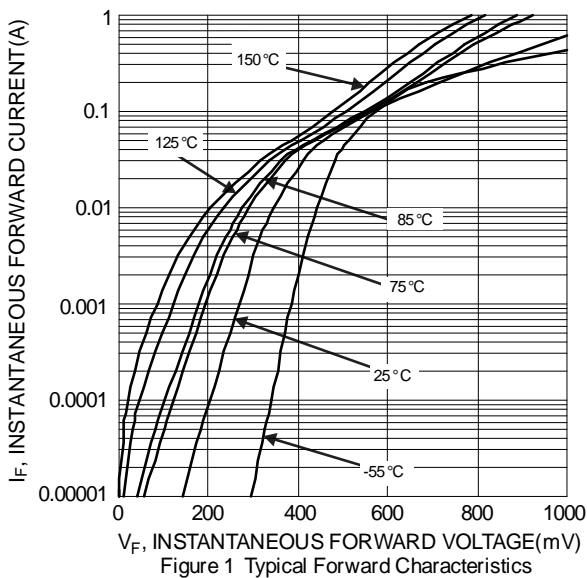
**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P <sub>D</sub>	250	mW
Thermal Resistance Junction to Ambient Air (Note 6)	R <sub>θJA</sub>	500	°C/W
Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	V <sub>(BR)R</sub>	40	—	—	V	I <sub>R</sub> = 100μA
Forward Voltage	V <sub>F</sub>	—	270 350 430 610	310 390 480 725	mV	I <sub>F</sub> = 1mA I <sub>F</sub> = 10mA I <sub>F</sub> = 30mA I <sub>F</sub> = 100mA
Reverse Leakage Current (Note 7)	I <sub>R</sub>	—	0.2	2.0	μA	V <sub>R</sub> = 40V
Total Capacitance	C <sub>T</sub>	—	—	6	pF	V <sub>R</sub> = 5V, f = 1.0MHz
Reverse Recovery Time	t <sub>RR</sub>	—	—	5.0	ns	I <sub>F</sub> = I <sub>R</sub> = 10mA, I <sub>RR</sub> = 0.1I <sub>R</sub> , R <sub>L</sub> = 100Ω

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



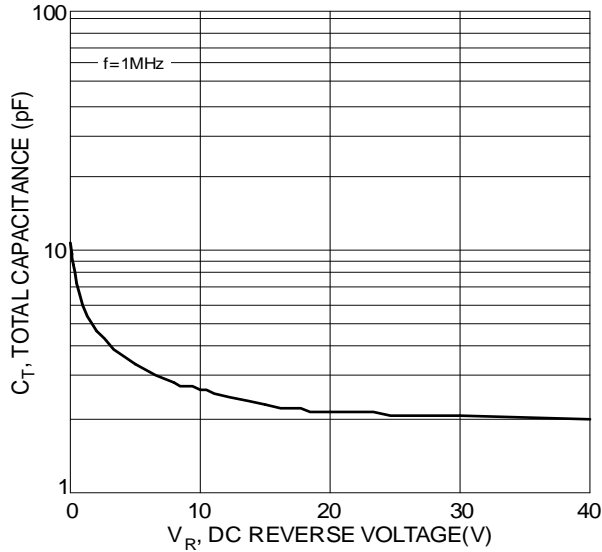


Figure 3 Total Capacitance vs. Reverse Voltage

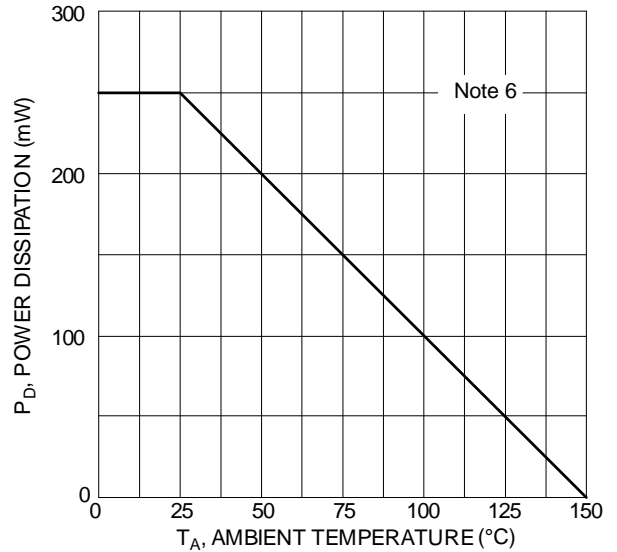
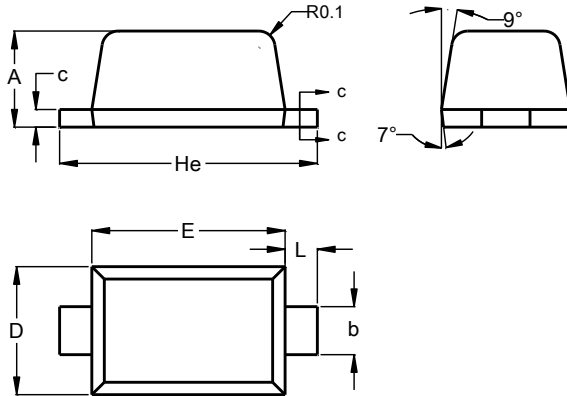


Figure 4 Power Derating Curve

## Package Outline Dimensions

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

### SOD523

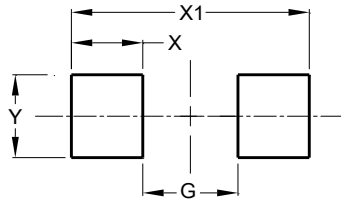


SOD523		
Dim	Min	Max
A	0.55	0.65
b	0.26	0.34
c	0.11	0.17
D	0.75	0.85
E	1.15	1.25
He	1.55	1.65
L	0.10	0.30
All Dimensions in mm		

## Suggested Pad Layout

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

### SOD523



Dimensions	Value (in mm)
<b>G</b>	0.80
<b>X</b>	0.60
<b>X1</b>	2.00
<b>Y</b>	0.70

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