# BAT54 / A / C / S

**200mA Surface Mount Small Signal Diodes**

## ■ Features

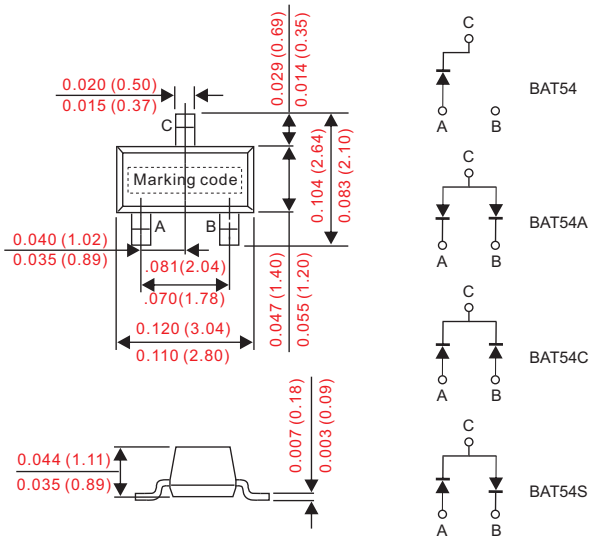
- Low current rectification and high speed switching.
- Small surface mount type.
- Up to 200mA current capability.
- Low forward voltage drop (VF = 1.00V typ. @100mA).
- Silicon epitaxial planar chip, metal silicon junction.
- High speed ( trr < 5 ns )
- Suffix "G" indicates Halogen-free part, ex.BAT54G.
- Lead-free parts for green partner, exceeds environmental standards of MIL-STD-19500 /228

## ■ Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOT-23
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any
- Weight : Approximated 0.008 gram

## ■ Outline

SOT-23




Dimensions in inches and (millimeters)

## ■ Maximum ratings and electrical characteristics

Rating at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.

| Characteristic | Symbol | BAT54 | BAT54A | BAT54C | BAT54S | UNIT |
|---|---|---|---|---|---|---|
| Marking code | | JV3 | B6 | KL3 | LD3 | |
| Reverse Voltage | $V_R$ | 30 | | | | V |
| Forward Power Dissipation(1) TA = 25°C | $P_F$ | 200 | | | | mW |
| Derate above 25°C | | 2.0 | | | | mW/°C |
| Forward Current(DC) | $I_F$ | 200 | | | | mA |
| Junction Temperature | $T_J$ | +125 | | | | °C |
| Storage Temperature | $T_{STG}$ | -55 ~ +150 | | | | °C |

| Characteristic | | Symbol | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| Reverse Breakdown Voltage | $I_{(BR)}$ = 10uAdc | $V_{(BR)}$ | 30 | | | Vdc |
| Reverse Voltage Leakage Current | $V_R$ = 25Vdc | $I_R$ | | 0.5 | 2.0 | uAdc |
| Total Capacitance | $V_R$ = 1.0, f = 1.0MHz | $C_T$ | | 7.6 | 10 | pF |
| Forward Voltage | $I_F$ = 0.1mAdc | $V_F$ | | 220 | 240 | mVdc |
| | $I_F$ = 1.0mAdc | | | 290 | 320 | |
| | $I_F$ = 10mAdc | | | 350 | 400 | |
| | $I_F$ = 30mAdc | | | 410 | 500 | |
| | $I_F$ = 100mAdc | | | 520 | 1000 | |
| Reverse Recovery Time | $I_F = I_R$ = 10mAdc, $V_R$ = 5.0Vdc, $I_{R(REC)}$ = 1.0mAdc, $R_L$ = 100Ω | trr | | | 5.0 | nS |
| Forward Current(DC) | | $I_F$ | | | 200 | mAdc |
| Repetitive Peak Forward Current | | $I_{FRM}$ | | | 300 | mAdc |
| Non-Repetitive Peak Forward Current | t < 1.0s | $I_{FSM}$ | | | 600 | mAdc |

1. FR-5 = 1.0 x 0.75 x 0.062 in.



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■ Rating and characteristic curves

FIG.1-TYPICAL FORWARD CHARACTERISTICS

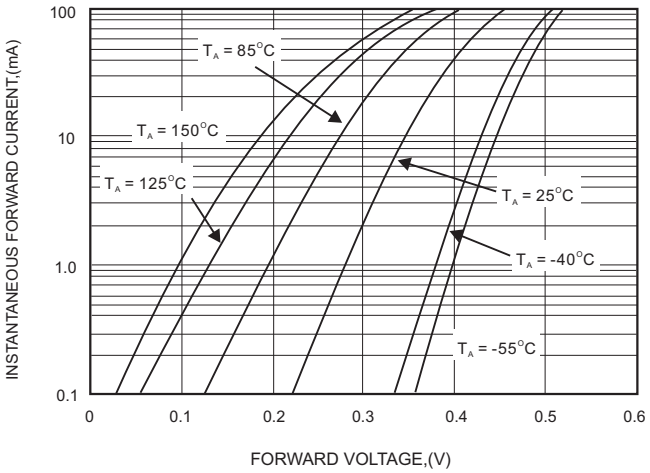



FIG.3 - TYPICAL REVERSE CHARACTERISTICS

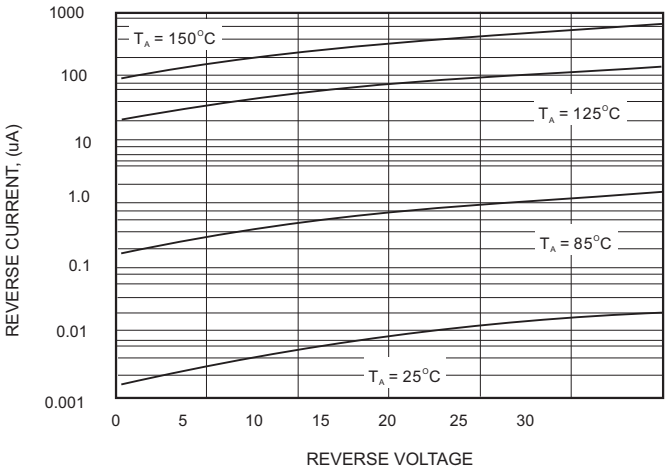
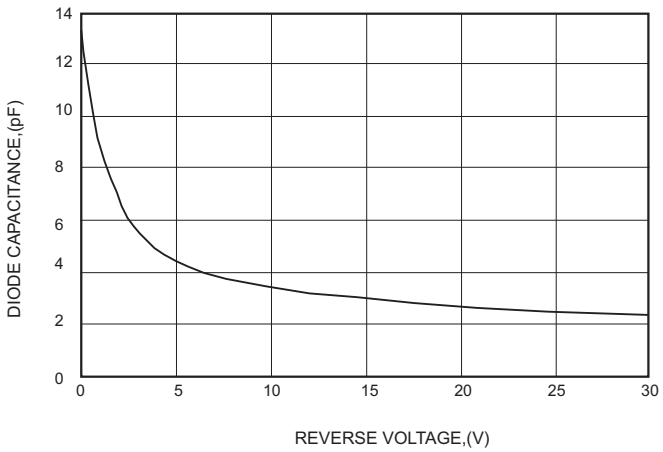
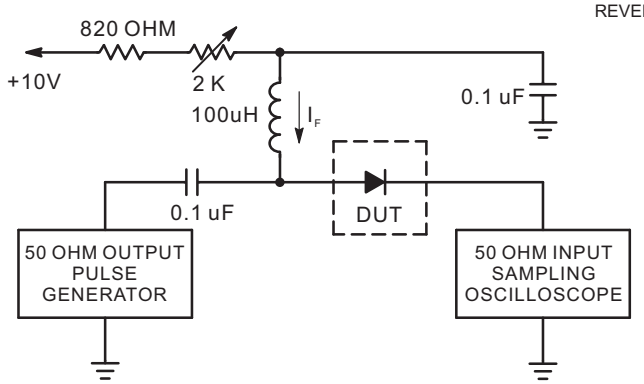
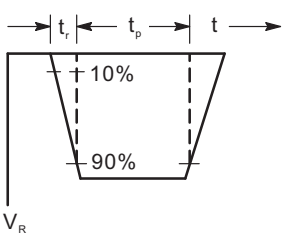
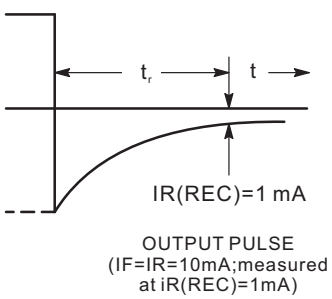



FIG.2 - TYPICAL DIODE CAPACITANCE




OUTPUT PULSE
(IF=IR=10mA;measured at iR(REC)=1mA)

Notes : 1. A2.0 Kohm variable resistor adjusted for a forward Current (IF) of 10mA.
2. Input pulse is adjusted so IR(peak) is equal to 10 mA.
3. tp >> trr.

Recovery Time Equivalent Test Circuit



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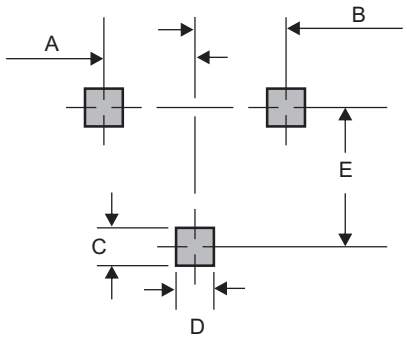
■ SOT-23 foot print




| A | B | C | D | E |
|---|---|---|---|---|
| 0.037 (0.95) | 0.037 (0.95) | 0.035 (0.90) | 0.031 (0.80) | 0.079 (2.00) |

Dimensions in inches and (millimeters)

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