NEW PRODUCT

Product Summary (@T_A = +25°C)

V_{RRM} (V)	I_O (mA)	$V_{F\ MAX}$ (V)	$I_{R\ MAX}$ (µA)
40	250	0.75	2.0

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 (Notes 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Description

This 250mA surface mount Schottky Barrier Diode in SOT323 package offers low turn-on voltage and fast switching capability, designed with PN junction guard ring for transient protection.

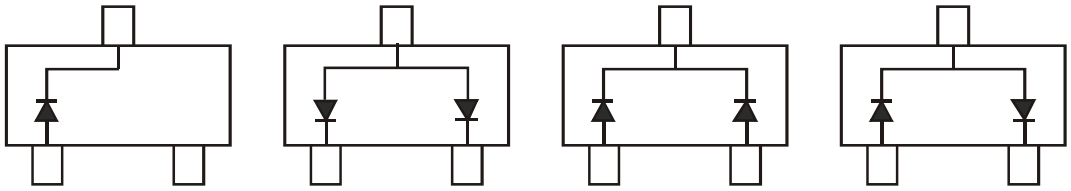
Mechanical Data

- Case: SOT323
- Case 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: 0.006 grams (Approximate)

SOT323



Top View



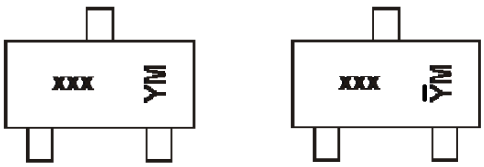
BAT64W BAT64AW BAT64CW BAT64SW

Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
BAT64W-7-F	Standard	SOT323	3000/Tape & Reel
BAT64W-13-F	Standard	SOT323	10,000/Tape & Reel
BAT64AW-7-F	Standard	SOT323	3000/Tape & Reel
BAT64AW-13-F	Standard	SOT323	10,000/Tape & Reel
BAT64CW-7-F	Standard	SOT323	3000/Tape & Reel
BAT64CW-13-F	Standard	SOT323	10,000/Tape & Reel
BAT64SW-7-F	Standard	SOT323	3000/Tape & Reel
BAT64SW-13-F	Standard	SOT323	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
K61 = BAT64W
K62 = BAT64AW
K63 = BAT64CW
K64 = BAT64SW
YM& ȲM = Date Code Marking
Y or Ȳ = Year (ex: F = 2018)
M = Month (ex: 9 = September)

Date Code Key

Year	2016	2017	2018	2019	2020	2021	2022	2023	2024
Code	D	E	F	G	H	I	J	K	L

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

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

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	40	V
Average Rectified Output Current	I_O	250	mA
Repetitive Peak Forward Current Pulse Wave=1ms, Duty Cycle=25%	I_{FRM}	2,000	mA
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	2,100	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	200	mW
Thermal Resistance Junction to Ambient Air (Note 5)	$R_{\Theta JA}$	625	°C/W
Junction 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)	$V_{(BR)R}$	40	—	—	V	I_R = 100µA
Forward Voltage	V_F	—	—	350 430 520 750	mV	I_F = 1mA I_F = 10mA I_F = 30mA I_F = 100mA
Reverse Leakage Current (Note 6)	I_R	—	—	2.0	µA	V_R = 40V
Total Capacitance	C_T	—	6.0	—	pF	V_R = 1V, f = 1.0MHz
Reverse Recovery Time	t_{RR}	—	3.0	—	ns	I_F = I_R = 10mA, I_{RR} = 0.1I_R, R_L = 100Ω

Notes: 5. 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.
6. Short duration pulse test used to minimize self-heating effect.

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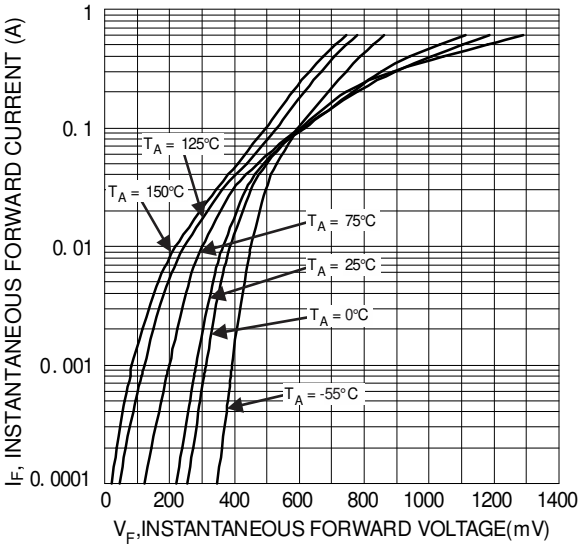


Fig.1 Typical Forward Characteristics

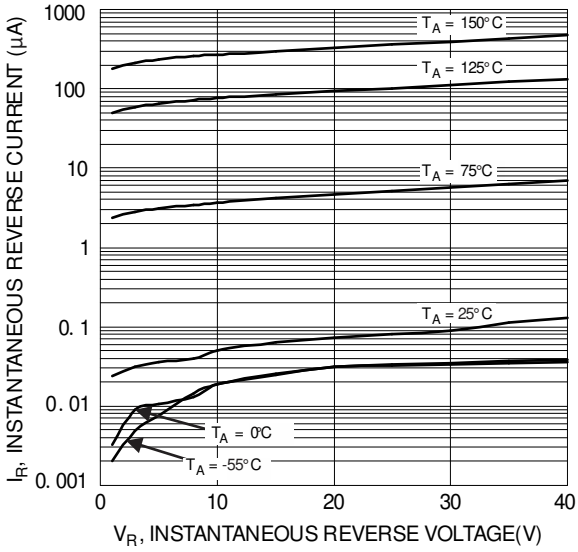


Figure 2 Typical Reverse Characteristics

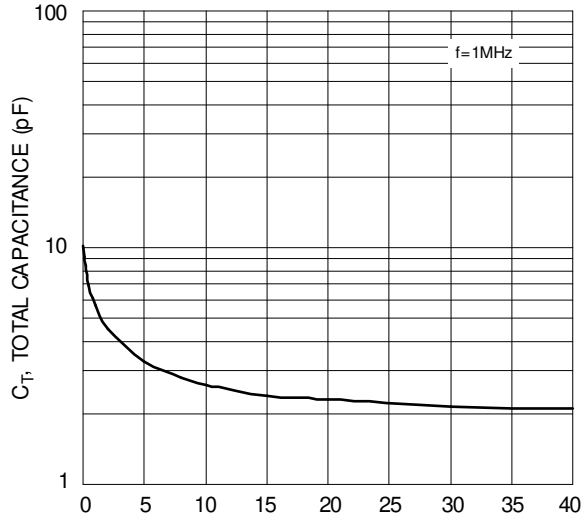


Figure 3 Total Capacitance vs. Reverse Voltage

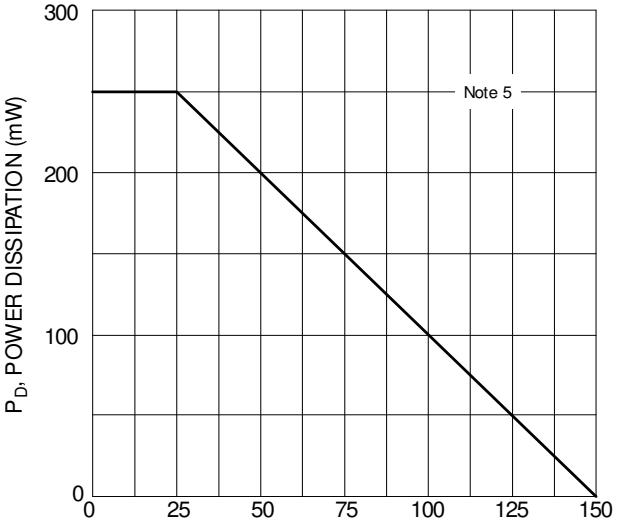


Figure 4 Power Derating Curve

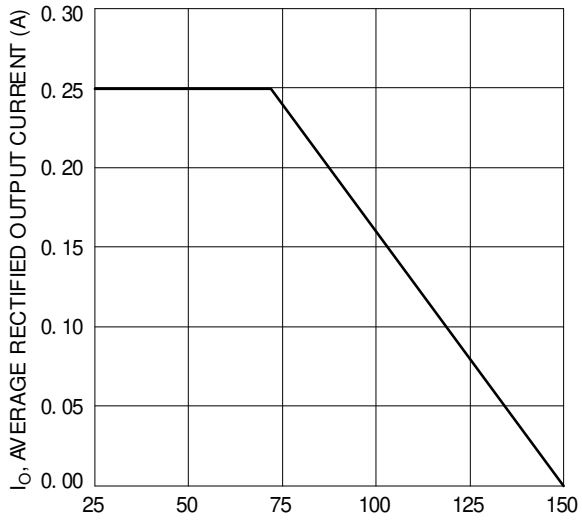


Figure 5 DC Forward Current Derating

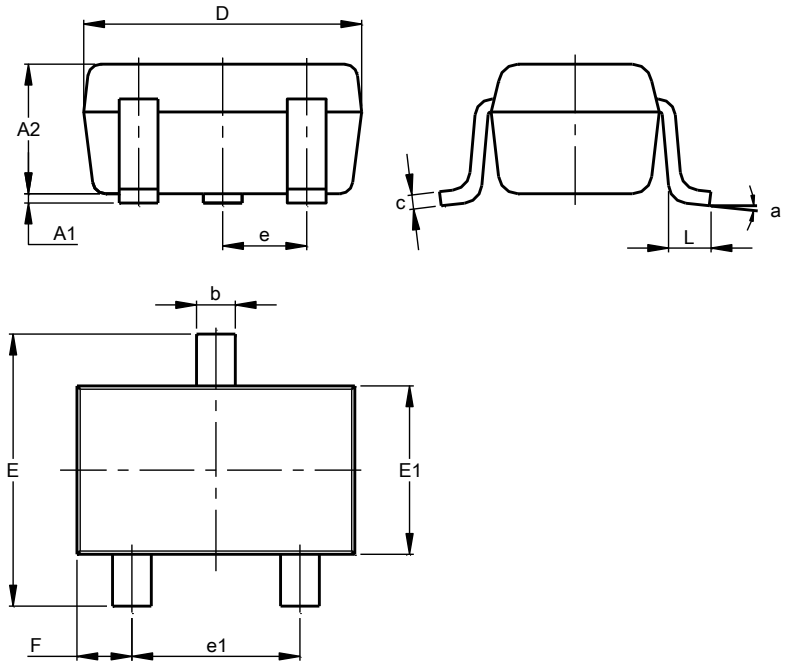
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Package Outline Dimensions

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

SOT323

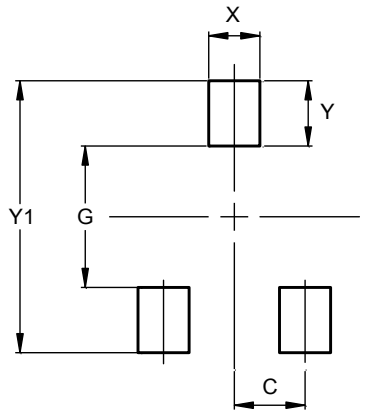


SOT323			
Dim	**Min**	**Max**	**Typ**
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.25	0.40	0.30
c	0.10	0.18	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
e1	1.20	1.40	1.30
F	0.375	0.475	0.425
L	0.25	0.40	0.30
a	0°	8°	—
All Dimensions in mm			

Suggested Pad Layout

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

SOT323



Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.470
Y	0.600
Y1	2.500

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