

Features

- Low Forward Voltage Drop
- Fast Switching
- Ultra-Small Surface Mount Package
- PN Junction Guard Ring for Transient and ESD Protection
- **Qualified to AEC-Q101 Standards for High Reliability**
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Notes 3 & 4)**

Mechanical Data

- Case: SOT323
- Case Material: Molded Plastic, "Green" Molding Compound, Note 5. 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
- Weight: 0.006 grams (approximate)

SOT323



Top View



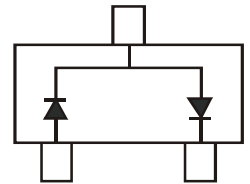
BAT54W-KL5



BAT54AW-KL6



BAT54CW-KL7



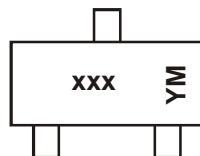
BAT54SW-KL8

Ordering Information (Note 5)

Part Number	Case	Packaging
BAT54W-7-F	SOT323	3000/Tape & Reel
BAT54AW-7-F	SOT323	3000/Tape & Reel
BAT54AWQ-7-F	SOT323	3000/Tape & Reel
BAT54CW-7-F	SOT323	3000/Tape & Reel
BAT54SW-7-F	SOT323	3000/Tape & Reel
BAT54SWQ-7-F	SOT323	3000/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> 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. Product manufactured with Date Code 0627 (week 27, 2006) and newer are built with Green Molding Compound. Product manufactured prior to Date Code 0627 are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.
 5. For packaging details, go to our website at <http://www.diodes.com>.

Marking Information



- xxx = Product Type Marking Code
 KL5 = BAT54W
 KL6 = BAT54AW
 KL7 = BAT54CW
 KL8 = BAT54SW
 YM = Date Code Marking
 Y = Year (ex: N = 2002)
 M = Month (ex: 9 = September)

Date Code Key

Year	2000	2001	2002	2003	2004	...	2010	2011	2012	2013	2014	2015	2016	2017	2018
Code	L	M	N	P	R	...	X	Y	Z	A	B	C	D	E	F
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 (@ $T_A = +25^\circ\text{C}$, 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 6)	I_F	200	mA
Repetitive Peak Forward Current (Note 6)	I_{FRM}	300	mA
Forward Surge Current (Note 6)	I_{FSM}	600	mA

@ $t < 1.0\text{s}$

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P_D	200	mW
Thermal Resistance Junction to Ambient Air (Note 6)	$R_{\theta JA}$	625	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +125	$^\circ\text{C}$

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	$V_{(BR)R}$	30	—	—	V	$I_R = 100\mu\text{A}$
Forward Voltage	V_F	—	—	240 320 400 500 1000	mV	$I_F = 0.1\text{mA}$ $I_F = 1\text{mA}$ $I_F = 10\text{mA}$ $I_F = 30\text{mA}$ $I_F = 100\text{mA}$
Reverse Leakage Current (Note 7)	I_R	—	—	2.0	μA	$V_R = 25\text{V}$
Total Capacitance	C_T	—	—	10	pF	$V_R = 1.0\text{V}, f = 1.0\text{MHz}$
Reverse Recovery Time	t_{rr}	—	—	5.0	ns	$I_F = 10\text{mA}$ through $I_R = 10\text{mA}$ to $I_R = 1.0\text{mA}, R_L = 100\Omega$

- Notes: 6. Mounted on FR-4 PC board with recommended pad layout which can be found on our website at <http://www.diodes.com>.
7. Short duration pulse test used to minimize self-heating effect.



Fig. 1 Typical Forward Characteristics



Fig. 2 Typical Reverse Characteristics

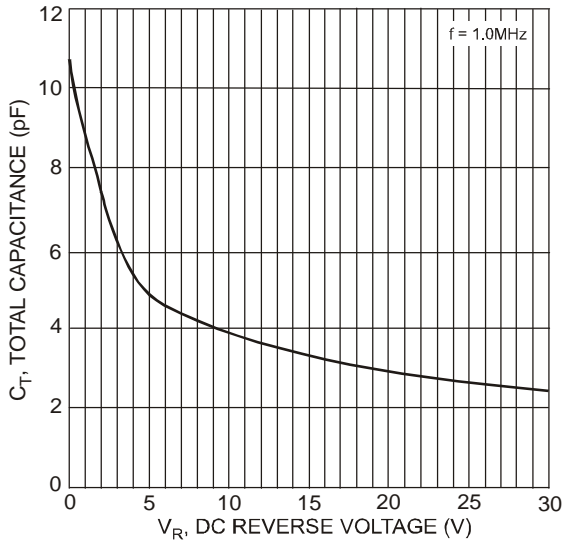


Fig. 3 Total Capacitance vs. Reverse Voltage

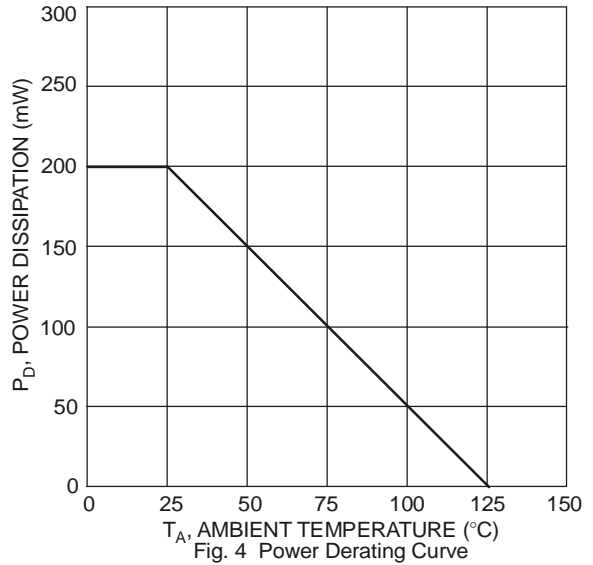
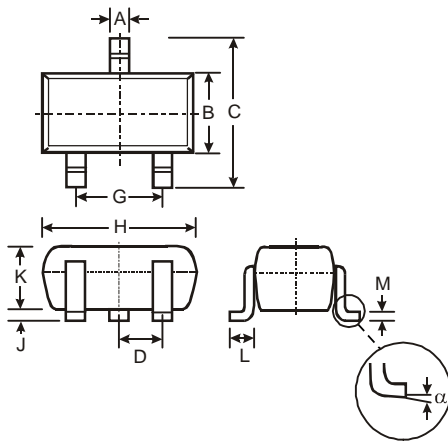


Fig. 4 Power Derating Curve

Package Outline Dimensions

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



SOT323			
Dim	Min	Max	Typ
A	0.25	0.40	0.30
B	1.15	1.35	1.30
C	2.00	2.20	2.10
D	-	-	0.65
G	1.20	1.40	1.30
H	1.80	2.20	2.15
J	0.0	0.10	0.05
K	0.90	1.00	1.00
L	0.25	0.40	0.30
M	0.10	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	2.8
X	0.7
Y	0.9
C	1.9
E	1.0

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Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург,
Промышленная ул, дом № 19, литера Н,
помещение 100-Н Офис 331