

200mA, 30V Schottky Barrier Diode

FEATURES

- Fast switching speed
- Surface mount device type
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- Adapters
- For switching power supply
- Inverter

MECHANICAL DATA

- Case: SOT-23
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Weight: 8.00mg (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	200	mA
V_{RRM}	30	V
I_{FSM}	600	mA
V_F at $I_F = 100\text{mA}$	1	V
$T_{J\text{ MAX}}$	125	°C
Package	SOT-23	



SOT-23

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER	SYMBOL	BAT54	BAT54A	BAT54C	BAT54S	UNIT
Marking code on the device		KL1	KL2	KL3	KL4	
Power dissipation	P_D	200				mW
Repetitive peak reverse voltage	V_{RRM}	30				V
Repetitive peak forward current ($t_p \leq 1\text{s}; \delta \leq 0.5$)	I_{FRM}	300				mA
Forward current	I_F	200				mA
Non-Repetitive peak forward surge current @ $t < 1.0\text{s}$	I_{FSM}	600				mA
Junction temperature range	T_J	-55 to +125				°C
Storage temperature range	T_{STG}	-55 to +125				°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-ambient thermal resistance	$R_{\theta JA}$	500	°C/W

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	MIN	MAX	UNIT
Forward voltage per diode ⁽¹⁾	$I_F = 0.1\text{mA}, T_J = 25^\circ\text{C}$	V_F	-	0.24	V
	$I_F = 1\text{mA}, T_J = 25^\circ\text{C}$		-	0.32	V
	$I_F = 10\text{mA}, T_J = 25^\circ\text{C}$		-	0.40	V
	$I_F = 30\text{mA}, T_J = 25^\circ\text{C}$		-	0.50	V
	$I_F = 100\text{mA}, T_J = 25^\circ\text{C}$		-	1.00	V
Reverse voltage	$I_R = 100\ \mu\text{A}, T_J = 25^\circ\text{C}$	V_R	30	-	V
Reverse current @ rated V_R per diode ⁽²⁾	$V_R = 25\text{ V}, T_J = 25^\circ\text{C}$	I_R	-	2	μA
Junction capacitance	$f = 1\text{MHz}, V_R = 1\text{V}$	C_J	-	10	pF
Reverse recovery time	$I_F = I_R = 10\text{mA},$ $R_L = 100\Omega, I_{rr} = 1\text{mA}$	t_{rr}	-	5	ns

Notes:

1. Pulse test with $PW = 0.3\text{ms}$
2. Pulse test with $PW = 30\text{ms}$

ORDERING INFORMATION

ORDERING CODE ⁽¹⁾⁽²⁾	PACKAGE	PACKING
BAT5x RF	SOT-23	3K / 7" Reel
BAT5x RFG	SOT-23	3K / 7" Reel

Notes:

1. "x" defines part no. from "4" to "4S"
2. "G" means green compound (halogen-free)

CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.1 Typical Forward Characteristics

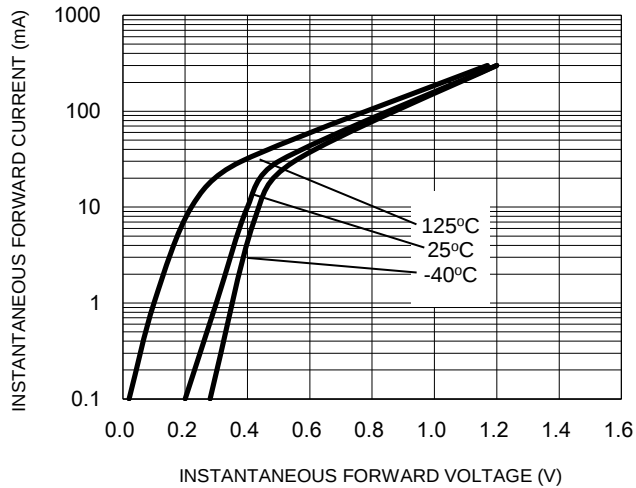


Fig.2 Typical Reverse Characteristics

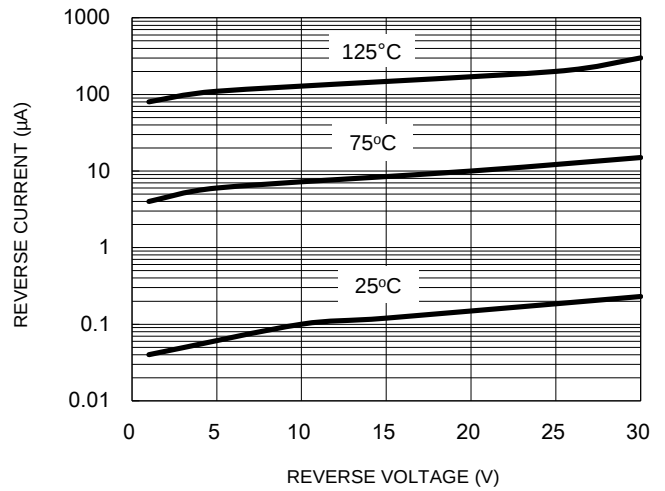


Fig.3 Admissible Power Dissipation Curve

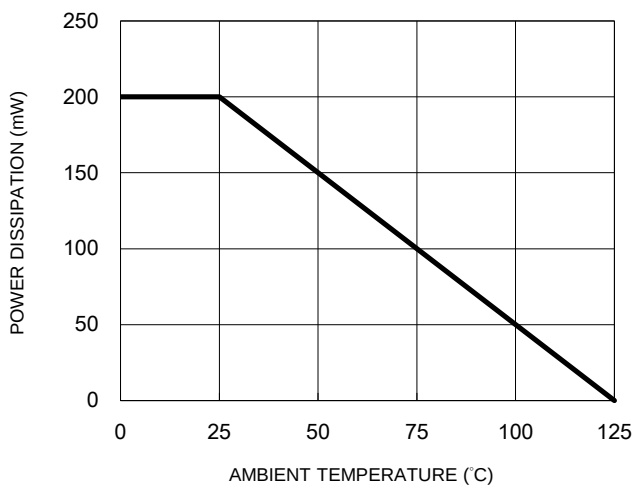
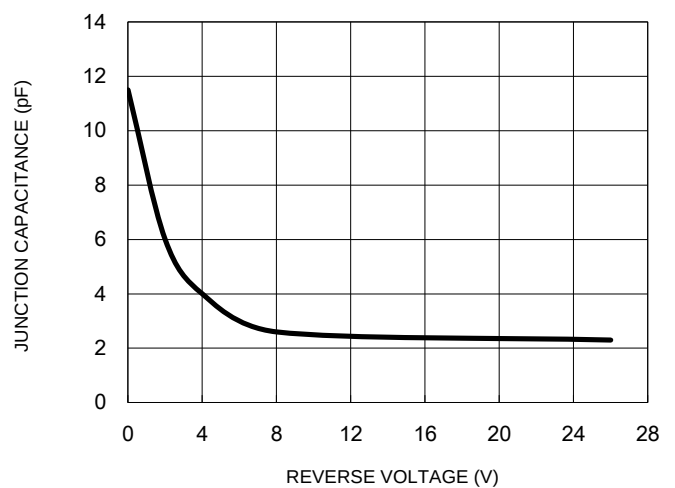
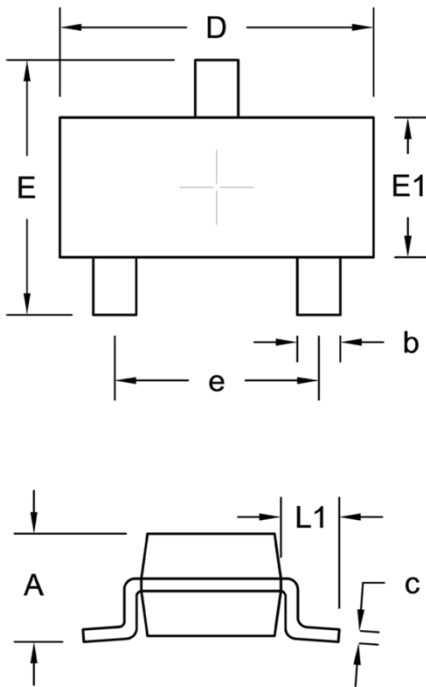


Fig.4 Typical Junction Capacitance



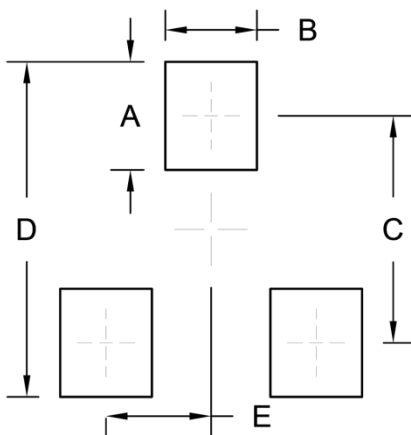
PACKAGE OUTLINE DIMENSION

SOT-23



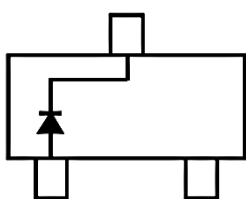
DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	0.89	1.12	0.035	0.044
b	0.30	0.50	0.012	0.020
c	0.08	0.20	0.003	0.008
D	2.80	3.04	0.110	0.120
E	2.10	2.64	0.083	0.104
E1	1.20	1.40	0.047	0.055
e	1.90 BSC		0.075 BSC	
L1	0.54 REF.		0.021 REF.	

SUGGESTED PAD LAYOUT

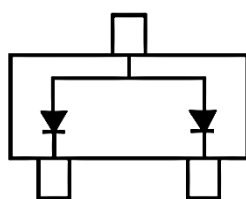


Symbol	Unit (mm)	Unit (inch)
A	1.00	0.039
B	0.85	0.033
C	2.10	0.083
D	3.10	0.122
E	0.98	0.039

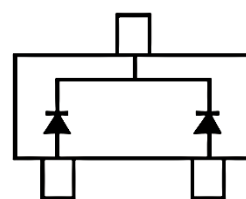
PIN CONFIGURATION



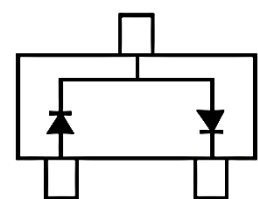
BAT54



BAT54A



BAT54C



BAT54S

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