

## SURFACE MOUNT SCHOTTKY BARRIER DIODE

### Features

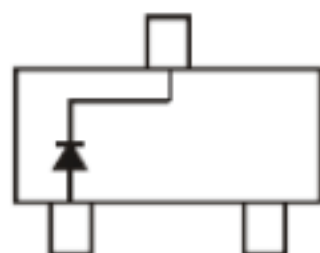
- ? Low Turn-on Voltage
- ? Fast Switching
- ? PN Junction Guard Ring for Transient and ESD Protection
- ? Lead Free/RoHS Compliant (Note 3)
- ? “ Green ” Molding Compound (No Br, Sb) (Note 4)
- ? Qualified to AEC-Q101 Standards for High Reliability

### Mechanical Data

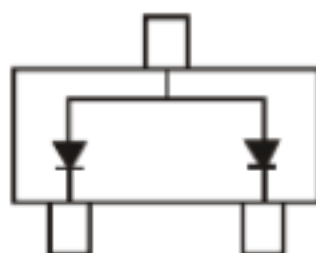
- ? Case: SOT-23
- ? Case Material: Molded Plastic, “ Green ” Molding Compound.  
UL Flammability Classification Rating 94V-0
- ? Moisture Sensitivity: Level 1 per J-STD-020
- ? Terminals: Matte Tin Finish annealed over Alloy 42 leadframe  
(Lead Free Plating). Solderable per MIL-STD-202, Method 208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



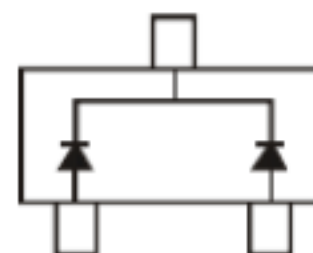
Top View



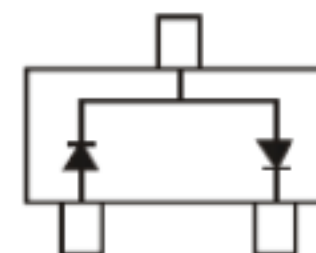
BAT54



BAT54A



BAT54C



BAT54S

### Maximum Ratings

@T<sub>A</sub> = 25 ° C unless otherwise specified

Characteristic Symbol		Value	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	30 V	
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>R</sub>		
Forward Continuous Current (Note 2)	I <sub>F</sub>	200 mA	
Repetitive Peak Forward Current	I <sub>FRM</sub>	300 mA	
Forward Surge Current	I <sub>FSM</sub>	600 mA	
@ t < 1.0s			

### Thermal Characteristics

Characteristic Symbol		Value	Unit
Power Dissipation (Note 2)	P <sub>D</sub>	200 mW	
Thermal Resistance, Junction to Ambient Air (Note 2)	R <sub>JA</sub>	500 ° C/W	
Operating and Storage Temperature Range (Note 5)	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	° C

### Electrical Characteristics

@T<sub>A</sub> = 25 ° C unless otherwise specified

Characteristic Symbol		Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 1)	V <sub>(BR)R</sub>	30	?	?	V	I <sub>RS</sub> = 100 μA
Forward Voltage	V <sub>F</sub>	?	?	240 320 400 500 800	mV	I <sub>F</sub> = 0.1mA I <sub>F</sub> = 1mA I <sub>F</sub> = 10mA I <sub>F</sub> = 30mA I <sub>F</sub> = 100mA
Reverse Leakage Current (Note 1)	I <sub>R</sub>	?	?	2.0	μA	V <sub>R</sub> = 25V
Total Capacitance	C <sub>T</sub>	?	?	10 pF		V <sub>R</sub> = 1.0V, f = 1.0MHz
Reverse Recovery Time	t <sub>rr</sub>	?	?	5.0 ns		I <sub>F</sub> = 10mA through I <sub>R</sub> = 10mA to I <sub>R</sub> = 1.0mA, R <sub>L</sub> = 100

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 <sub>2</sub>O<sub>3</sub> Fire Retardants.
5. The heat generated must be less than the thermal conductivity from Junction-to-Ambient: dP d/dT<sub>J</sub> < 1/R<sub>JA</sub>

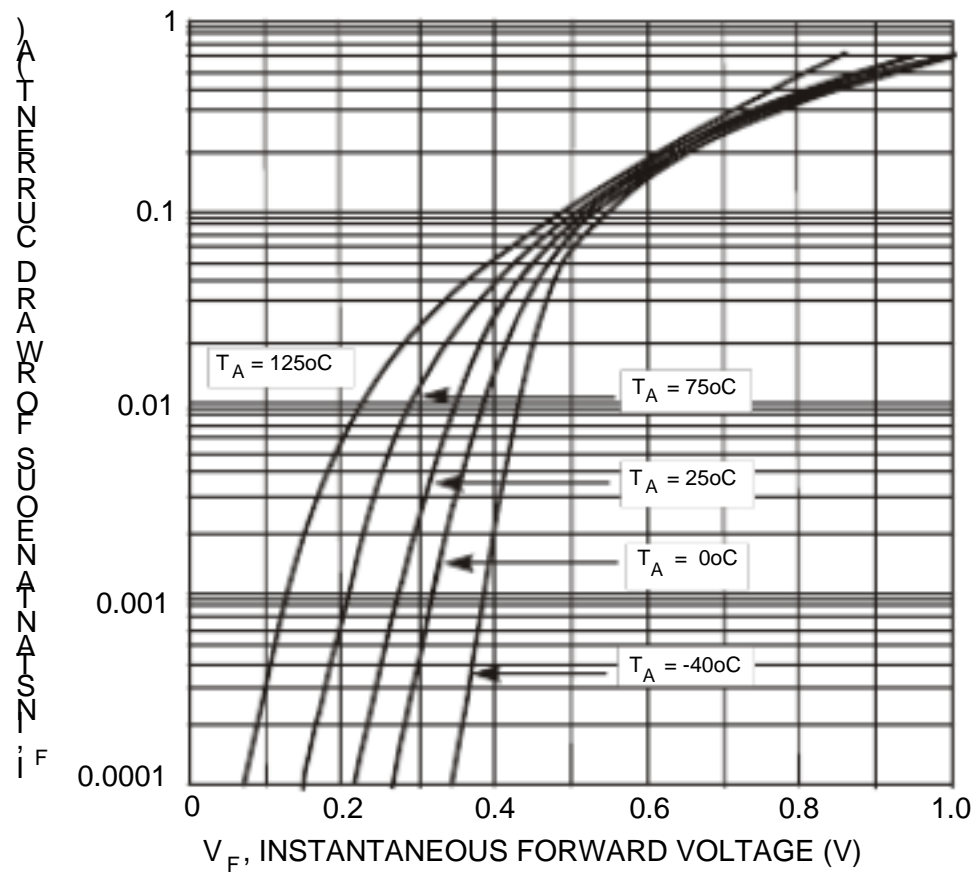


Fig. 1 Typical Forward Characteristics

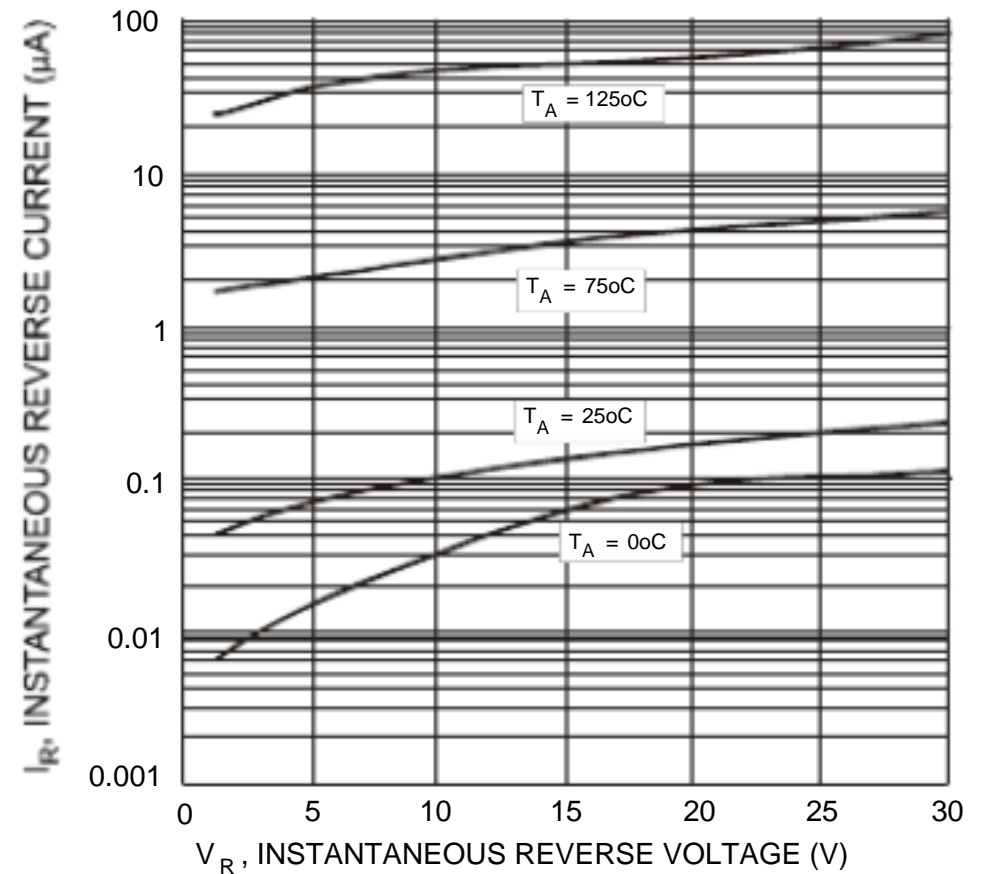


Fig. 2 Typical Reverse Characteristics

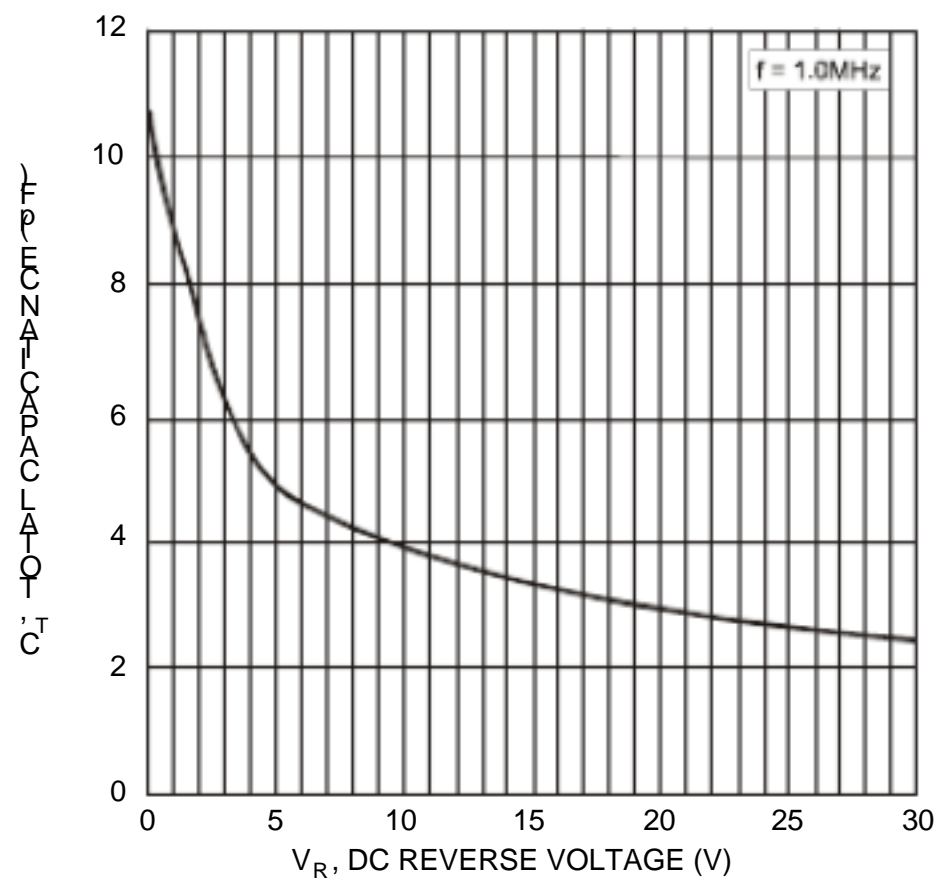


Fig. 3 Total Capacitance vs. Reverse Voltage

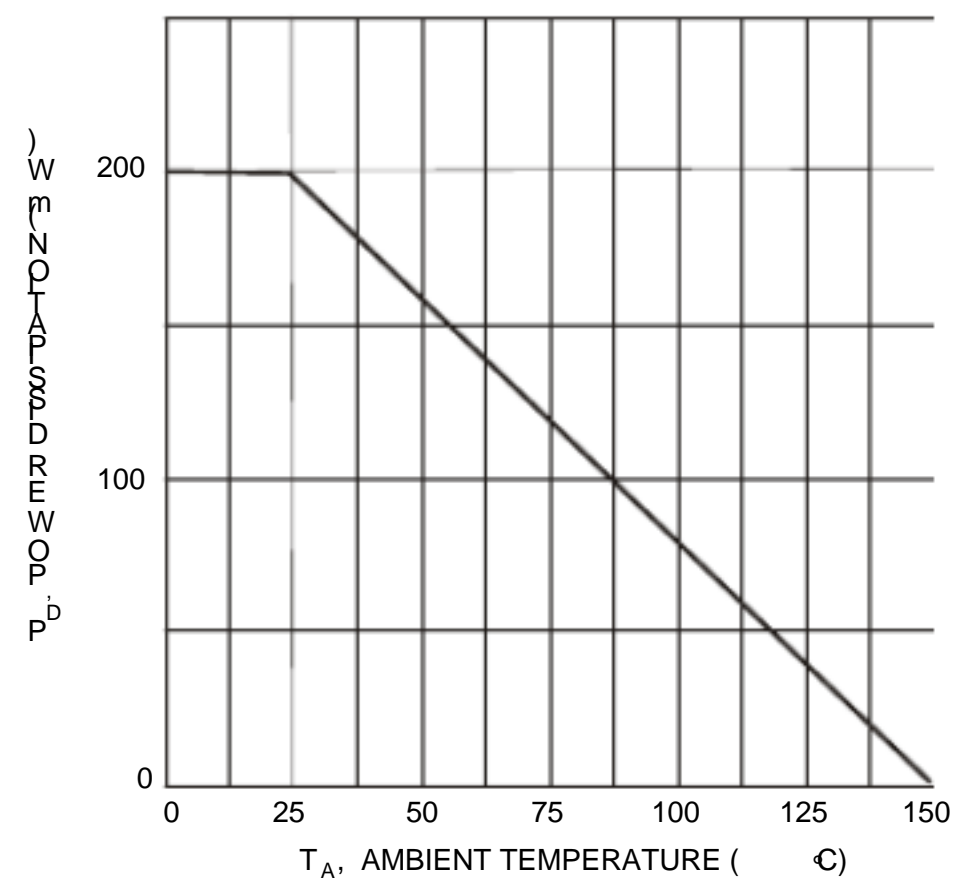


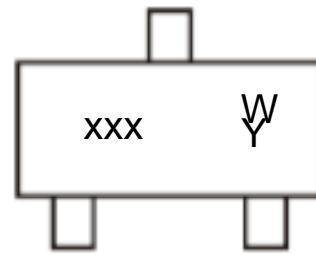
Fig. 4 Power Derating Curve

## 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

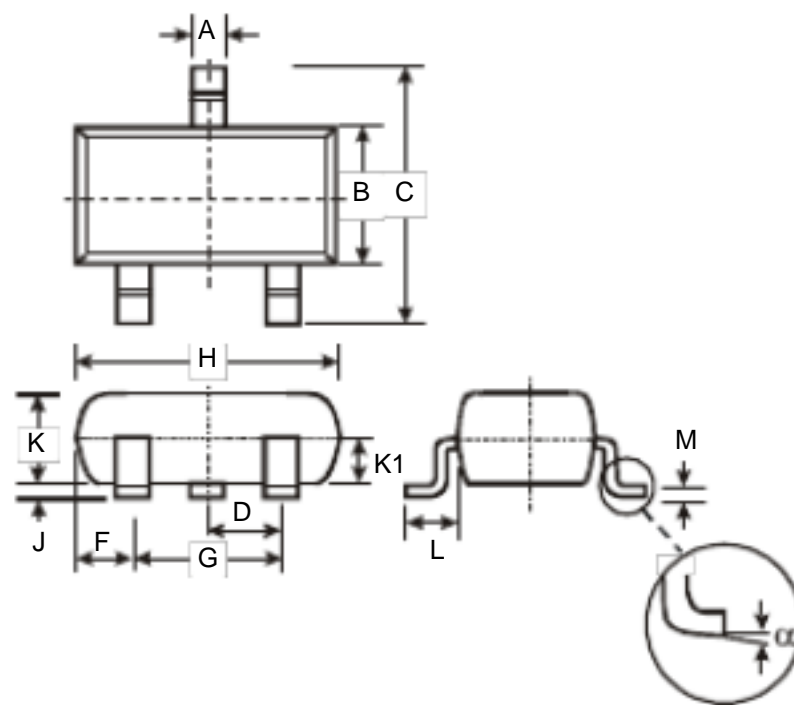
Y = Year (ex: T = 2006)

M = Month (ex: 9 = September)

### Date Code Key

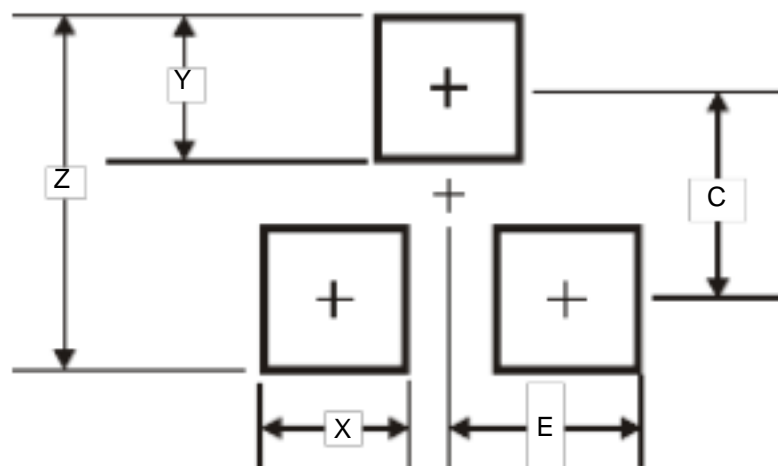
Year	1998	1999	2000	2001	2002	2003			2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015		
Code	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z	A	B	C				
Month	Jan			Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct	Nov	Dec
Code	1	2	3	4	5	6	7							8		9	O			N	D	

## 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
	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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