

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

V_{RRM} (V)	I_o (mA)	V_F Max (V) @ 100mA	I_R Max (μA)
40	250	0.75	2

Description

This 250mA surface-mount Schottky barrier diode is housed in the SOT23 package. It offers low turn-on voltage, fast switching capability, and is designed with PN junction guard ring for transient protection.

Features and Benefits

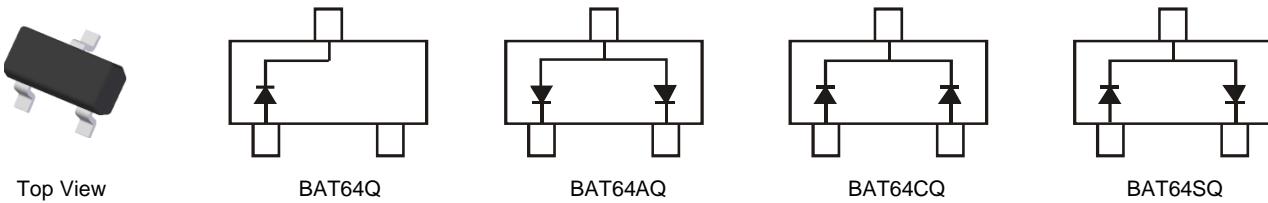
- Low Turn-On Voltage
- Fast Switching
- PN Junction Guard Ring for Transient Protection
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- Halogen and Antimony Free. "Green" Device (Note 3)
- The BAT64Q/AQ/CQ/SQ are suitable for automotive applications requiring specific change control; these parts are AEC-Q101 qualified, PPAP capable, and manufactured in IATF16949 certified facilities.

<https://www.diodes.com/quality/product-definitions/>

Mechanical Data

- Package: SOT23
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Alloy 42 Leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208 (e3)
- Polarity: See Diagrams Below
- Weight: 0.008 grams (Approximate)

SOT23



Top View

BAT64Q

BAT64AQ

BAT64CQ

BAT64SQ

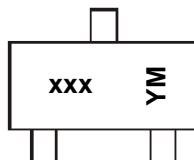
Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
BAT64Q-7-F	SOT23	3,000	Tape & Reel
BAT64Q-13-F	SOT23	10,000	Tape & Reel
BAT64AQ-7-F	SOT23	3,000	Tape & Reel
BAT64AQ-13-F	SOT23	10,000	Tape & Reel
BAT64CQ-7-F	SOT23	3,000	Tape & Reel
BAT64CQ-13-F	SOT23	10,000	Tape & Reel
BAT64SQ-7-F	SOT23	3,000	Tape & Reel
BAT64SQ-13-F	SOT23	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/>.

Marking Information



xxx = Product Type Marking Code

K65 = BAT64Q

K66 = BAT64AQ

K67 = BAT64CQ

K68 = BAT64SQ

YM = Date Code Marking

Y = Year (ex: M = 2025)

M = Month (ex: 9 = September)

Date Code Key

Year	2022	-	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Code	J	-	M	N	P	R	S	T	U	V	W	X
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Maximum Ratings (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V_{RRM}		
Working Peak Reverse Voltage	V_{RWM}	40	V
DC Blocking Voltage	V_R		
Average Rectified Output Current	I_O	250	mA
Non-Repetitive Peak Forward Surge Current 8.3ms	I_{FSM}	2,100	mA
Single Half Sine-Wave Superimposed on Rated Load			

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	250	mW
Typical Thermal Resistance Junction to Ambient Air (Note 5)	$R_{\theta JA}$	500	°C/W
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	$V_{(BR)R}$	40	—	—	V	$I_{RS} = 100\mu\text{A}$
Forward Voltage	V_F	—	—	350	mV	$I_F = 1\text{mA}$
		—	—	430		$I_F = 10\text{mA}$
		—	—	520		$I_F = 30\text{mA}$
		—	—	750		$I_F = 100\text{mA}$
Reverse Leakage Current (Note 6)	I_R	—	—	2.0	μA	$V_R = 40\text{V}$
Total Capacitance	C_T	—	6.0	—	pF	$V_R = 1\text{V}, f = 1.0\text{MHz}$
Reverse-Recovery Time	t_{RR}	—	3.0	—	ns	$I_F = I_R = 10\text{mA}$ $I_{RR} = 0.1I_R, R_L = 100\Omega$

Notes: 5. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.
 6. Short duration test pulse used to minimize self-heating effect.

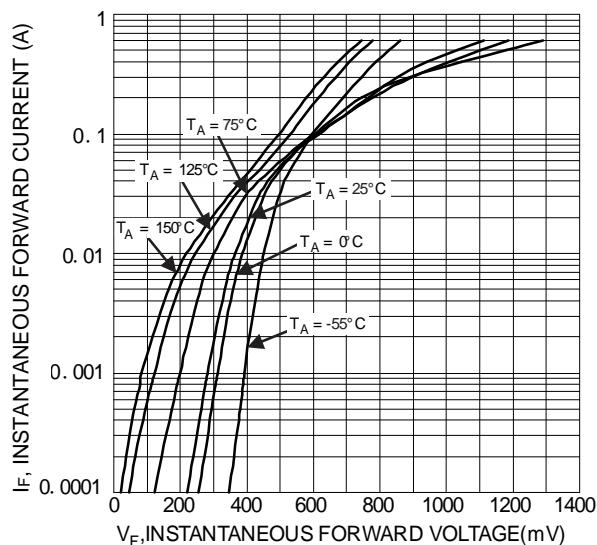


Figure 1 Typical Forward Characteristics

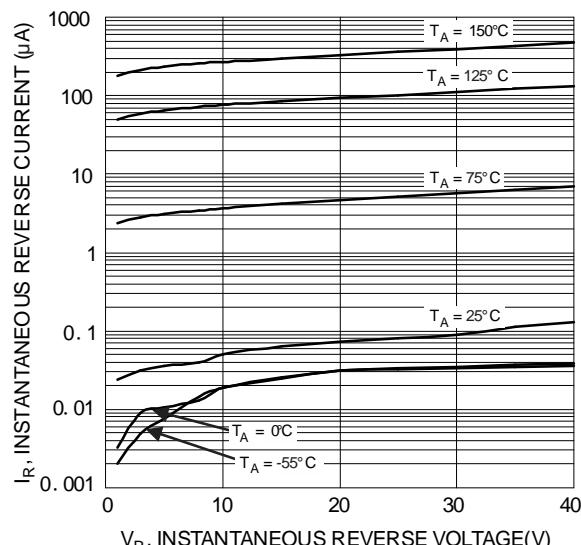


Figure 2 Typical Reverse Characteristics

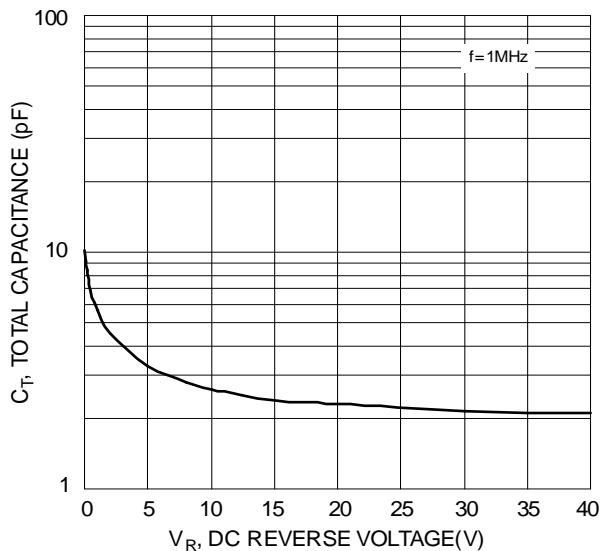


Figure 3 Total Capacitance vs. Reverse Voltage

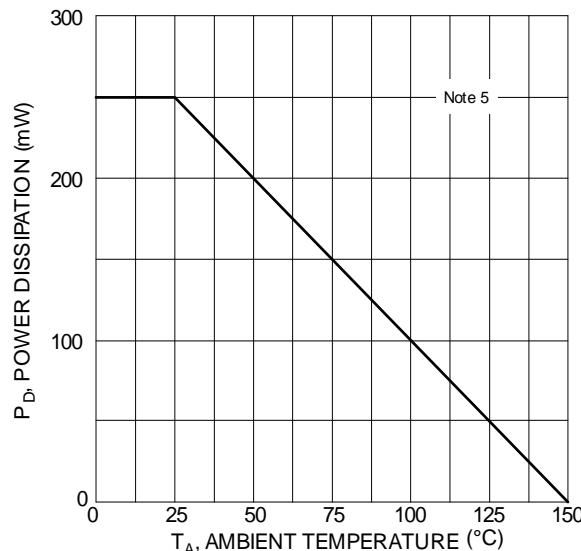


Figure 4 Power Derating Curve

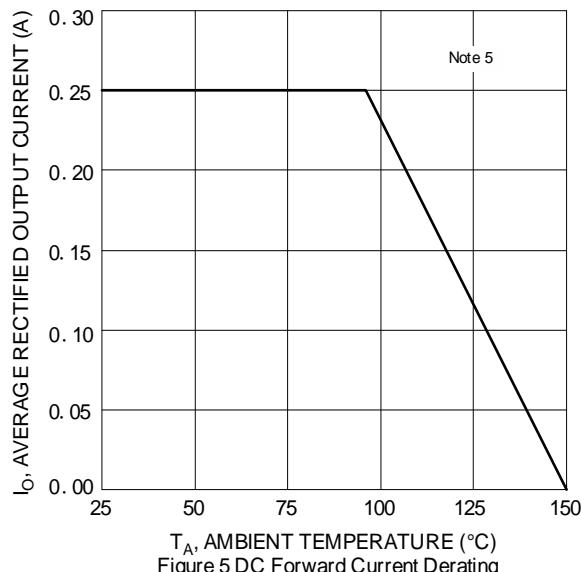
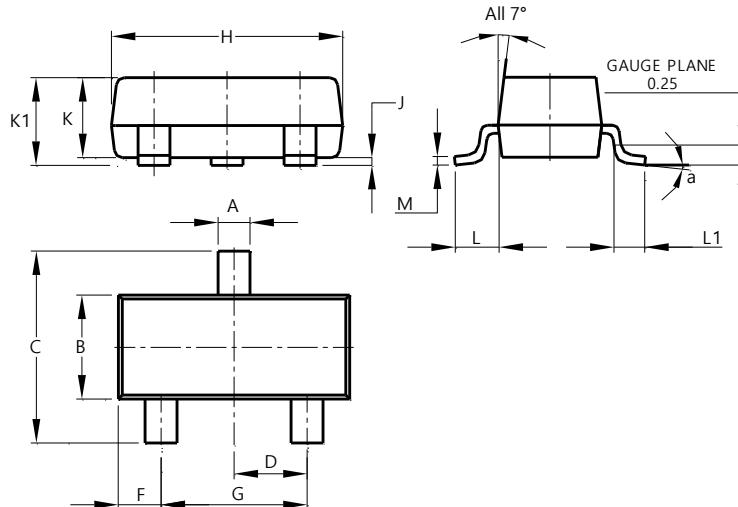


Figure 5 DC Forward Current Derating

Package Outline Dimensions

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

SOT23



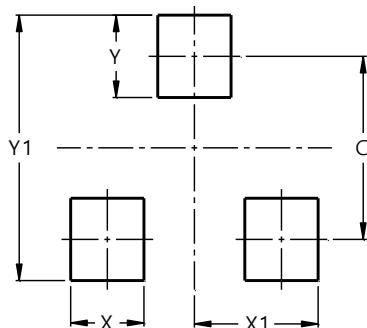
SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	—

All Dimensions in mm

Suggested Pad Layout

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

SOT23



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9

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