

## FEATURES

| Fast Switching Device (TRR <4nS)

| Power Dissipation of 200mW

| High Stability and High Reliability

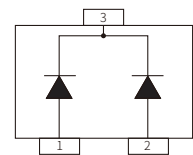
| Low reverse leakage



SOT-323



Marking



Schematic Symbol

## MECHANICAL DATA

| SOT-323 Small Outline Plastic Package

| Polarity: Color band denotes cathode end

| Mounting Position: Any

## APPROVALS

**RoHS** | Compliance with 2011/65/EU

**HF** | Compliance with IEC61249-2-21:2003

## MAXIMUM RATINGS ( $T_A=25^{\circ}\text{C}$ )

| Parameter                                                                | Symbol          | Value       | Unit                        |
|--------------------------------------------------------------------------|-----------------|-------------|-----------------------------|
| Non-Repetitive Peak Reverse Voltage                                      | $V_{RM}$        | 100         | V                           |
| Reverse Voltage                                                          | $V_R$           | 75          | V                           |
| Average Rectified Current                                                | $I_O$           | 150         | mA                          |
| Non-repetitive Peak Forward Current                                      | $I_{FM}$        | 300         | mA                          |
| Typical thermal resistance                                               | $R_{\theta JA}$ | 625         | $^{\circ}\text{C}/\text{W}$ |
| Peak Forward Surge Current @ $t_p=1\text{ms}$ ; $T_A=25^{\circ}\text{C}$ | $I_{FSM}$       | 2.0         | A                           |
| Power Dissipation                                                        | $P_D$           | 200         | mW                          |
| Operating junction temperature                                           | $T_J$           | 150         | $^{\circ}\text{C}$          |
| Storage temperature range                                                | $T_{STG}$       | -55 to +150 | $^{\circ}\text{C}$          |

## ELECTRICAL CHARACTERISTICS( $T_A=25^{\circ}\text{C}$ )

| Parameter                     | Test Condition                                                          | Symbol   | Min. | Max.  | Unit          |
|-------------------------------|-------------------------------------------------------------------------|----------|------|-------|---------------|
| Reverse Voltage               | $I_B = 100\mu\text{A}$                                                  | $V_{RB}$ | 75   |       | V             |
| Reverse Current               | $V_R = 25\text{V}$                                                      | $I_R$    |      | 25    | nA            |
|                               | $V_R = 75\text{V}$                                                      |          |      | 2.5   | $\mu\text{A}$ |
| Forward Voltage               | $I_F = 1\text{mA}$                                                      | $V_F$    |      | 0.715 | V             |
|                               | $I_F = 10\text{mA}$                                                     |          |      | 0.855 | V             |
|                               | $I_F = 50\text{mA}$                                                     |          |      | 1.00  | V             |
|                               | $I_F = 150\text{mA}$                                                    |          |      | 1.25  | V             |
| Capacitance between terminals | $V_R = 0\text{V}, f = 1\text{MHz}$                                      | $C_T$    |      | 2.0   | pF            |
| Reverse Recovery Time         | $I_F = I_R = 10\text{mA}$<br>$I_{rr} = 0.1 \times I_R, R_L = 100\Omega$ | $t_{rr}$ |      | 4     | nS            |

## CHARACTERISTIC CURVES

Fig 1. Forward Characteristics

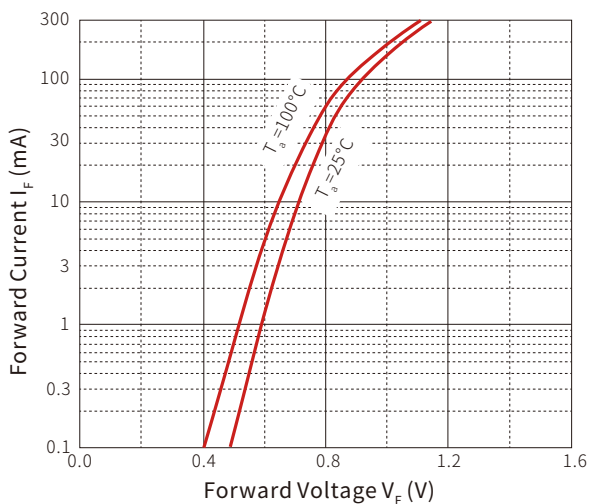
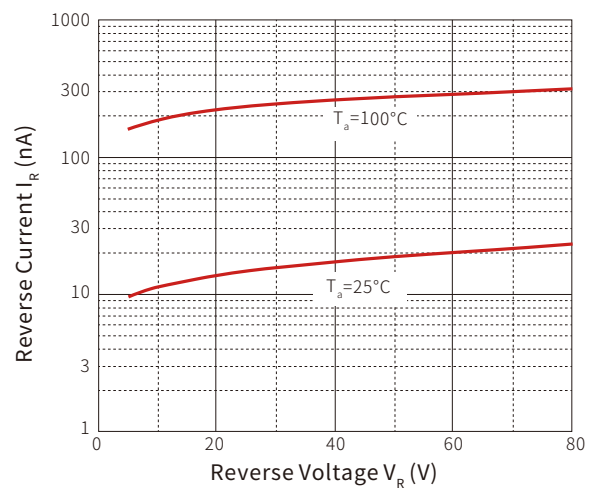
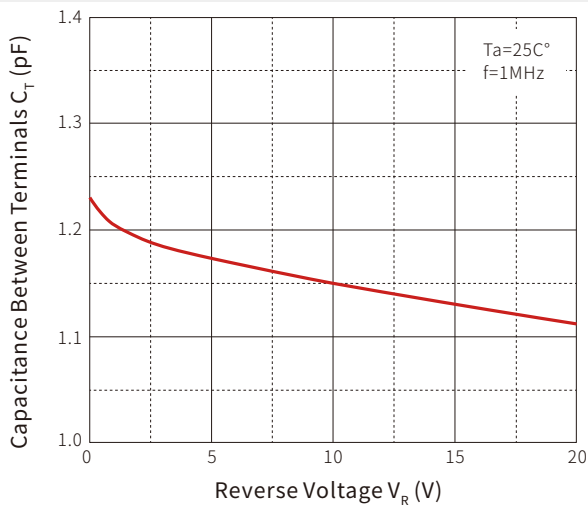
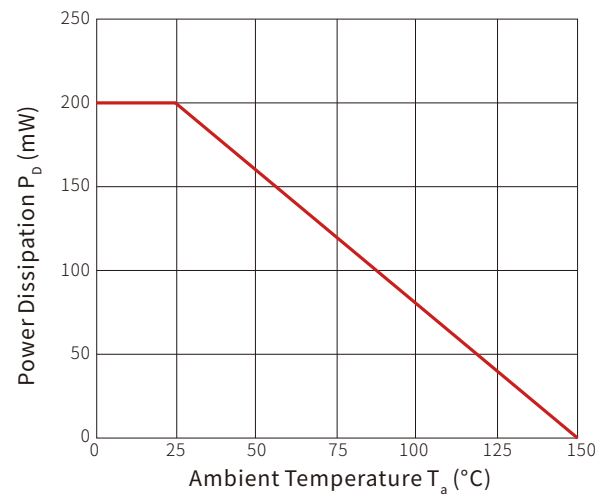


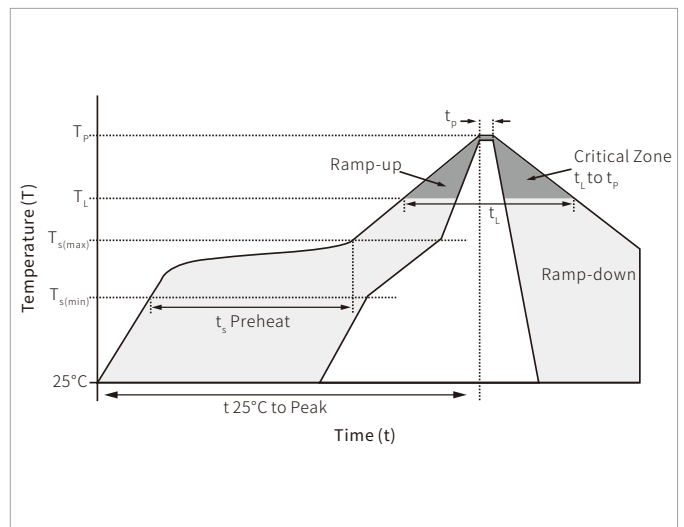
Fig 2. Reverse Characteristics



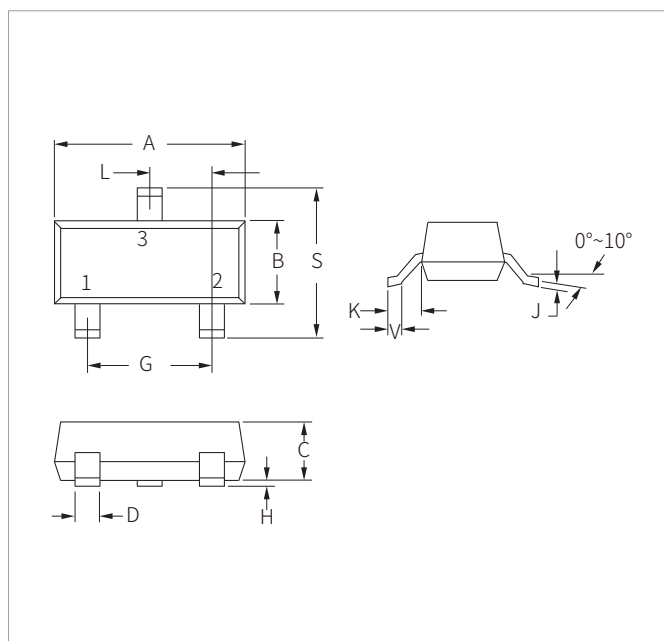
**Fig 3. Capacitance Characteristics**

**Fig 4. Power Derating Curve**


## SOLDERING PARAMETERS

| Reflow Condition                                                    |                                   | Lead-free assembly                   |
|---------------------------------------------------------------------|-----------------------------------|--------------------------------------|
| Pre Heat                                                            | Temperature Max ( $T_{s(\min)}$ ) | 150 $^\circ\text{C}$                 |
|                                                                     | Temperature Max ( $T_{s(\max)}$ ) | 200 $^\circ\text{C}$                 |
|                                                                     | Time (min to max) ( $t_s$ )       | 60 – 180 secs                        |
| Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak)              |                                   | 3 $^\circ\text{C}/\text{second}$ max |
| $T_{s(\max)}$ to $T_L$ - Ramp-up Rate                               |                                   | 3 $^\circ\text{C}/\text{second}$ max |
| Reflow                                                              | Temperature ( $T_L$ ) (Liquidus)  | 217 $^\circ\text{C}$                 |
|                                                                     | Time (min to max) ( $t_L$ )       | 60 – 150 seconds                     |
| Peak Temperature ( $T_p$ )                                          |                                   | 260 $^\circ\text{C}$                 |
| Time within 5 $^\circ\text{C}$ of actual peak Temperature ( $t_p$ ) |                                   | 20 – 40 seconds                      |
| Ramp-down Rate                                                      |                                   | 6 $^\circ\text{C}/\text{second}$ max |
| Time 25 $^\circ\text{C}$ to peak Temperature ( $T_p$ )              |                                   | 8 minutes max.                       |
| Do not exceed                                                       |                                   | 260 $^\circ\text{C}$                 |

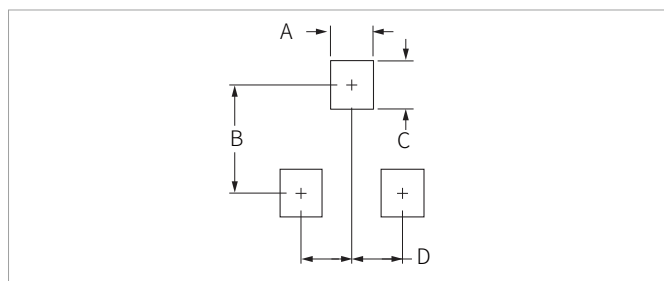


## SOT-323 PACKAGE INFORMATION



| Ref. | Millimeters |      | Inches   |       |
|------|-------------|------|----------|-------|
|      | Min.        | Max. | Min.     | Max.  |
| A    | 2.00        | 2.20 | 0.079    | 0.087 |
| B    | 1.15        | 1.35 | 0.045    | 0.053 |
| C    | 0.80        | 1.10 | 0.031    | 0.043 |
| D    | 0.20        | 0.40 | 0.008    | 0.016 |
| G    | 1.20        | 1.40 | 0.047    | 0.055 |
| H    | 0.00        | 0.10 | 0.000    | 0.004 |
| J    | 0.08        | 0.15 | 0.003    | 0.006 |
| K    | 0.525REF    |      | 0.021REF |       |
| L    | 0.650TYP    |      | 0.026TYP |       |
| S    | 2.15        | 2.45 | 0.085    | 0.096 |
| V    | 0.26        | 0.46 | 0.010    | 0.018 |

## RECOMMENDED PAD LAYOUT DIMENSIONS



| Ref. | Millimeters | Inches |
|------|-------------|--------|
|      | NOR         | NOR    |
| A    | 0.50        | 0.020  |
| B    | 2.20        | 0.087  |
| C    | 0.80        | 0.031  |
| D    | 1.30        | 0.051  |

## ORDERING INFORMATION

| Part Number | Component Package | QTY/Reel | Reel Size |
|-------------|-------------------|----------|-----------|
| BAV70W      | SOT-323           | 3000PCS  | 7"        |

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