

### Features

- Fast switching
- Low forward voltage drop
- Ultra-small surface mount package
- PN junction guard ring for transient and ESD protection
- RoHS compliant with Halogen-free
- Qualified to AEC-Q101 Standards

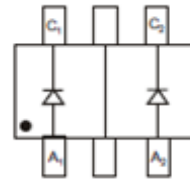
**HF**

### Applications

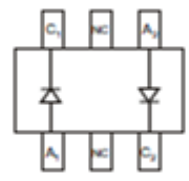
- High speed switching application

### Mechanical Data

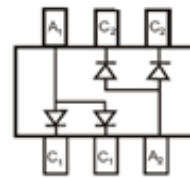
- Case: SOT-363
- Molding compound: UL flammability classification rating 94-0
- Terminals: Tin-plated; solderability per MIL-STD-202, Method 208



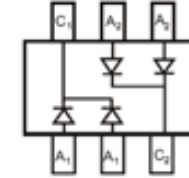
TBAT54JW



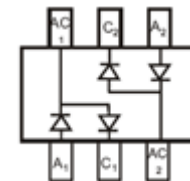
TBAT54DW



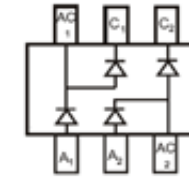
TBAT54ADW



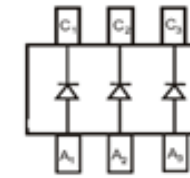
TBAT54CDW



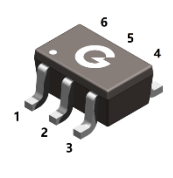
TBAT54SDW



TBAT54BRW



TBAT54TW



SOT-363

### Ordering Information

| Part Number | Package | Shipping Quantity      | Marking Code |
|-------------|---------|------------------------|--------------|
| TBAT54JW    | SOT-363 | 3000 pcs / Tape & Reel | KLC          |
| TBAT54DW    | SOT-363 | 3000 pcs / Tape & Reel | KLD          |
| TBAT54ADW   | SOT-363 | 3000 pcs / Tape & Reel | KL6          |
| TBAT54CDW   | SOT-363 | 3000 pcs / Tape & Reel | KL7          |
| TBAT54SDW   | SOT-363 | 3000 pcs / Tape & Reel | KL8          |
| TBAT54BRW   | SOT-363 | 3000 pcs / Tape & Reel | KLB          |
| TBAT54TW    | SOT-363 | 3000 pcs / Tape & Reel | KLA          |

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

| Parameter                                 | Symbol    | Value | Unit |
|-------------------------------------------|-----------|-------|------|
| Peak Repetitive Reverse Voltage           | $V_{RRM}$ | 30    | V    |
| Working Peak Reverse Voltage              | $V_{RWM}$ | 30    | V    |
| DC Reverse Voltage                        | $V_R$     | 30    | V    |
| Forward Continuous Current                | $I_F$     | 200   | mA   |
| Repetitive Peak Forward Current           | $I_{FRM}$ | 300   | mA   |
| Forward Surge Current @ $t_p < 1\text{s}$ | $I_{FSM}$ | 600   | mA   |

### Thermal Characteristics

| Parameter                                      | Symbol          | Value      | Unit               |
|------------------------------------------------|-----------------|------------|--------------------|
| Power Dissipation ( $T_A = 25^\circ\text{C}$ ) | $P_D$           | 200        | mW                 |
| Thermal Resistance Junction-to-Air *1          | $R_{\theta JA}$ | 350        | $^\circ\text{C/W}$ |
| Thermal Resistance Junction-to-Case *1         | $R_{\theta JC}$ | 250        | $^\circ\text{C/W}$ |
| Thermal Resistance Junction-to-Lead *1         | $R_{\theta JL}$ | 280        | $^\circ\text{C/W}$ |
| Operating junction Temperature                 | $T_J$           | -55 ~ +150 | $^\circ\text{C}$   |
| Storage Temperature Range                      | $T_{STG}$       | -55 ~ +150 | $^\circ\text{C}$   |

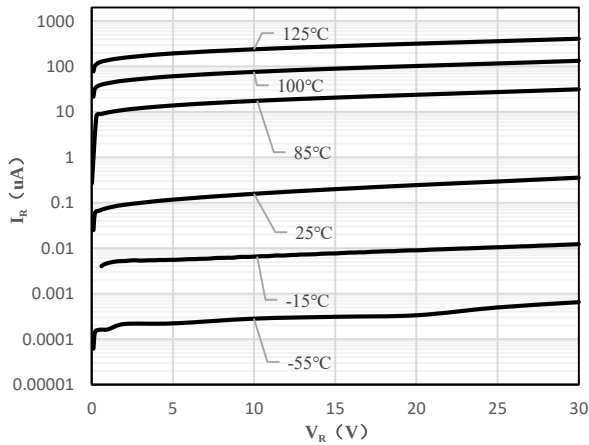
### Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

| Parameter                       | Symbol     | Test Condition                                                         | Min. | Typ. | Max. | Unit          |
|---------------------------------|------------|------------------------------------------------------------------------|------|------|------|---------------|
| Reverse Breakdown Voltage       | $V_{(BR)}$ | $I_R = 100\mu\text{A}$                                                 | 30   | -    | -    | V             |
| Forward Voltage *2              | $V_F$      | $I_F = 0.1\text{mA}$                                                   | -    | -    | 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 *3 | $I_R$      | $V_R = 25\text{V}$                                                     | -    | -    | 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>$I_{rr} = 0.1 \cdot I_R, R_L = 100\Omega$ | -    | -    | 5    | ns            |

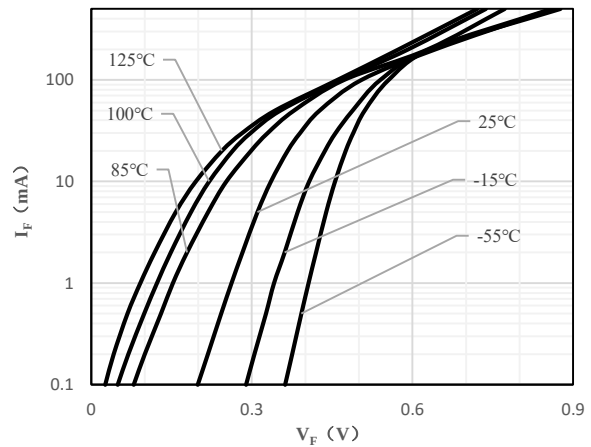
Notes:

- The data tested by surface mounted on FR-4 board with recommended pad layout
- pulse test,  $t_p \leq 300\mu\text{s}$
- pulse test,  $t_p \leq 5\text{ms}$

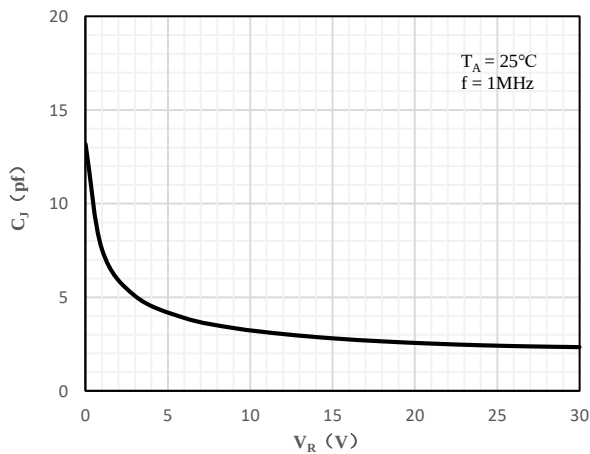
**Ratings and Characteristic Curves** (@  $T_A = 25^\circ\text{C}$  unless otherwise specified)



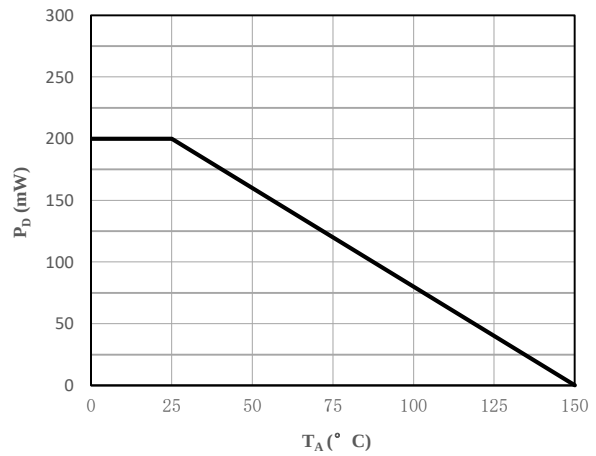
**Fig 1 Typical Reverse Characteristic**



**Fig 2 Typical Forward Characteristics**

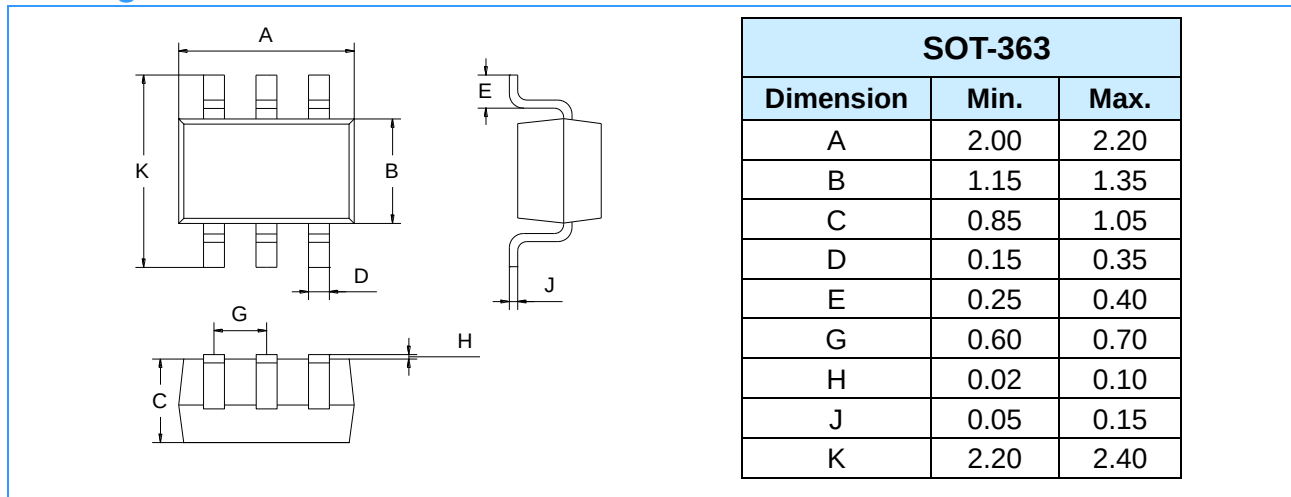


**Fig 3 Capacitance vs. Reverse Voltage**



**Fig 4 Power Derating Curve**

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



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

