

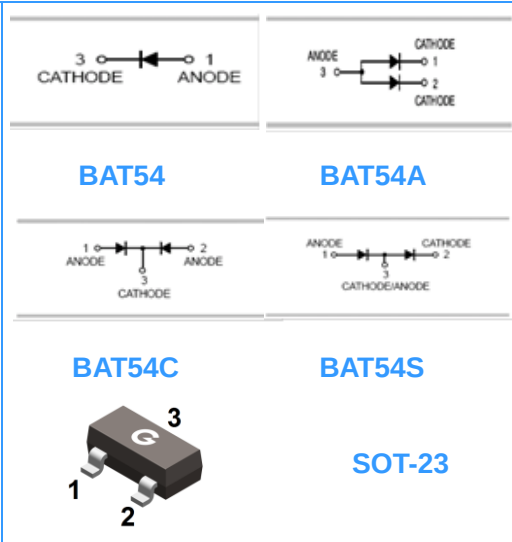
### Features

- Low turn-on voltage
- Fast switching
- PN junction guard ring for transient and ESD protection
- RoHS compliant with Halogen-free

HF

### Mechanical Data

- Case: SOT-23
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Tin-plated; solderability per MIL-STD-202, Method 208



### Ordering Information

| Part Number | Package | Shipping Quantity      | Marking Code |
|-------------|---------|------------------------|--------------|
| BAT54       | SOT-23  | 3000 pcs / Tape & Reel | KL1          |
| BAT54A      | SOT-23  | 3000 pcs / Tape & Reel | KL2          |
| BAT54C      | SOT-23  | 3000 pcs / Tape & Reel | KL3          |
| BAT54S      | SOT-23  | 3000 pcs / Tape & Reel | KL4          |

### Maximum Ratings (@ T<sub>A</sub> = 25°C unless otherwise specified)

| Parameter                                          | Symbol           | Value | Unit |
|----------------------------------------------------|------------------|-------|------|
| Peak Repetitive Peak Reverse Voltage               | V <sub>RRM</sub> | 30    | V    |
| Working Peak Reverse Voltage                       | V <sub>RWM</sub> | 30    | V    |
| DC Reverse Voltage                                 | V <sub>R</sub>   | 30    | V    |
| Forward Continuous Current                         | I <sub>F</sub>   | 200   | mA   |
| Repetitive Peak Forward Current                    | I <sub>FRM</sub> | 300   | mA   |
| Non-repetitive Forward Surge (t <sub>p</sub> = 1s) | I <sub>FSM</sub> | 600   | mA   |

### Thermal Characteristics

| Parameter                              | Symbol           | Value      | Unit |
|----------------------------------------|------------------|------------|------|
| Power Dissipation                      | P <sub>D</sub>   | 250        | mW   |
| Thermal Resistance Junction-to-Air *1  | R <sub>θJA</sub> | 280        | °C/W |
| Thermal Resistance Junction-to-Case *1 | R <sub>θJC</sub> | 190        | °C/W |
| Thermal Resistance Junction-to-Lead *1 | R <sub>θJL</sub> | 200        | °C/W |
| Operating Junction Temperature         | T <sub>J</sub>   | -55 ~ +150 | °C   |
| Storage Temperature Range              | T <sub>STG</sub> | -55 ~ +150 | °C   |

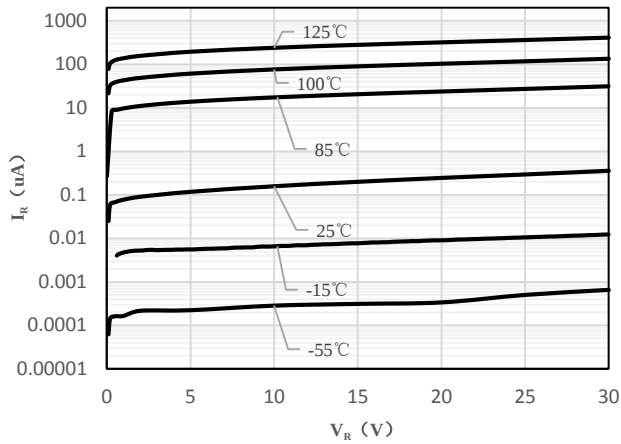
### Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

| Parameter                                  | Symbol      | Test Condition                                                          | Min. | Typ. | Max. | Unit          |
|--------------------------------------------|-------------|-------------------------------------------------------------------------|------|------|------|---------------|
| Reverse Breakdown Voltage                  | $V_{(BR)R}$ | $I_R = 100\mu\text{A}$                                                  | 30   | -    | -    | V             |
| Forward Voltage <sup>*2</sup>              | $V_F$       | $I_F = 0.1\text{mA}$                                                    | -    | -    | 0.24 | V             |
|                                            |             | $I_F = 1\text{mA}$                                                      | -    | -    | 0.32 | V             |
|                                            |             | $I_F = 10\text{mA}$                                                     | -    | -    | 0.40 | V             |
|                                            |             | $I_F = 30\text{mA}$                                                     | -    | -    | 0.50 | V             |
|                                            |             | $I_F = 100\text{mA}$                                                    | -    | -    | 0.80 | V             |
| Maximum Peak Reverse Current <sup>*3</sup> | $I_R$       | $V_R = 25\text{V}$                                                      | -    | -    | 2    | $\mu\text{A}$ |
| Junction Capacitance                       | $C_J$       | $V_R = 1\text{V}, f = 1\text{MHz}$                                      | -    | -    | 10   | pF            |
| Reverse Recovery Time                      | $t_{rr}$    | $I_F = I_R = 10\text{mA}$<br>$I_{rr} = 0.1 \times I_R, R_L = 100\Omega$ | -    | -    | 5    | ns            |

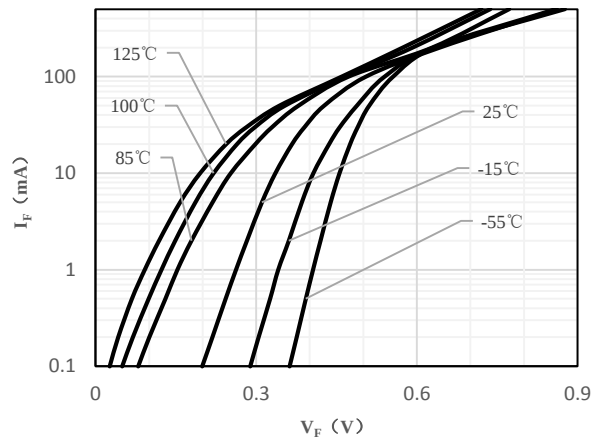
Notes:

1. The data tested by surface mounted on a 1 inch<sup>2</sup> FR-4 board with 20Z copper
2. Pulse test,  $t_p \leq 300\mu\text{s}$
3. Pulse test,  $t_p \leq 5\text{ms}$

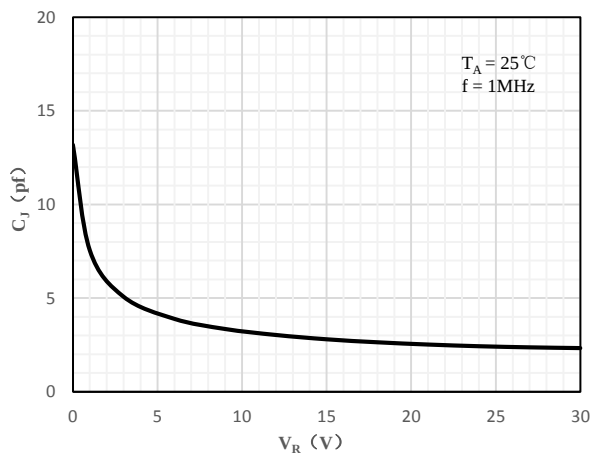
**Ratings and Characteristic Curves** (@  $T_A = 25^\circ\text{C}$  unless otherwise specified)



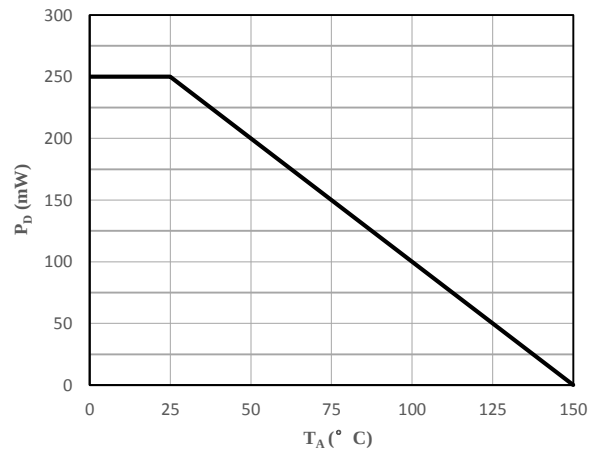
**Fig 1 Typical Reverse Characteristic**



**Fig 2 Typical Forward Characteristics**

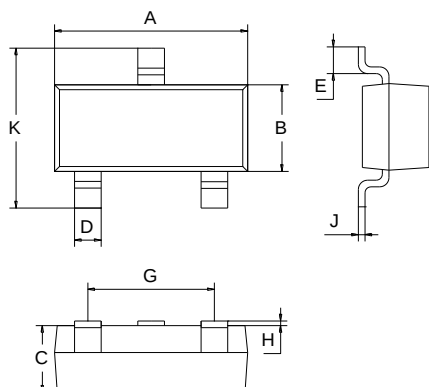


**Fig 3 Capacitance Characteristics**



**Fig 4 Power Derating Curve**

**Package Outline Dimensions** (Unit: mm)



| SOT-23    |      |      |
|-----------|------|------|
| Dimension | Min. | Max. |
| A         | 2.70 | 3.10 |
| B         | 1.10 | 1.50 |
| C         | 0.90 | 1.10 |
| D         | 0.30 | 0.50 |
| E         | 0.35 | 0.48 |
| G         | 1.80 | 2.00 |
| H         | 0.02 | 0.10 |
| J         | 0.05 | 0.15 |
| K         | 2.20 | 2.60 |

**Package Outline Dimensions** (Unit: mm)

**SOT-23**

