

Features

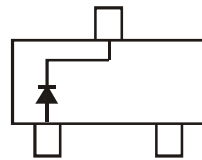
- Low Turn-on Voltage
- Fast Switching
- PN Junction Guard Ring for Transient and ESD Protection
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

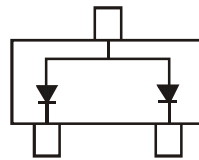
- Case: SOT23
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish annealed over Alloy 42 leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208 ^{Ⓜ3}
- Polarity: See Diagrams Below
- Weight: 0.008 grams (approximate)



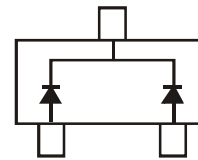
Top View



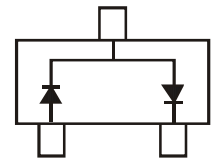
BAT54



BAT54A



BAT54C



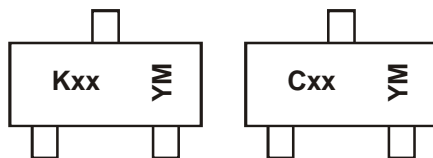
BAT54S

Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
BAT54-7-F	Standard	SOT23	3000/Tape & Reel
BAT54A-7-F	Standard	SOT23	3000/Tape & Reel
BAT54C-7-F	Standard	SOT23	3000/Tape & Reel
BAT54S-7-F	Standard	SOT23	3000/Tape & Reel
BAT54Q-7-F	Automotive	SOT23	3000/Tape & Reel
BAT54AQ-7-F	Automotive	SOT23	3000/Tape & Reel
BAT54CQ-7-F	Automotive	SOT23	3000/Tape & Reel
BAT54SQ-7-F	Automotive	SOT23	3000/Tape & Reel
BAT54-13-F	Standard	SOT23	10,000/Tape & Reel
BAT54A-13-F	Standard	SOT23	10,000/Tape & Reel
BAT54Q-13	Automotive	SOT23	10,000/Tape & Reel
BAT54AQ-13	Automotive	SOT23	10,000/Tape & Reel
BAT54SQ-13	Automotive	SOT23	10,000/Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
 2. See http://www.diodes.com/quality/lead_free.html 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 <http://www.diodes.com/products/packages.html>.

Marking Information



K = SAT (Shanghai Assembly / Test site)
 C = CAT (ChengDu Assembly / Test site)
 xx = Product Type Marking Code
 L1 = BAT54
 L2 = BAT54A
 L3 = BAT54C
 L4 = BAT54S
 YM = Date Code Marking
 Y = Year (ex: A = 2013)
 M = Month (ex: 9 = September)

Date Code Key

Year	1998	...	2002	2003	...	2009	2010	2011	2012	2013	2014	2015	2016	2017
Code	J	...	N	P	...	W	X	Y	Z	A	B	C	D	E
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	V _{RRM}	30	V
Working Peak Reverse Voltage	V _{RWM}		
DC Blocking Voltage	V _R		
Forward Continuous Current (Note 5)	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 5)	P _D	200	mW
Typical Thermal Resistance Junction to Ambient Air (Note 5)	R _{θJA}	500	°C/W
Typical Thermal Resistance Junction to Case (Note 8)	R _{θJC}	180	°C/W
Operating and Storage Temperature Range (Note 6)	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 7)	V _{(BR)R}	30	—	—	V	I _{RS} = 100μA
Forward Voltage	V _F	—	—	240 320 400 500 800	mV	I _F = 0.1mA I _F = 1mA I _F = 10mA I _F = 30mA I _F = 100mA
Reverse Leakage Current (Note 7)	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:
- Part mounted on FR-4 board with recommended pad layout, which can be found on our website at <http://www.diodes.com>.
 - The heat generated must be less than the thermal conductivity from Junction-to-Ambient: dP_D/dT_J < 1/R_{θJA}.
 - Short duration test pulse used to minimize self-heating effect.
 - Device mounted on Polyimide substrate PC board. FR4 2oz 1*MRP layout.

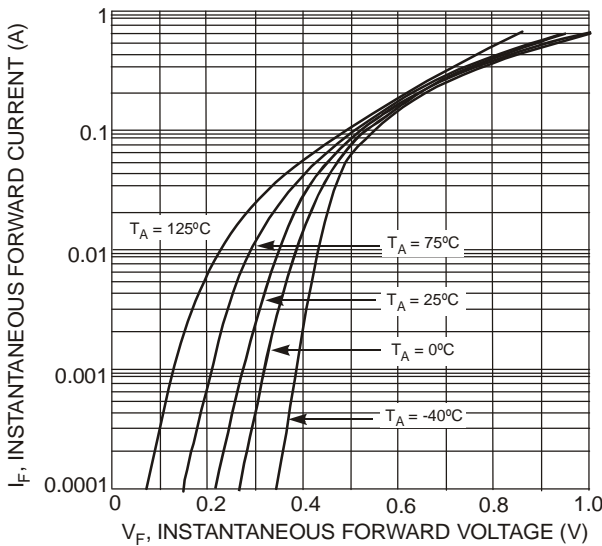


Figure 1 Typical Forward Characteristics

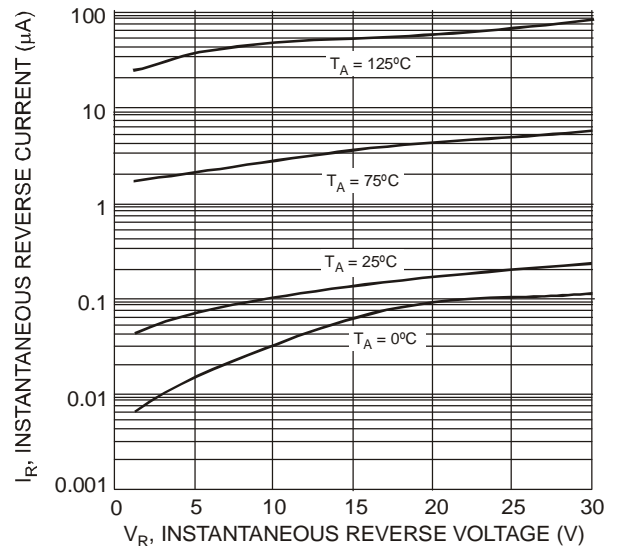


Figure 2 Typical Reverse Characteristics

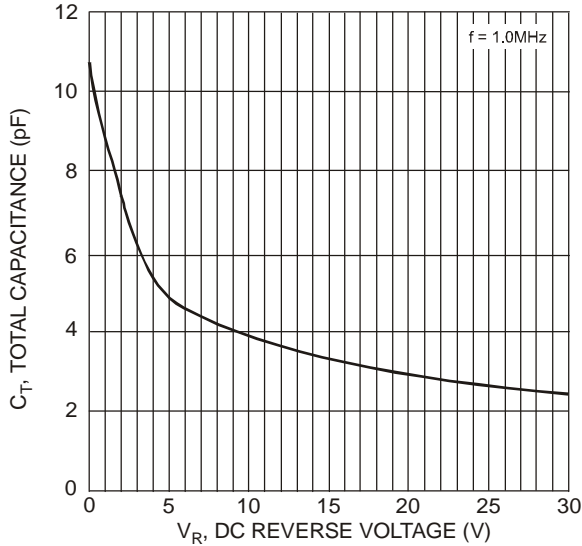


Figure 3 Total Capacitance vs. Reverse Voltage

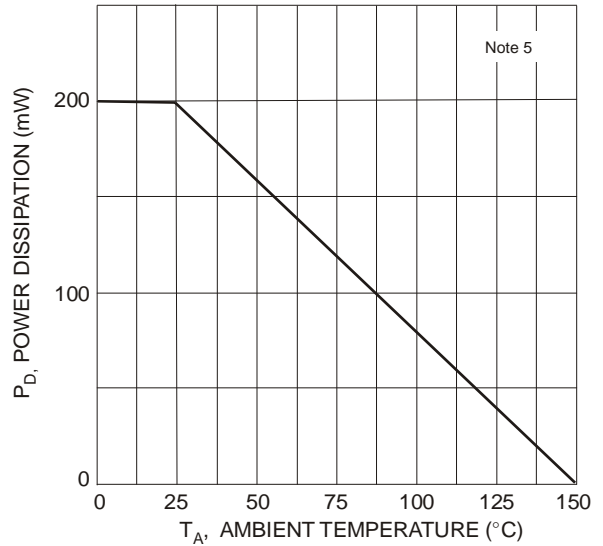
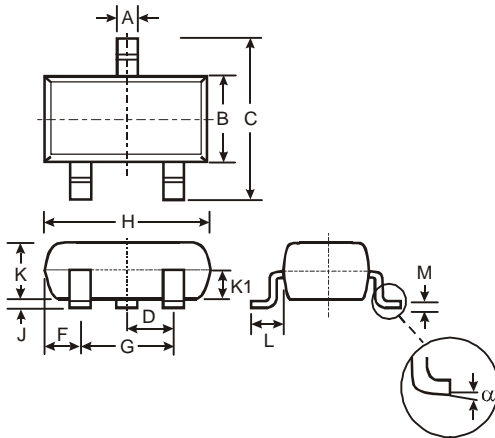


Figure 4 Power Derating Curve

Package Outline Dimensions

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.

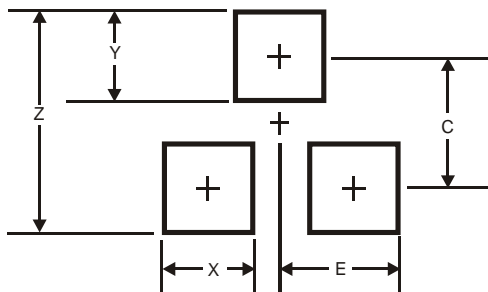


SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.903	1.10	1.00
K1	-	-	0.400
L	0.45	0.61	0.55
M	0.085	0.18	0.11
α	0°	8°	-

All Dimensions in mm

Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



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

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