

## Features

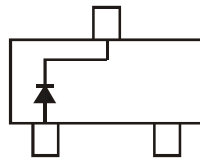
- Low Turn-on Voltage
- Fast Switching
- PN Junction Guard Ring for Transient and ESD Protection
- **Lead Free/RoHS Compliant (Note 3)**
- **“Green” Molding Compound (No Br, Sb) (Note 4)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

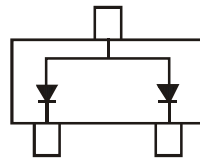
- Case: SOT-23
- Case Material: Molded Plastic, “Green” Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish annealed over Alloy 42 leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Polarity: See Diagrams Below
- Marking Information: See Page 3
- Ordering Information: See Page 2
- Weight: 0.008 grams (approximate)



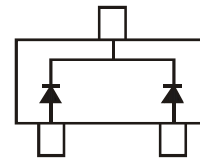
Top View



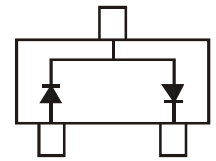
BAT54



BAT54A



BAT54C



BAT54S

## Maximum Ratings @<sub>TA</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$	30	V
Working Peak Reverse Voltage	$V_{RWM}$		
DC Blocking Voltage	$V_R$		
Forward Continuous Current (Note 2)	$I_F$	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 2)	$P_D$	200	mW
Thermal Resistance, Junction to Ambient Air (Note 2)	$R_{\theta JA}$	500	°C/W
Operating and Storage Temperature Range (Note 5)	$T_J, T_{STG}$	-65 to +150	°C

## Electrical Characteristics @<sub>TA</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 1)	$V_{(BR)R}$	30	—	—	V	$I_{RS} = 100\mu A$
Forward Voltage	$V_F$	—	—	240	mV	$I_F = 0.1mA$
				320		$I_F = 1mA$
				400		$I_F = 10mA$
				500		$I_F = 30mA$
				800		$I_F = 100mA$
Reverse Leakage Current (Note 1)	$I_R$	—	—	2.0	$\mu A$	$V_R = 25V$
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 $I_R = 1.0mA, R_L = 100\Omega$

- Notes:
1. Short duration test pulse used to minimize self-heating effect.
  2. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
  3. No purposefully added lead.
  4. Products manufactured with date code VD (Week 50, 2008) and newer are built with Green Molding Compound. Products manufactured with date code prior to VD are built with Non-Green Molding Compound and may contain Halogens or  $Sb_2O_3$  Fire Retardants.
  5. The heat generated must be less than the thermal conductivity from Junction-to-Ambient:  $dP_D/dT_J < 1/R_{\theta JA}$

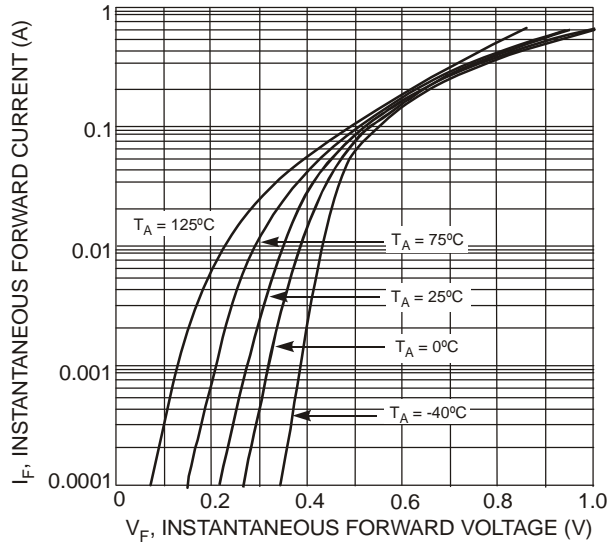


Fig. 1 Typical Forward Characteristics

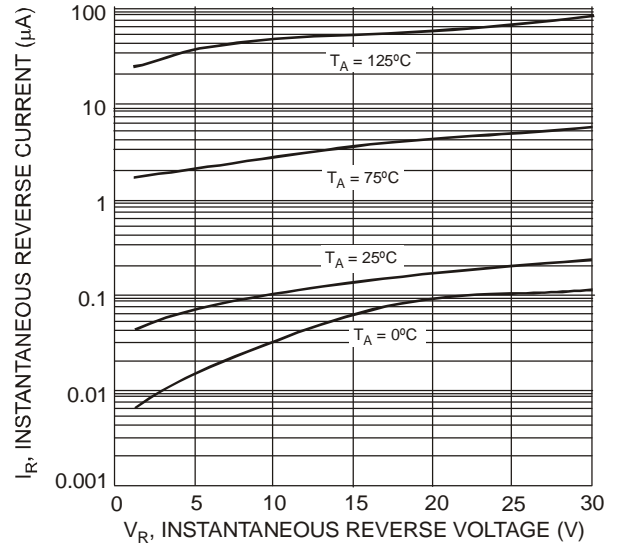


Fig. 2 Typical Reverse Characteristics

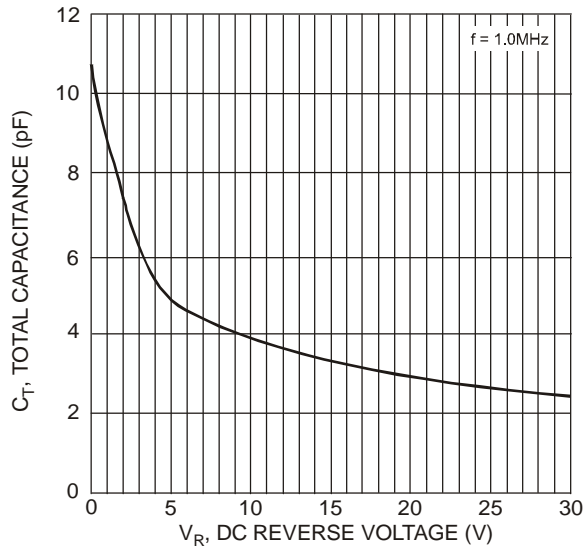


Fig. 3 Total Capacitance vs. Reverse Voltage

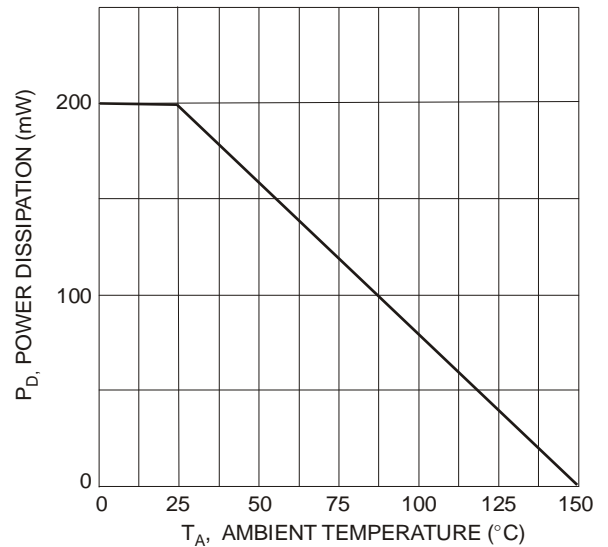


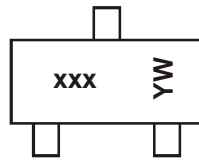
Fig. 4 Power Derating Curve

**Ordering Information** (Note 6)

Part Number	Case	Packaging
BAT54-7-F	SOT-23	3000/Tape & Reel
BAT54A-7-F	SOT-23	3000/Tape & Reel
BAT54C-7-F	SOT-23	3000/Tape & Reel
BAT54S-7-F	SOT-23	3000/Tape & Reel

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

**Marking Information**



xxx = Product Type Marking Code  
 KL1 = BAT54  
 KL2 = BAT54A  
 KL3 = BAT54C  
 KL4 = BAT54S  
 YM = Date Code Marking  
 Y = Year (ex: T = 2006)  
 M = Month (ex: 9 = September)

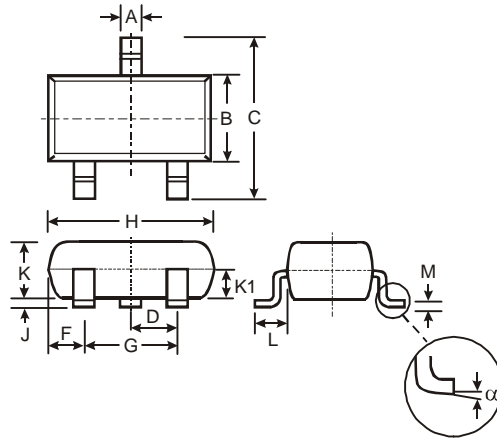
Date Code Key

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Code	J	K	L	M	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

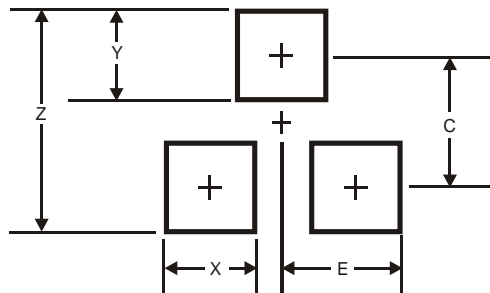
**Package Outline Dimensions**



SOT-23			
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	0.903	1.10	1.00
K1	-	-	0.400
L	0.45	0.61	0.55
M	0.085	0.18	0.11
α	0°	8°	-

All Dimensions in mm

**Suggested Pad Layout**



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

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