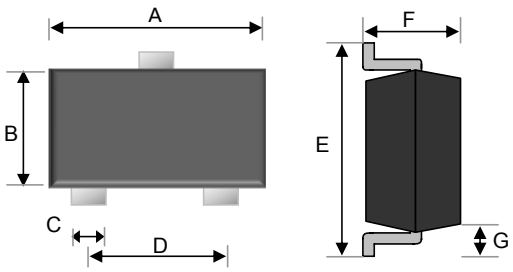
TAIWAN SEMICONDUCTOR

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

## Small Signal Diode



**SOT-23**




## Features

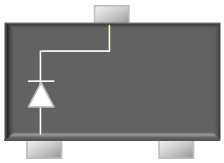
- ✧Fast switching speed
- ✧Surface device type mounting
- ✧Moisture sensitivity level 1
- ✧Matte Tin(Sn) lead finish with Nickel(Ni) underplate
- ✧Pb free version and RoHS compliant
- ✧Green compound (Halogen free) with suffix "G" on packing code and prefix "G" on date code

| 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 | |

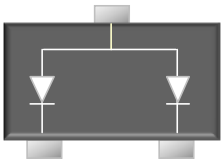
## Mechanical Data

- ✧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

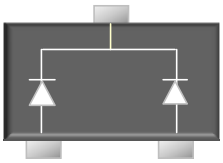
## Pin Configuration



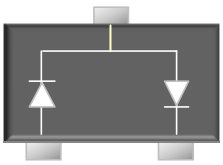
**BAT54**



**BAT54A**



**BAT54C**

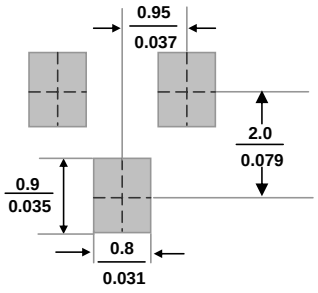


**BAT54S**

## 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<br>Working Peak Reverse Voltage<br>DC Reverse Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 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 |

TAIWAN SEMICONDUCTOR

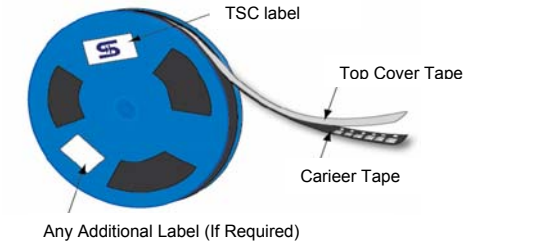
# BAT54 / A / C / S
# 200mW SMD Schottky Barrier Diode

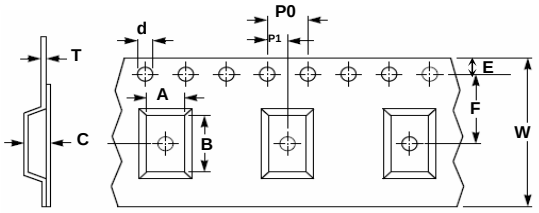
## Small Signal Diode

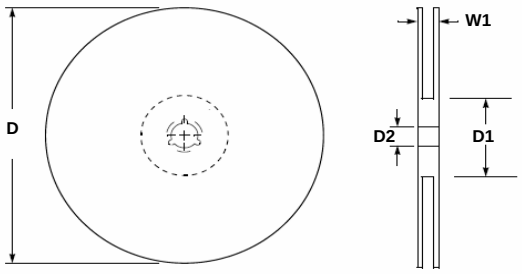
### Electrical Characteristics

| 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 |

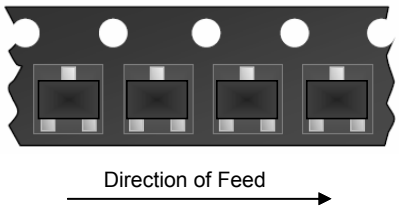
## Tape & Reel specification




| 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**

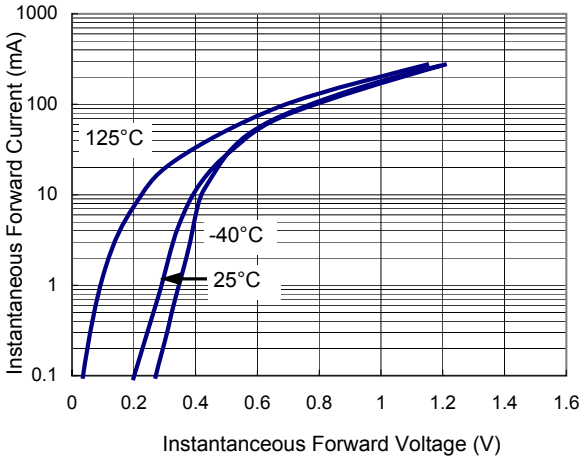



**FIG 2 Typical Reverse Characteristics**

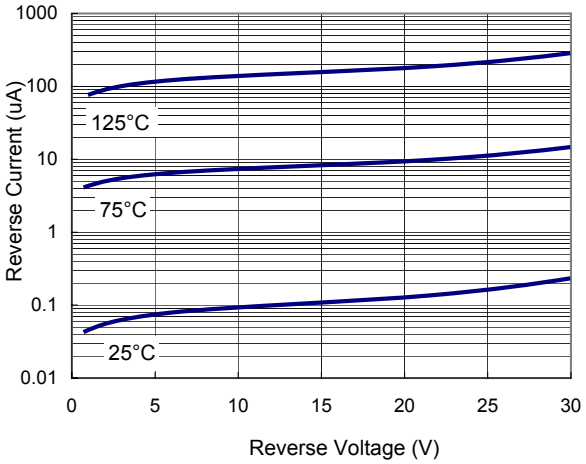



**FIG 3 Admissible Power Dissipation Curve**

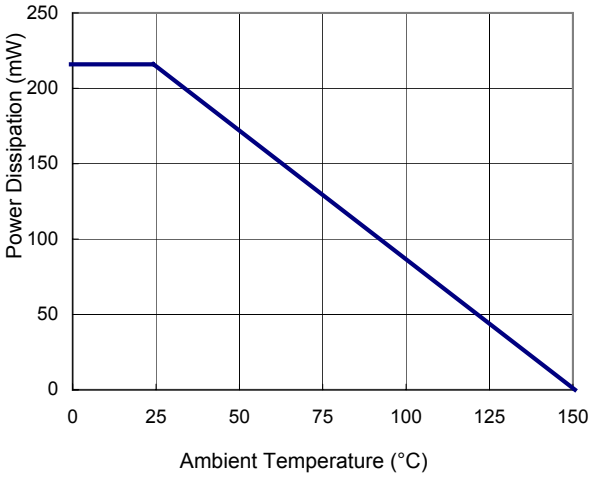



**FIG 4 Typical Junction Capacitance**

