SURFACE MOUNT SCHOTTKY BARRIER DIODE

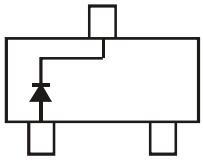
Features

- Ultra-Small Surface Mount Package
- Low Forward Voltage Drop
- Fast Switching
- PN Junction Guard Ring for Transient and ESD Protection
- **Lead Free/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2 and 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: SOT-523
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Polarity: See Diagrams Below
- Weight: 0.002 grams (approximate)

Top View



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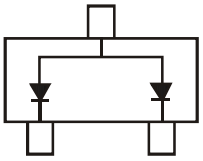

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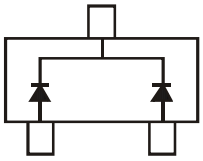

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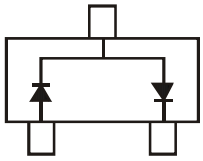


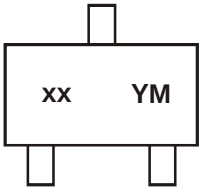
BAT54ST

Ordering Information (Note 4)

Part Number	Case	Packaging
BAT54T-7-F	SOT-523	3000/Tape & Reel
BAT54AT-7-F	SOT-523	3000/Tape & Reel
BAT54CT-7-F	SOT-523	3000/Tape & Reel
BAT54ST-7-F	SOT-523	3000/Tape & Reel

Notes:
1. No purposefully added lead.
2. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com.
3. Product manufactured with Date Code UO (week 40, 2007) and newer are built with Green Molding Compound. Product manufactured prior to Date Code UO are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.
4. For packaging details, go to our website at http://www.diodes.com.

Marking Information



xx = Product Type Marking Code
- L1 = BAT54T
- L2 = BAT54AT
- L3 = BAT54CT
- L4 = BAT54ST

YM = Date Code Marking
Y = Year (ex: N = 2002)
M = Month (ex: 9 = September)

Date Code Key

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Code	N	P	R	S	T	U	V	W	X	Y	Z	A	B	C

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°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
Forward Continuous Current	(Note 5)	I_{FM}	200	mA
Repetitive Peak Forward Current		I_{FRM}	300	mA
Forward Surge Current	@ t < 1.0s	I_{FSM}	600	mA

Thermal Characteristics

Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 5)	P_D	150	mW
Thermal Resistance, Junction to Ambient	(Note 5)	$R_{\theta JA}$	833	°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 Condition
Reverse Breakdown Voltage	(Note 6)	$V_{(BR)R}$	30	—	—	V	I_R = 100μA
Forward Voltage		V_F	—	—	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 6)	I_R	—	—	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:
5. Device 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.
6. Short duration pulse test used to minimize self-heating effect.

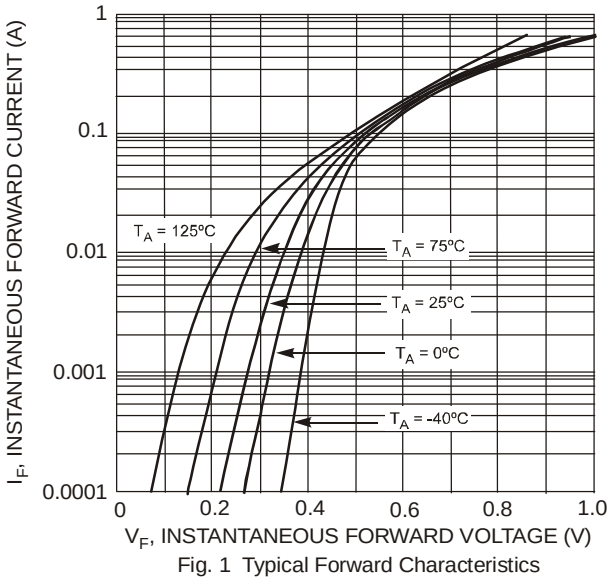


Fig. 1 Typical Forward Characteristics

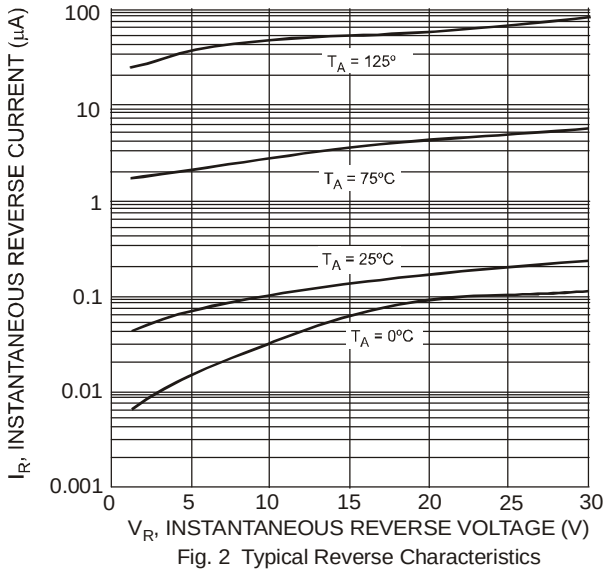


Fig. 2 Typical Reverse Characteristics

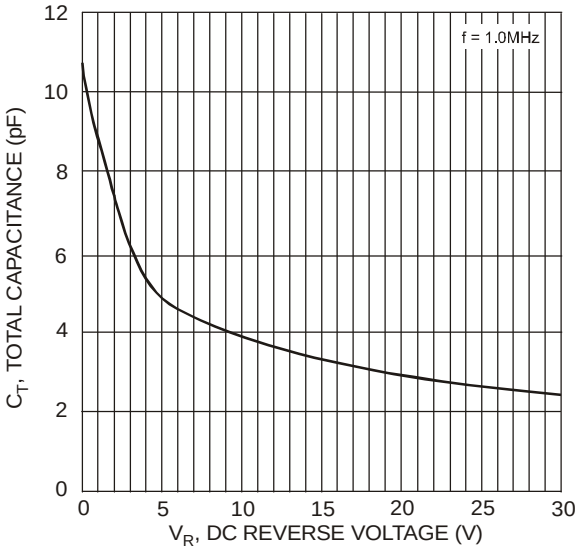


Fig. 3 Total Capacitance vs. Reverse Voltage

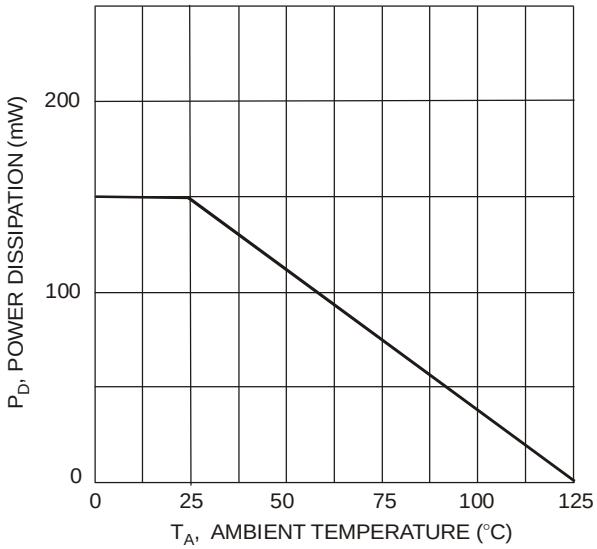
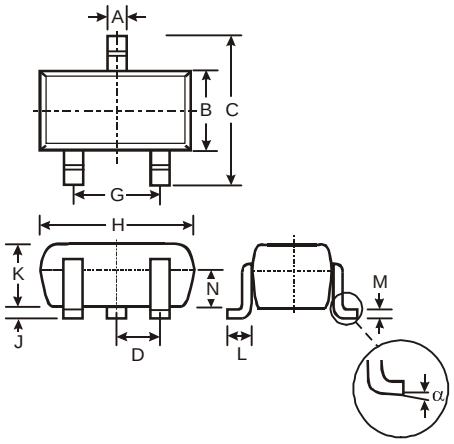


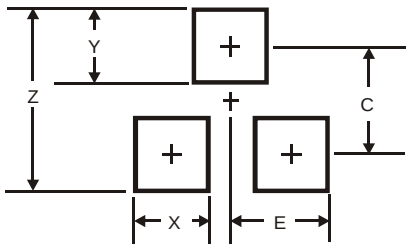
Fig. 4 Power Derating Curve

Package Outline Dimensions



SOT-523			
Dim	**Min**	**Max**	**Typ**
A	0.15	0.30	0.22
B	0.75	0.85	0.80
C	1.45	1.75	1.60
D	—	—	0.50
G	0.90	1.10	1.00
H	1.50	1.70	1.60
J	0.00	0.10	0.05
K	0.60	0.80	0.75
L	0.10	0.30	0.22
M	0.10	0.20	0.12
N	0.45	0.65	0.50
α	0°	8°	—
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	1.8
X	0.4
Y	0.51
C	1.3
E	0.7

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