SURFACE MOUNT SCHOTTKY BARRIER DIODE

Features

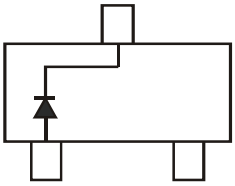
- Low Forward Voltage Drop
- Fast Switching
- Ultra-Small Surface Mount Package
- PN Junction Guard Ring for Transient and ESD Protection
- **Qualified to AEC-Q101 Standards for High Reliability**
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device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

Mechanical Data

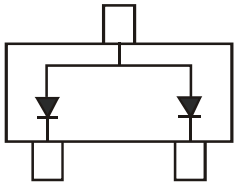
- Case: SOT323
- Case Material: Molded Plastic, "Green" Molding Compound, Note 5. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish annealed over Alloy 42 leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208 e3
- Polarity: See Diagrams Below
- Weight: 0.006 grams (approximate)

SOT323

Top View



BAT54W-KL5



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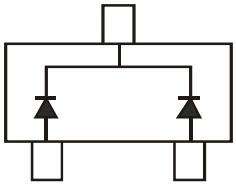

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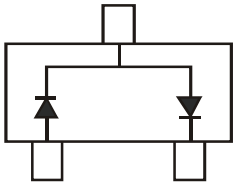


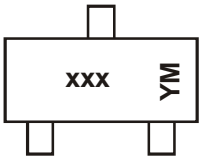
BAT54SW-KL8

Ordering Information (Note 5)

Part Number	Compliance	Case	Packaging
BAT54W-7-F	Standard	SOT323	3000/Tape & Reel
BAT54W-13-F	Standard	SOT323	10000/Tape & Reel
BAT54WQ-7-F	Automotive	SOT323	3000/Tape & Reel
BAT54AW-7-F	Standard	SOT323	3000/Tape & Reel
BAT54AW-13-F	Standard	SOT323	10000/Tape & Reel
BAT54AWQ-7-F	Automotive	SOT323	3000/Tape & Reel
BAT54CW-7-F	Standard	SOT323	3000/Tape & Reel
BAT54CW-13-F	Standard	SOT323	10000/Tape & Reel
BAT54CWQ-7-F	Automotive	SOT323	3000/Tape & Reel
BAT54SW-7-F	Standard	SOT323	3000/Tape & Reel
BAT54SW-13-F	Standard	SOT323	10000/Tape & Reel
BAT54SWQ-7-F	Automotive	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/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. Product manufactured with Date Code 1327 (week 27, 2013) 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/products/packages.html

Marking Information



xxx = Product Type Marking Code
KL5 = BAT54W
KL6 = BAT54AW
KL7 = BAT54CW
KL8 = BAT54SW
YM = Date Code Marking
Y = Year (ex: A = 2014)
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

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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 6)	I_F	200	mA
Repetitive Peak Forward Current (Note 6)	I_{FRM}	300	mA
Forward Surge Current (Note 6) @ t < 1.0s	I_{FSM}	600	mA

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	°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 7)	$V_{(BR)R}$	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 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: 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.

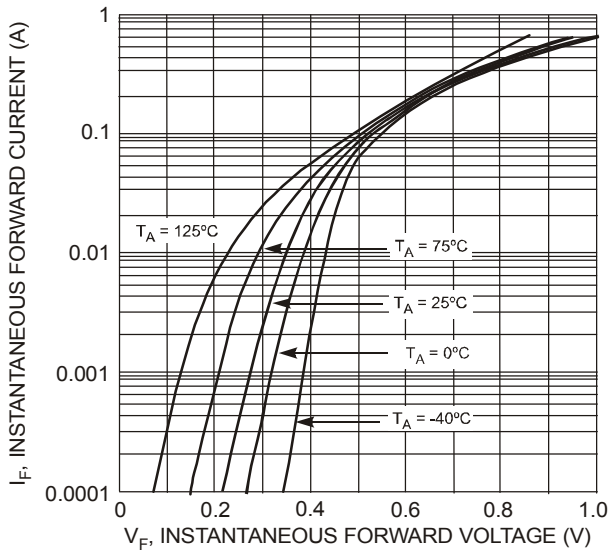

Fig. 1 Typical Forward Characteristics

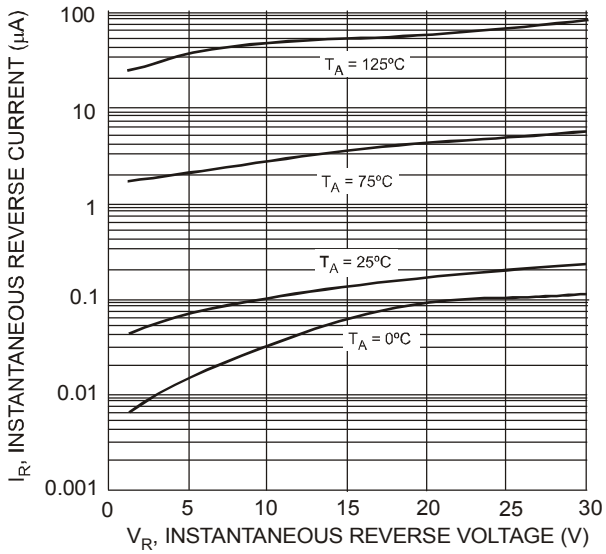

Fig. 2 Typical Reverse Characteristics

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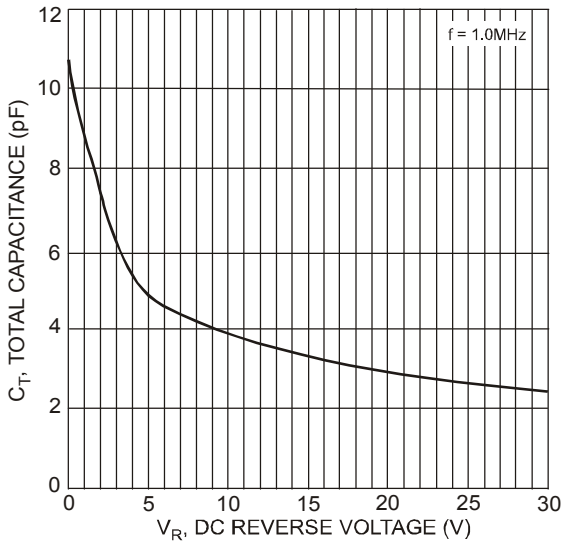


Fig. 3 Total Capacitance vs. Reverse Voltage

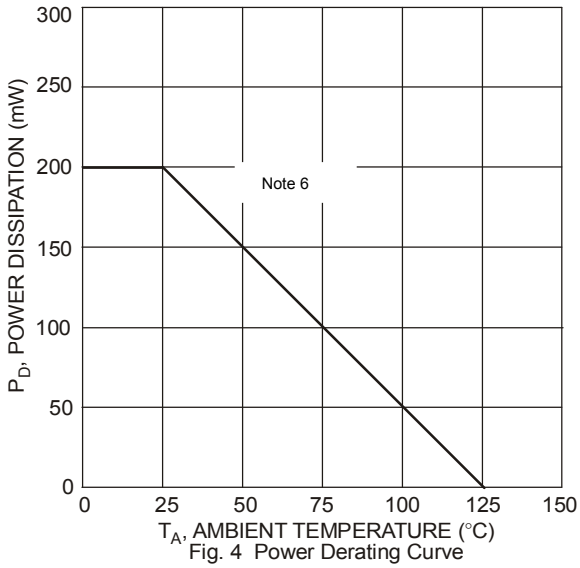
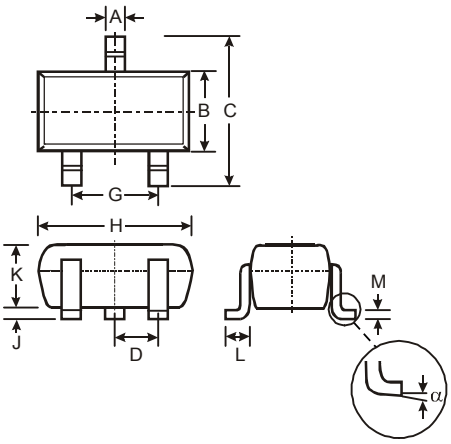


Fig. 4 Power Derating Curve

Package Outline Dimensions

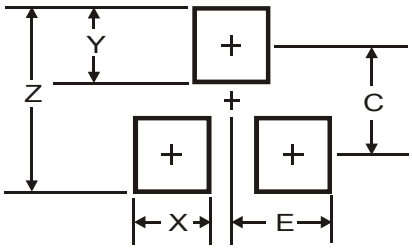
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



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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