

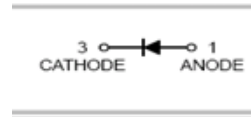
### Features

- Fast switching
- Low turn-on voltage
- PN junction guard ring for transient and ESD protection
- Available in lead free version.
- MSL 1

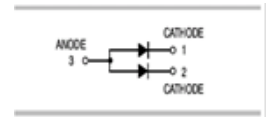
HF

### Mechanical Data

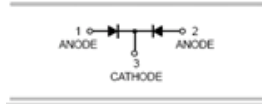
- Case: SOT-23
- Terminals: solderable per MIL-STD-202, Method 208



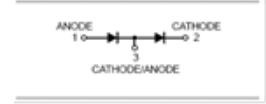
BAT54



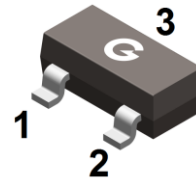
BAT54A



BAT54C



BAT54S



SOT-23

### Ordering Information

| Part Number | Package | Shipping               | Marking Code |
|-------------|---------|------------------------|--------------|
| BAT54       | SOT-23  | 3000 pcs / Tape & Reel | KL1          |
| BAT54A      | SOT-23  | 3000 pcs / Tape & Reel | KL2          |
| BA T54C     | 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           | Limits | Unit |
|--------------------------------------|------------------|--------|------|
| Peak Repetitive Peak reverse voltage | V <sub>RRM</sub> | 30     | V    |
| Working Peak Reverse Voltage         | V <sub>RWM</sub> |        |      |
| DC Reverse Voltage                   | V <sub>R</sub>   |        |      |
| Forward Continuous Current           | I <sub>F</sub>   | 200    | mA   |
| Repetitive Peak Forward Current      | I <sub>FRM</sub> | 300    | mA   |
| Forward surge current@tp<1s          | I <sub>FSM</sub> | 600    | mA   |

### Thermal Characteristics

| Parameter                                  | Symbol          | Limits      | Unit                        |
|--------------------------------------------|-----------------|-------------|-----------------------------|
| Power Dissipation *                        | $P_D$           | 250         | mW                          |
| Thermal resistance junction to ambient air | $R_{\theta JA}$ | 500         | $^{\circ}\text{C}/\text{W}$ |
| Thermal resistance junction to case        | $R_{\theta JC}$ | 360         | $^{\circ}\text{C}/\text{W}$ |
| Junction temperature                       | $T_J$           | -55 to +125 | $^{\circ}\text{C}$          |
| Storage temperature range                  | $T_{STG}$       | -55 to +150 | $^{\circ}\text{C}$          |

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

| Parameter                                 | Symbol     | Conditions                                              | Min | Typ | Max  | Unit          |
|-------------------------------------------|------------|---------------------------------------------------------|-----|-----|------|---------------|
| Reverse Breakdown Voltage                 | $V_{(BR)}$ | $I_R=100\mu\text{A}$                                    | 30  | -   | -    | V             |
| Forward voltage *1                        | $V_F$      | $I_F=0.1\text{mA}$                                      | -   | -   | 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             |
|                                           |            | $I_F=100\text{mA}$                                      | -   | -   | 0.8  | V             |
| Reverse current *2                        | $I_R$      | $V_R=25\text{V}$                                        | -   | -   | 2    | $\mu\text{A}$ |
| Capacitance Between Terminals             | $C_T$      | $V_R=1\text{V}, f=1\text{MHz}$                          | -   | -   | 10   | pF            |
| Reverse Recovery Time                     | $t_{rr}$   | $I_F=I_R=10\text{mA}$<br>$I_{rr}=0.1I_R, R_L=100\Omega$ | -   | -   | 5    | ns            |
| *1: pulse test, $t_p \leq 300\mu\text{s}$ |            |                                                         |     |     |      |               |
| *2: pulse test, $t_p \leq 5\text{ms}$     |            |                                                         |     |     |      |               |

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

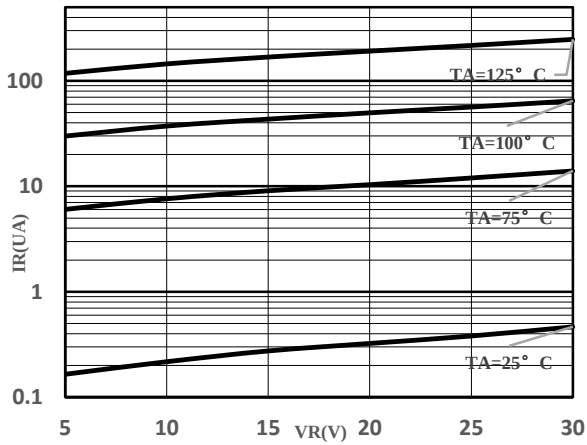


Fig 1 Typical Reverse Characteristic

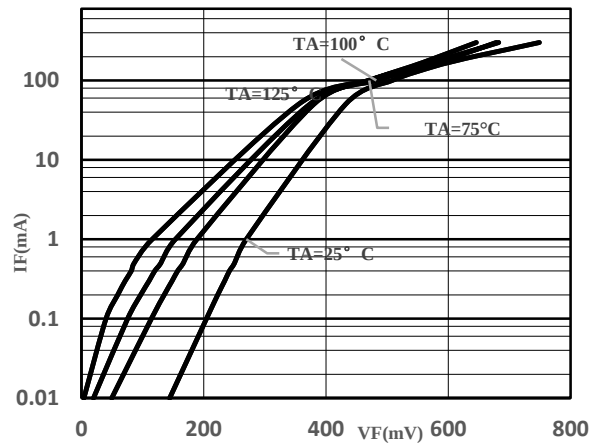


Fig 2 Typical Forward Characteristics

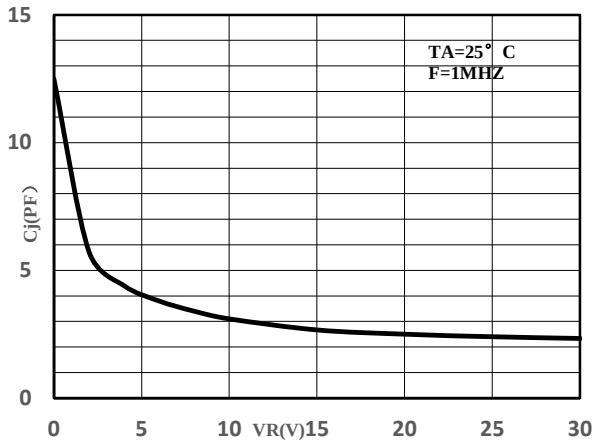


Fig 3 Capacitance Characteristics

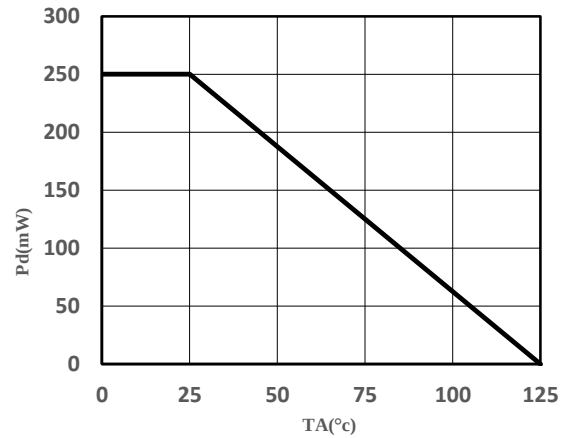
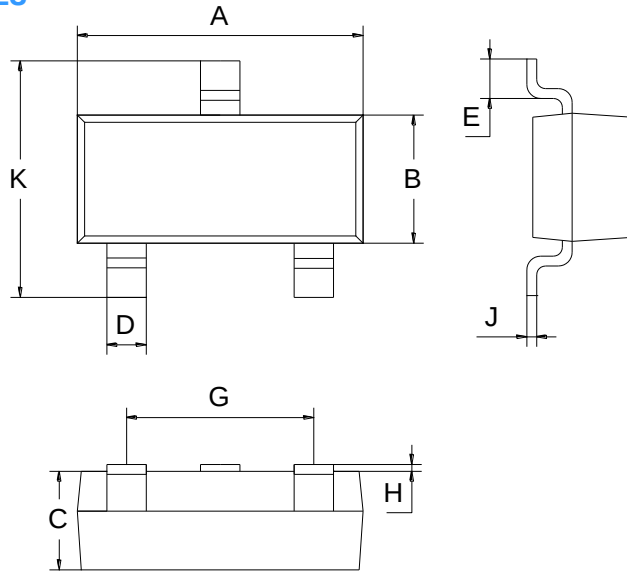


Fig 4 Derating Curve

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

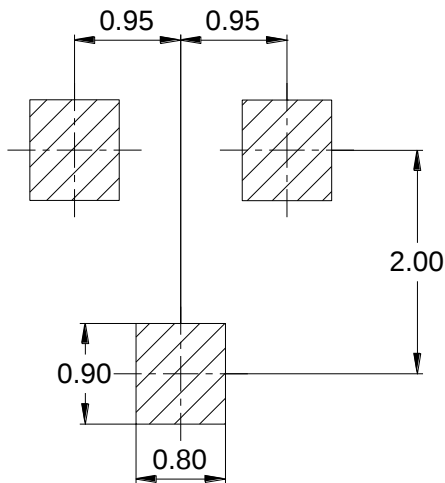
**SOT-23**



| SOT-23 |      |      |
|--------|------|------|
| Dim    | 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 |

**Mounting Pad Layout** (unit: mm)

**SOT-23**



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