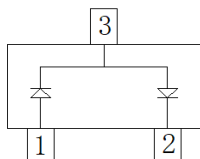


## High Speed Switching Diode



**SOT-323**



### Features

- Epoxy meets UL-94 V-0 flammability rating and halogen free
- Moisture Sensitivity Level 1
- $V_{BR}$  85V
- $I_{FAV}$  160mA@ Single diode loaded
- Part no. with suffix "Q" means AEC-Q101 qualified

### Applications

- Low-Leakage
- Automotive

### Mechanical Data

- **Case:** SOT-323
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** K52

### ■ Maximum Ratings ( $T_a=25^{\circ}\text{C}$ Unless otherwise specified)

| PARAMETER                                 | SYMBOL          | UNIT                        | CONDITIONS        | VALUE       |
|-------------------------------------------|-----------------|-----------------------------|-------------------|-------------|
| Reverse Breakdown Voltage                 | $V_{BR}$        | V                           |                   | 85          |
| Average Forward Current                   | $I_{FAV}^{[1]}$ | mA                          |                   | 160         |
| Non-Repetitive Peak Forward Surge Current | $I_{FSM}$       | A                           | $t_p=1\text{ us}$ | 4           |
| Power Dissipation                         | $P_D$           | mW                          |                   | 200         |
| Thermal Resistance Junction to Ambient    | $R_{thJA}$      | $^{\circ}\text{C}/\text{W}$ |                   | 625         |
| Maximum Junction Temperature              | $T_j$           | $^{\circ}\text{C}$          |                   | 150         |
| Storage Temperature Range                 | $T_{stg}$       | $^{\circ}\text{C}$          |                   | -55 to +150 |

[1] Single diode loaded

### ■ Electrical Characteristics ( $T_a=25^{\circ}\text{C}$ Unless otherwise specified)

| PARAMETER                 | SYMBOL   | UNIT          | CONDITIONS                                          | MIN. | TPY. | MAX. |
|---------------------------|----------|---------------|-----------------------------------------------------|------|------|------|
| Forward Voltage           | $V_F$    | mV            | $I_F=1\text{mA}$                                    |      |      | 900  |
|                           |          |               | $I_F=10\text{mA}$                                   |      |      | 1000 |
|                           |          |               | $I_F=50\text{mA}$                                   |      |      | 1100 |
|                           |          |               | $I_F=150\text{mA}$                                  |      |      | 1250 |
| Reverse Current           | $I_R$    | nA            | $V_R=75\text{V}$                                    |      |      | 5    |
| Reverse Breakdown Voltage | $V_{BR}$ | V             | $I_R=100\mu\text{A}$                                | 85   |      |      |
| Junction Capacitance      | $C_j$    | pF            | $V_R=V_F=0\text{V}, f=1\text{MHz}$                  |      |      | 4    |
| Reverse Recovery Time     | $t_{rr}$ | $\mu\text{s}$ | $I_F=I_R=10\text{mA}, I_{rr}=0.1I_R, R_L=100\Omega$ |      |      | 3    |



## ■ Ordering Information (Example)

| PREFERED P/N | PACKING CODE | UNIT WEIGHT(g)    | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|--------------|--------------|-------------------|----------------------|-------------------------|----------------------------|---------------|
| BAV199WTQ    | F2           | Approximate 0.006 | 3000                 | 30000                   | 120000                     | 7" reel       |

## ■ Characteristics (Typical)

Fig.1:  $P_D-T_A$

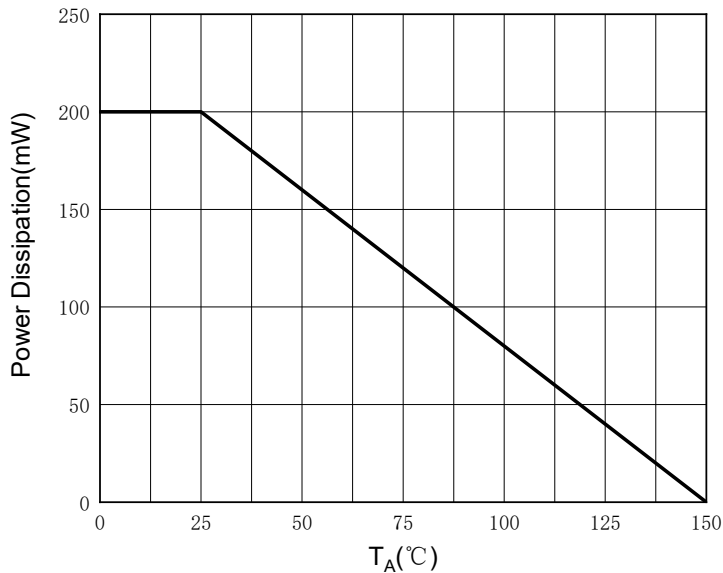


Fig.2: Capacitance Characteristics

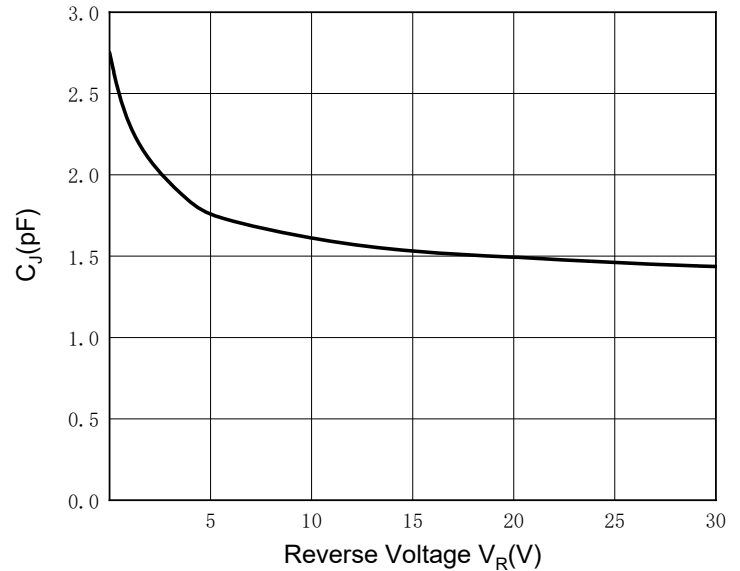


Fig.3: Forward Characteristics

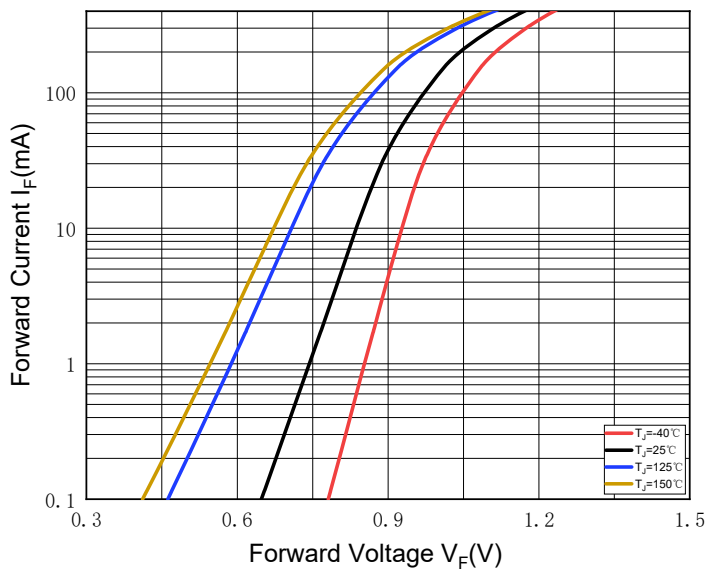
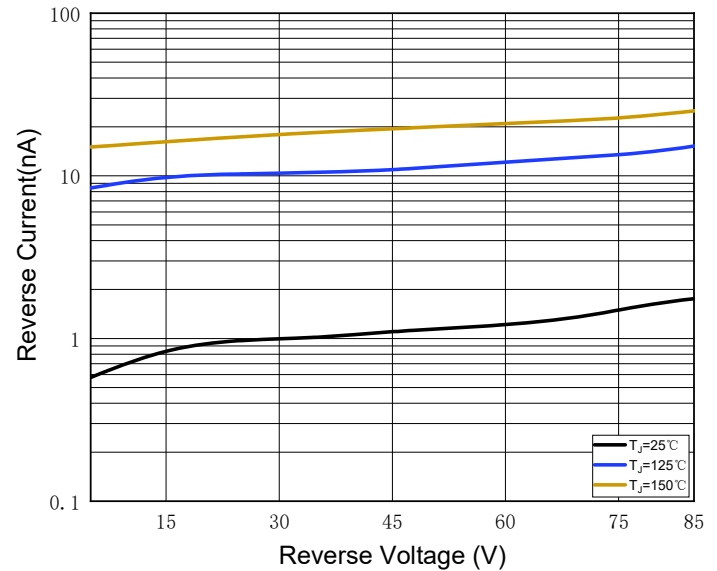
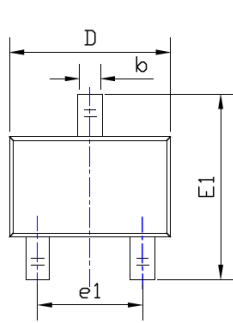


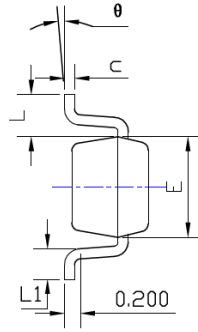
Fig.4: Reverse Characteristics



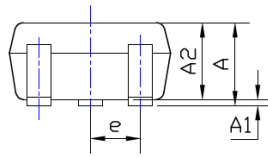
## ■ Outline Dimensions



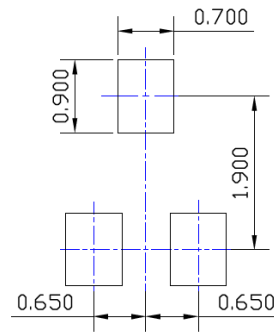
TOP VIEW



SIDE VIEW



SIDE VIEW



UNIT: mm

SUGGESTED SOLDER PAD LAYOUT

| SYMBOL | DIMENSIONS |       |            |       |
|--------|------------|-------|------------|-------|
|        | INCHES     |       | Millimeter |       |
|        | MIN.       | MAX.  | MIN.       | MAX.  |
| A      | 0.035      | 0.043 | 0.900      | 1.100 |
| A1     | 0.000      | 0.004 | 0.000      | 0.100 |
| A2     | 0.035      | 0.039 | 0.900      | 1.000 |
| b      | 0.006      | 0.016 | 0.150      | 0.400 |
| c      | 0.004      | 0.010 | 0.100      | 0.250 |
| D      | 0.071      | 0.087 | 1.800      | 2.200 |
| E      | 0.045      | 0.053 | 1.150      | 1.350 |
| E1     | 0.085      | 0.096 | 2.150      | 2.450 |
| e      | 0.026TYP   |       | 0.650TYP   |       |
| e1     | 0.047      | 0.055 | 1.200      | 1.400 |
| L      | 0.021REF   |       | 0.525REF   |       |
| L1     | 0.010      | 0.018 | 0.260      | 0.460 |
| θ      | 0°         | 8°    | 0°         | 8°    |

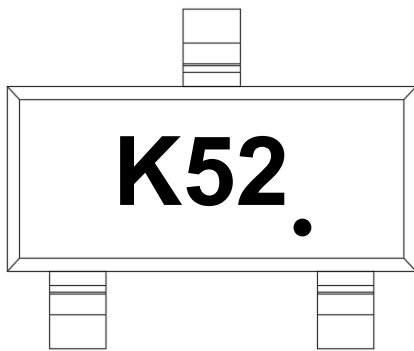
### NOTE:

1. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.

2. TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.

3. THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.

## ■ Marking Information



### Note:

1. All marking is at middle of the product body
2. All marking is in laser marking
3. Body color: Black

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