

## High Speed Switching Diode



**SOT-23**

### Features

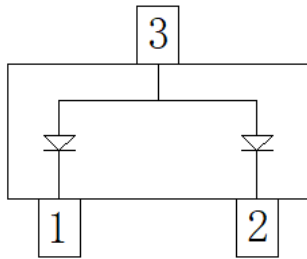
- Epoxy meets UL-94 V-0 flammability rating and halogen free
- Moisture Sensitivity Level 1
- $V_{BR}$  100V
- $I_{FAV}$  200mA@ Single diode loaded
- Part no. with suffix "Q" means AEC-Q101 qualified

### Applications

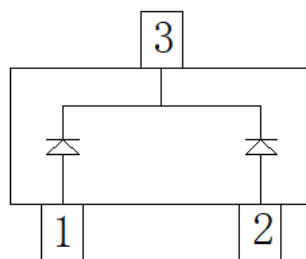
- Extreme fast switches
- Automotive

### Mechanical Data

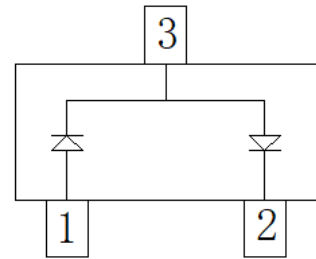
- **Case:** SOT-23
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102



BAW56Q



BAV70Q



BAV99Q

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

| PARAMETER                                 | SYMBOL       | UNIT                      | CONDITIONS | VALUE       |
|---|--------------|---------------------------|------------|-------------|
| Reverse Breakdown Voltage                 | $V_{BR}$     | V                         |            | 100         |
| Average Forward Current                   | $I_{FAV[1]}$ | mA                        |            | 200         |
| Non-Repetitive Peak Forward Surge Current | $I_{FSM}$    | A                         | $t_p=1$ ms | 1           |
| Power Dissipation                         | $P_{tot[1]}$ | mW                        |            | 350         |
| Thermal Resistance Junction to Ambient    | $R_{thJA}$   | $^\circ\text{C}/\text{W}$ |            | 357         |
| Maximum Junction Temperature              | $T_j$        | $^\circ\text{C}$          |            | -55 to +150 |
| Storage Temperature Range                 | $T_{stg}$    | $^\circ\text{C}$          |            | -55 to +150 |

[1] Single diode loaded



## BAW56Q&BAV70Q&BAV99Q

### ■ Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

| PARAMETER                 | SYMBOL          | UNIT | CONDITIONS  | MIN | MAX   |
|---------------------------|-----------------|------|---|-----|-------|
| Forward Voltage           | V <sub>F</sub>  | V    | I <sub>F</sub> =1mA   |     | 0.715 |
|                           |                 |      | I <sub>F</sub> =10mA  |     | 0.855 |
|                           |                 |      | I <sub>F</sub> =50mA  |     | 1.0   |
|                           |                 |      | I <sub>F</sub> =150mA   |     | 1.25  |
| Reverse Current           | I <sub>R</sub>  | μA   | V <sub>R</sub> =75V   |     | 1     |
| Reverse Breakdown Voltage | V <sub>BR</sub> | V    | I <sub>R</sub> =10μA  | 100 |       |
| Junction Capacitance      | C <sub>j</sub>  | pF   | V <sub>R</sub> =V <sub>F</sub> =0V, f =1MHz                                     |     | 4     |
| Reverse Recovery Time     | t <sub>rr</sub> | ns   | I <sub>F</sub> =10mA, I <sub>rr</sub> =0.1I <sub>R</sub> , R <sub>L</sub> =100Ω |     | 4     |

### ■ Ordering Information (Example)

| PREFERRED P/N        | PACKING CODE | UNIT WEIGHT(g)    | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|----------------------|--------------|-------------------|----------------------|-------------------------|----------------------------|---------------|
| BAW56Q&BAV70Q&BAV99Q | F2           | Approximate 0.010 | 3000                 | 30000                   | 120000                     | 7" reel       |



# BAW56Q&BAV70Q&BAV99Q

## ■ Characteristics (Typical)

Fig.1:  $P_D-T_A$

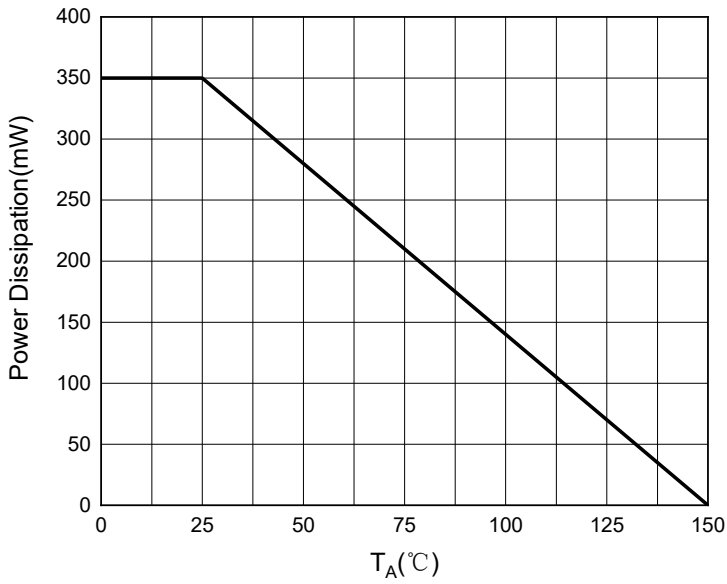


Fig.2: Capacitance Characteristics

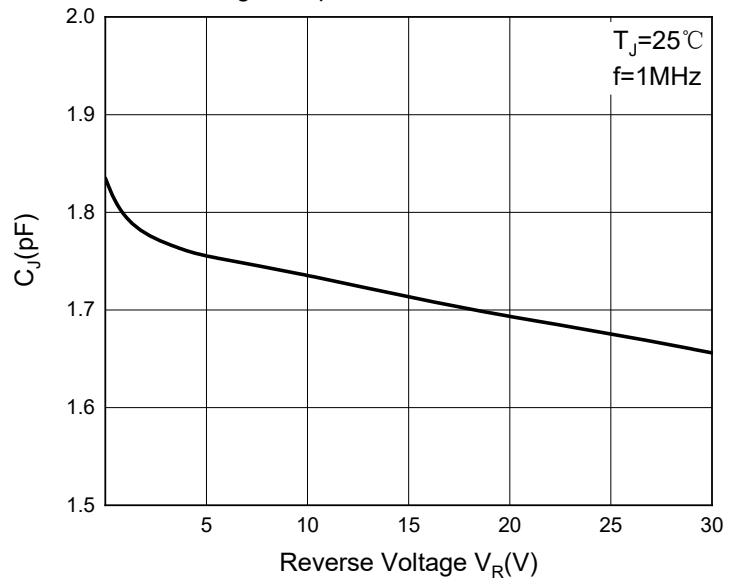


Fig.3: Forward Characteristics

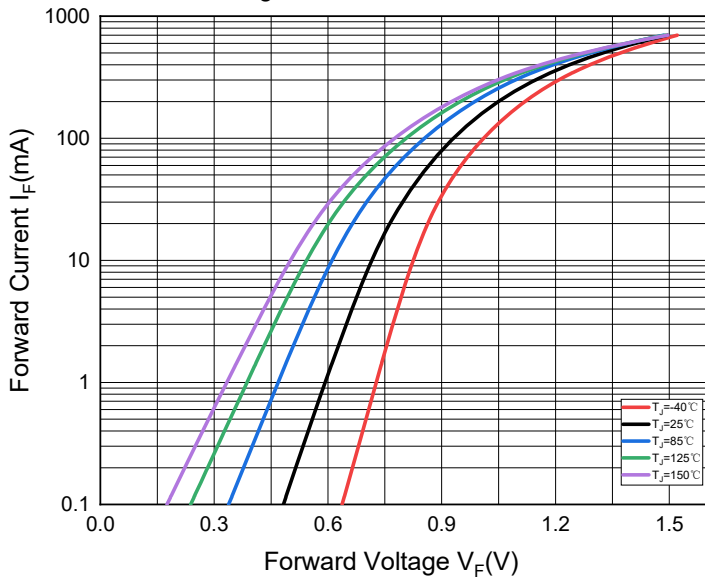
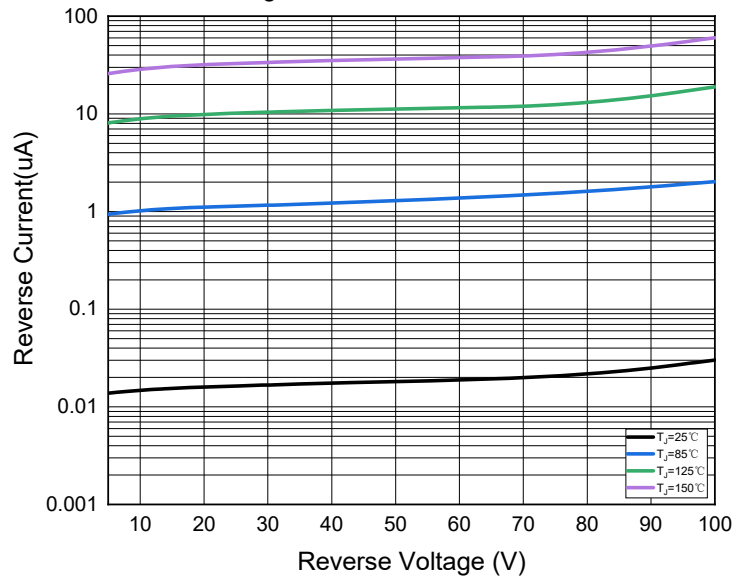


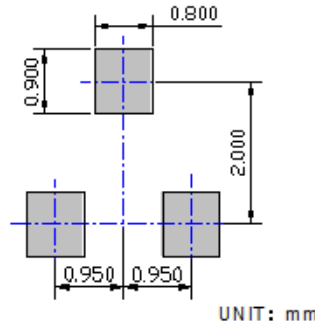
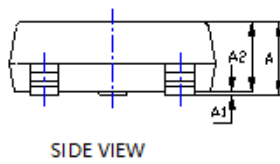
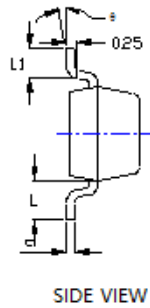
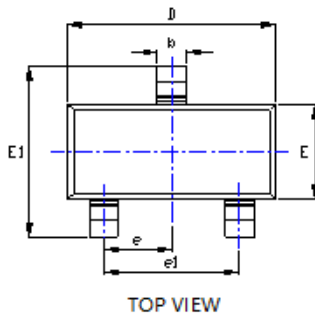
Fig.4: Reverse Characteristics





# BAW56Q&BAV70Q&BAV99Q

## ■ Outline Dimensions

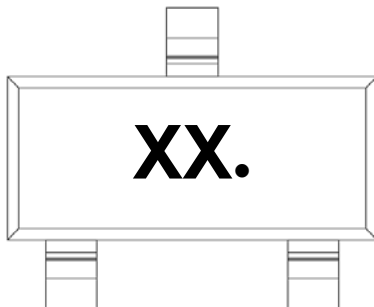


UNIT: mm

| SYMBOL | DIMENSIONS |       |            |       |
|--------|------------|-------|------------|-------|
|        | INCHES     |       | Millimeter |       |
|        | MIN.       | MAX.  | MIN.       | MAX.  |
| A      | 0.035      | 0.045 | 0.900      | 1.150 |
| A1     | 0.000      | 0.004 | 0.000      | 0.100 |
| A2     | 0.035      | 0.041 | 0.900      | 1.050 |
| b      | 0.012      | 0.020 | 0.300      | 0.500 |
| c      | 0.004      | 0.008 | 0.100      | 0.200 |
| D      | 0.110      | 0.118 | 2.800      | 3.000 |
| E      | 0.047      | 0.055 | 1.200      | 1.400 |
| E1     | 0.089      | 0.100 | 2.250      | 2.550 |
| e      | 0.037TYP   |       | 0.950TYP   |       |
| e1     | 0.071      | 0.079 | 1.800      | 2.000 |
| L      | 0.022REF   |       | 0.550REF   |       |
| L1     | 0.012      | 0.020 | 0.300      | 0.500 |
| 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



| PN     | Marking Code |
|--------|--------------|
| BAW56Q | A1           |
| BAV70Q | A4           |
| BAV99Q | A7           |

Note:

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



## BAW56Q&BAV70Q&BAV99Q

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