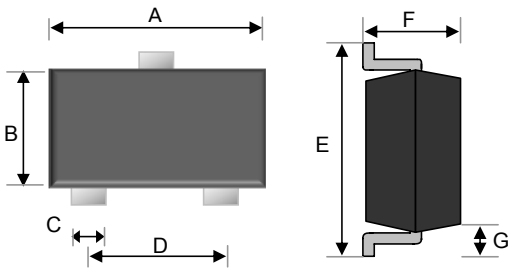
TAIWAN SEMICONDUCTOR

BAT54 / A / C / S
200mW SMD Schottky Barrier Diode

Small Signal Diode

SOT-23



Features

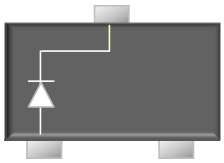
- ✧Fast switching speed
- ✧Surface device type mounting
- ✧Moisture sensitivity level 1
- ✧Matte Tin(Sn) lead finish with Nickel(Ni) underplate
- ✧Pb free version and RoHS compliant
- ✧Green compound (Halogen free) with suffix "G" on packing code and prefix "G" on date code

Dimensions	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	2.80	3.00	0.110	0.118
B	1.20	1.40	0.047	0.055
C	0.30	0.50	0.012	0.020
D	1.80	2.00	0.071	0.079
E	2.25	2.55	0.089	0.100
F	0.90	1.20	0.035	0.043
G	0.550 REF		0.022 REF	

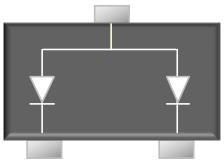
Mechanical Data

- ✧Case :SOT-23 small outline plastic package
- ✧Terminal: Matte tin plated, lead free., solderable per MIL-STD-202, Method 208 guaranteed
- ✧High temperature soldering guaranteed: 260°C/10s
- ✧Weight : 0.008gram (approximately)
- ✧Marking Code : KL1,KL2,KL3,KL4

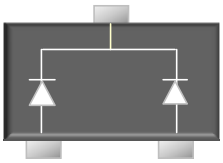
Pin Configuration



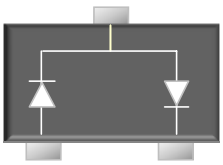
BAT54



BAT54A



BAT54C

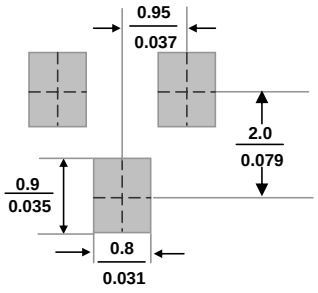


BAT54S

Ordering Information

Package	Part No.	Packing	Marking
SOT-23	BAT54 RF	3K / 7" Reel	KL1
SOT-23	BAT54A RF	3K / 7" Reel	KL2
SOT-23	BAT54C RF	3K / 7" Reel	KL3
SOT-23	BAT54S RF	3K / 7" Reel	KL4
SOT-23	BAT54 RFG	3K / 7" Reel	KL1
SOT-23	BAT54A RFG	3K / 7" Reel	KL2
SOT-23	BAT54C RFG	3K / 7" Reel	KL3
SOT-23	BAT54S RFG	3K / 7" Reel	KL4

Suggested PAD Layout



Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

Maximum Ratings

Type Number	Symbol	Value	Units
Peak Repetitive Peak reverse voltage Working Peak Reverse Voltage DC Reverse Voltage	V_{RRM} V_{RWM} V_R	30	V
Forward Continuous Current	I_F	200	mA
Repetitive Peak Forward Current(tp≤1s;δ≤0.5)	I_{FRM}	300	mA
Forward surge current @t<1.0s	I_{FSM}	600	mA
Power Dissipation	Pd	230	mW
Thermal resistance,junction to ambient air	$R_{\theta JA}$	500	°C/W
Operating and Storage temperature	T_j, T_{STG}	-55 to 150	°C

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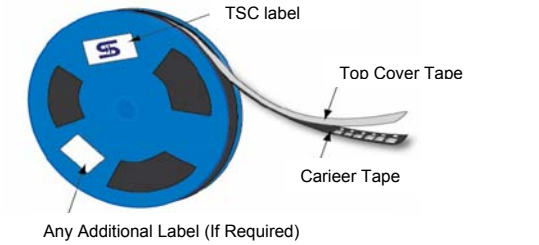
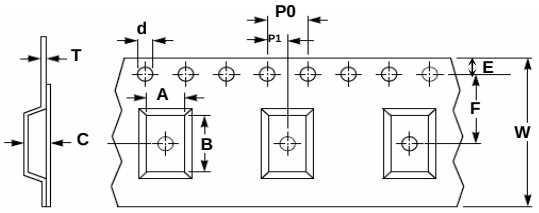
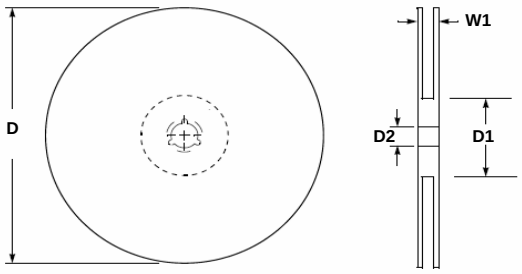
Electrical Characteristics

Type Number		Symbol	Min	Max	Units
Reverse Breakdown Voltage	I_R= 100μA	$V_{(BR)}$	30	--	V
Forward Voltage	I_F= 0.1mA	V_F	--	0.24	V
	I_F= 1mA		--	0.32	V
	I_F= 10mA		--	0.40	V
	I_F= 30mA		--	0.50	V
	I_F= 100mA		--	0.80	V
Reverse current	V_R= 25V	I_R	--	2.0	μA
Total Capacitance	V_R=1V, f=1.0MHz	C_T	--	10	pF
Reverse Recovery Time	I_F=I_R=10mA, R_L=100Ω, I_{RR}=1mA	t_{rr}	--	5.0	nS

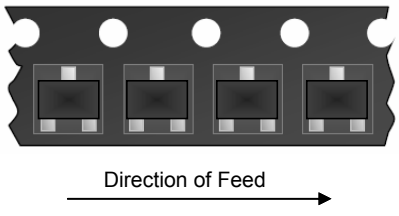
Tape & Reel specification







Item	Symbol	Dimension(mm)
Carrier width	A	3.15 ±0.10
Carrier length	B	2.77 ±0.10
Carrier depth	C	1.22 ±0.10
Sprocket hole	d	1.50 ± 0.10
Reel outside diameter	D	178 ± 1
Reel inner diameter	D1	55 Min
Feed hole width	D2	13.0 ± 0.20
Sprocke hole position	E	1.75 ±0.10
Punch hole position	F	3.50 ±0.05
Sprocke hole pitch	P0	4.00 ±0.10
Embossment center	P1	2.00 ±0.05
Overall tape thickness	T	0.229 ±0.013
Tape width	W	8.10 ±0.20
Reel width	W1	12.30 ±0.20



Small Signal Diode

Rating and Characteristic Curves

FIG 1 Typical Forward Characteristics

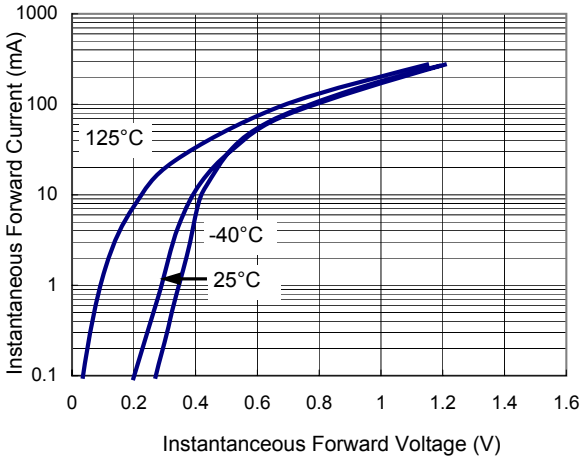


FIG 2 Typical Reverse Characteristics

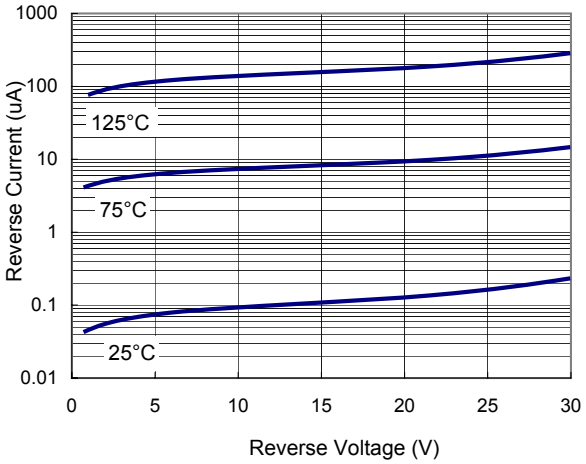


FIG 3 Admissible Power Dissipation Curve

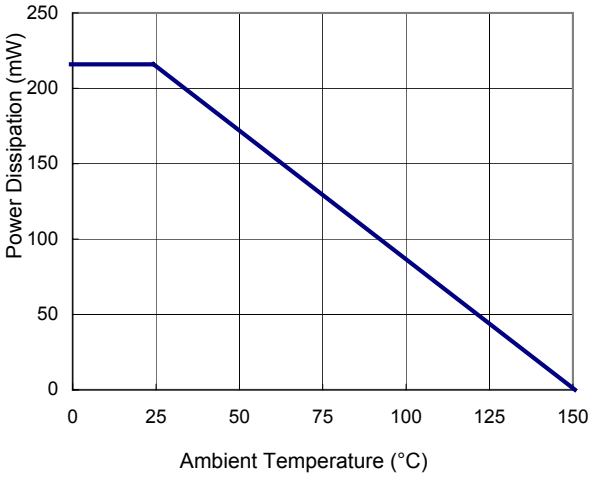


FIG 4 Typical Junction Capacitance