BAT54WS

SURFACE MOUNT SCHOTTKY BARRIER DIODE

Please click here to visit our online spice models database.

Features

- Fast Switching
- Ultra-Small Surface Mount Package
- PN Junction Guard Ring for Transient and ESD Protection
- **Lead, Halogen and Antimony Free, RoHS Compliant**
- **"Green" Device (Notes 3 and 5)**

Mechanical Data

- Case: SOD-323
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Leads: Solderable per MIL-STD-202, Method 208
- Also Available in Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe). Polarity: Cathode Band
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.004 grams (approximate)

Top View

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	30	V
RMS Reverse Voltage	$V_{R(RMS)}$	21	V
Average Rectified Forward Current	I_O	100	mA
Forward Continuous Current (Note 1)	I_F	200	mA
Repetitive Peak Forward Current (Note 1)	I_{FRM}	300	mA
Forward Surge Current (Note 1) @ t < 1.0s	I_{FSM}	600	mA

.

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 1)	P_D	200	mW
Thermal Resistance, Junction to Ambient Air (Note 1)	$R_{\theta JA}$	625	°C/W
Operating and Storage Temperature Range (Note 4)	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 2)	$V_{(BR)R}$	30	—	—	V	I_R = 100μA
Forward Voltage	V_{FM}	—	—	240 320 400 500 1000	mV	I_F = 0.1mA I_F = 1mA I_F = 10mA I_F = 30mA I_F = 100mA
Reverse Leakage Current (Note 2)	I_{RM}	—	—	2.0	μA	V_R = 25V
Total Capacitance	C_T	—	—	10	pF	V_R = 1.0V, f = 1.0MHz
Reverse Recovery Time	t_{rr}	—	—	5.0	ns	I_F = 10mA through I_R = 10mA to I_R = 1.0mA, R_L = 100Ω

Notes:
1. Part mounted on FR-4 PC board with recommended pad layout, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf.
2. Short duration pulse test used to minimize self-heating effect.
3. No purposefully added lead. Halogen and Antimony Free.
4. $\frac{d P_{tot}}{d T_J} > \frac{1}{R_{\theta JA}}$ thermal runaway condition for a diode on its own heatsink.
5. Product manufactured with Data Code V9 (week 33, 2008) and newer are built with Green Molding Compound. Product manufactured prior to Date Code V9 are built with Non-Green Molding Compound and may contain Halogens or Sb_2O_3 Fire Retardants.

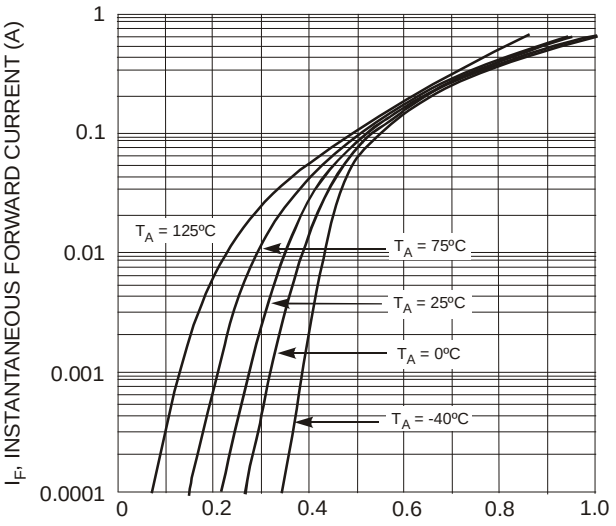


Fig. 1 Typical Forward Characteristics

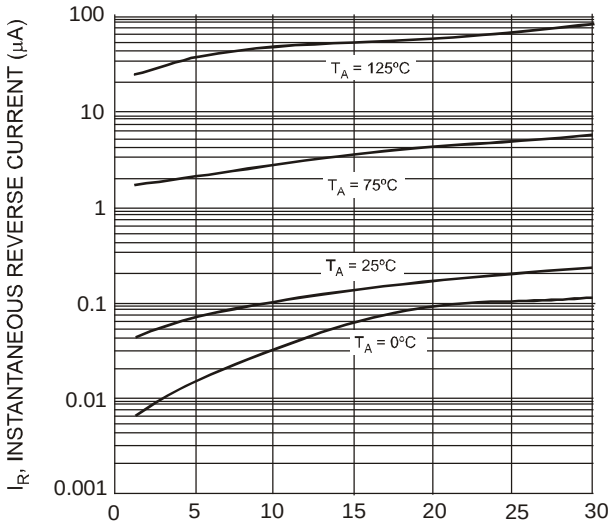


Fig. 2 Typical Reverse Characteristics

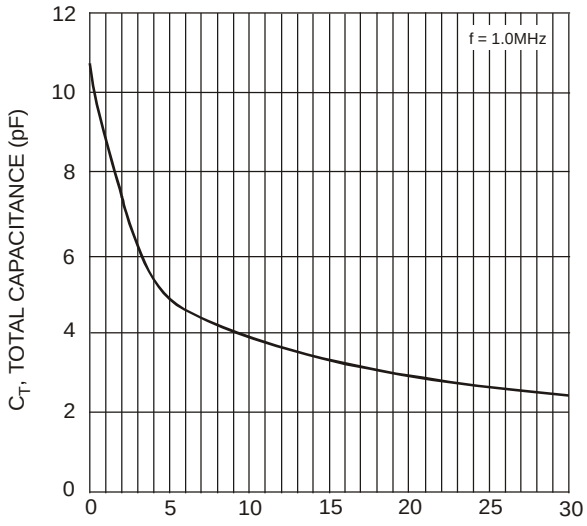


Fig. 3 Total Capacitance vs. Reverse Voltage

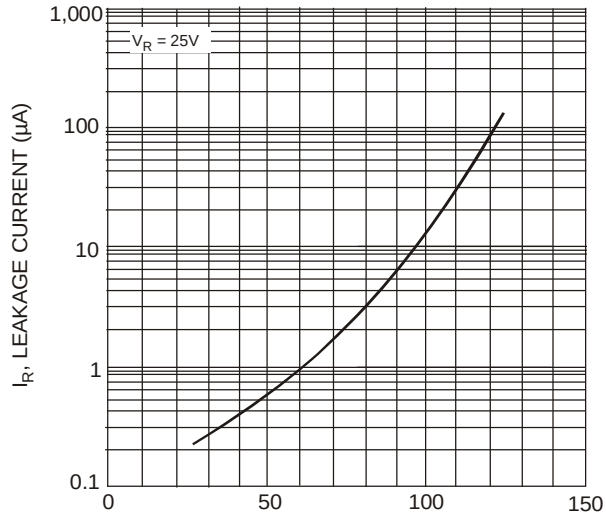


Fig. 4 Typical Reverse Characteristics

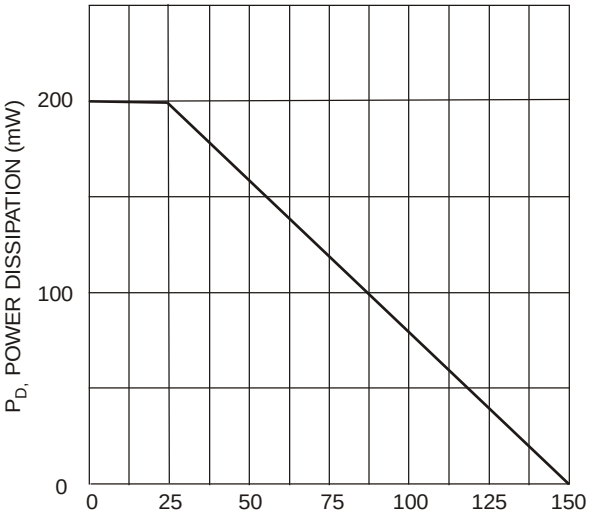


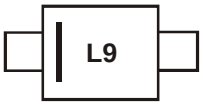
Fig. 5 Power Derating Curve

Ordering Information (Note 6)

Part Number	Case	Packaging
BAT54WS-7-F	SOD-323	3000/Tape & Reel

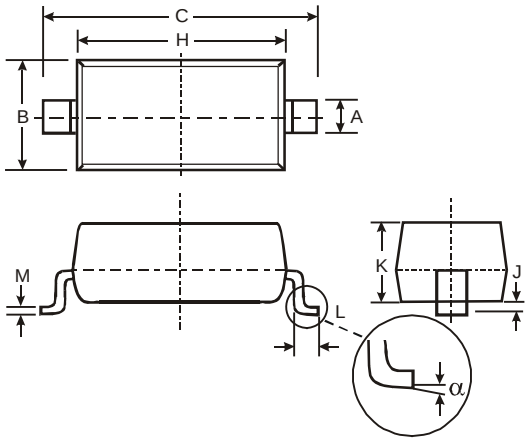
Notes: 6. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



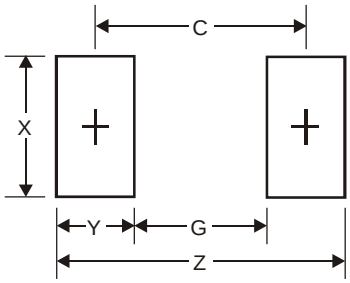
L9 = Product Type Marking Code

Package Outline Dimensions



SOD-323		
Dim	**Min**	**Max**
A	0.25	0.35
B	1.20	1.40
C	2.30	2.70
H	1.60	1.80
J	0.00	0.10
K	1.0	1.1
L	0.20	0.40
M	0.10	0.15
α	0°	8°
All Dimensions in mm		

Suggested Pad Layout



Dimensions	Value (in mm)
Z	3.75
G	1.05
X	0.65
Y	1.35
C	2.40