

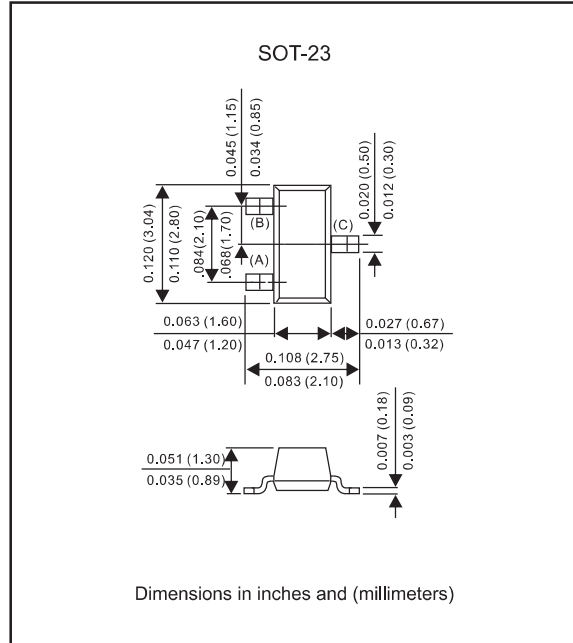
Features

- Fast speed switching.
- For general purpose switching application.
- High conductance.
- Silicon epitaxial planar chip.
- Lead-free parts meet RoHS requirements.

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOT-23
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any

Package outline



Maximum ratings (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

| PARAMETER | SYMBOL | BAL99 | BAV99 | BAW56 | BAV70 | UNIT |
|--|-----------|------------|-------|-------|-------|------|
| Reverse Voltage | V_R | 70 | | | | V |
| Forward Current | I_F | 100 | 215 | 200 | | mA |
| Peak Forward Surge Current | I_{FM} | 500 | | | | mA |
| Non-Repetitive Peak Forward Surge Current @ $t=1.0\mu\text{s}$ @ $t=1.0\text{s}$ | I_{FSM} | 2.0 1.0 | | | | A |

Thermal Characteristics

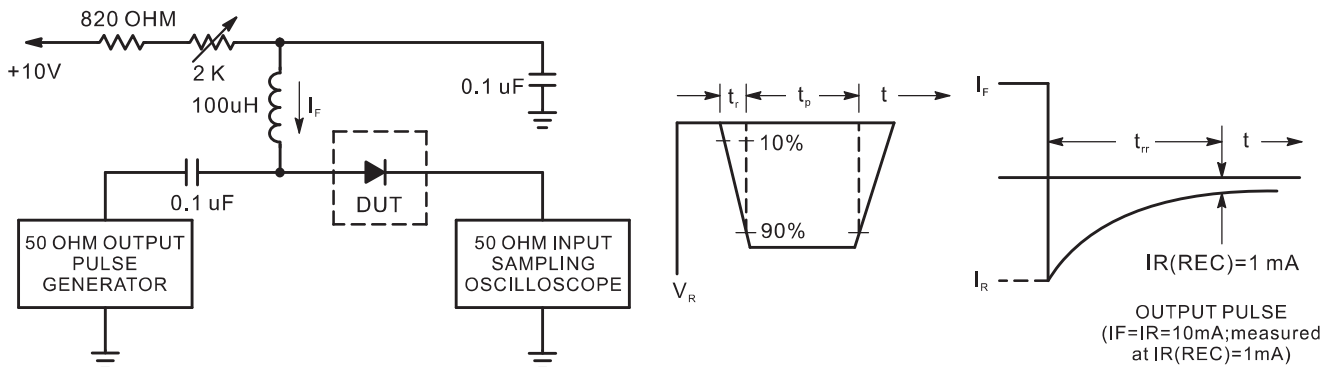
| PARAMETER | SYMBOL | MAX. | UNIT |
|---|-----------------|------------|------------------------------|
| Total Device Dissipation FR-5 Board* ¹ , $T_A = 25^{\circ}\text{C}$ Derate Above 25°C | P_D | 225 1.8 | mW mW/ $^{\circ}\text{C}$ |
| Thermal Resistance Junction to Ambient | $R_{\theta JA}$ | 556 | $^{\circ}\text{C}/\text{W}$ |
| Total Device Dissipation Alumina Substrate* ² , $T_A = 25^{\circ}\text{C}$ Derate Above 25°C | P_D | 300 2.4 | mW mW/ $^{\circ}\text{C}$ |
| Thermal Resistance Junction to Ambient | $R_{\theta JA}$ | 417 | $^{\circ}\text{C}/\text{W}$ |
| Operating Temperature Range | T_J | -55 ~ +150 | $^{\circ}\text{C}$ |
| Storage Temperature Range | T_{STG} | -65 ~ +150 | $^{\circ}\text{C}$ |

1. FR-5 = 1.0 x 0.75 x 0.062 in.
2. Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.

Electrical Characteristics (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

| PARAMETER | SYMBOL | MIN. | MAX. | UNIT |
|---|----------|------|------------------------------|---------------|
| Reverse Breakdown Voltage($I_{BR}=100\mu\text{A}$) | V_{BR} | 70 | | V |
| Reverse Voltage Leakage Current (at $V_R = 70\text{V}$, $T_J=25^\circ\text{C}$)BAL99/BAV99/BAW56/BAV70 (at $V_R = 25\text{V}$, $T_J=150^\circ\text{C}$)BAL99/BAV99/BAW56 (at $V_R = 25\text{V}$, $T_J=150^\circ\text{C}$)BAV70 (at $V_R = 70\text{V}$, $T_J=150^\circ\text{C}$)BAL99/BAV99/BAW56 (at $V_R = 70\text{V}$, $T_J=150^\circ\text{C}$)BAV70 | I_R | | 2.5 30 60 50 100 | μA |
| Diode Capacitance($V_R = 0\text{V}$, $f = 1.0\text{MHz}$) BAL99/BAV99/BAV70 BAW56 | C_D | | 1.5 2.0 | pF |
| Reverse Recovery Time($I_F = I_R = 10\text{mA}$, $V_R = 5.0\text{Vdc}$, $I_R(\text{REC}) = 1.0\text{mA}$, $R_L = 100_{\text{OHM}}$) | t_{rr} | | 6.0 | ns |
| Forward Voltage (at $I_F = 1.0\text{mA}$) (at $I_F = 10\text{mA}$) (at $I_F = 50\text{mA}$) (at $I_F = 150\text{mA}$) | V_F | | 715 855 1000 1250 | mV |

Recovery Time Equivalent Test Circuit



- Notes :
1. A2.0 Kohm variable resistor adjusted for a forward Current (I_F) of 10mA.
 2. Input pulse is adjusted so $I_R(\text{peak})$ is equal to 10 mA.
 3. $t_p \gg t_{rr}$.

Rating and characteristic curves

FIG.1-TYPICAL FORWARD CHARACTERISTICS

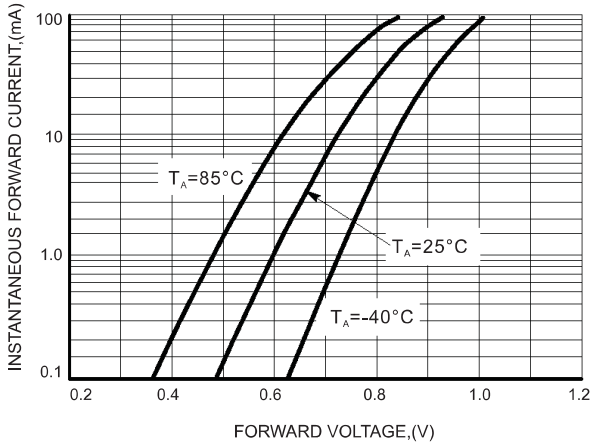


FIG.2 - TYPICAL REVERSE CHARACTERISTICS

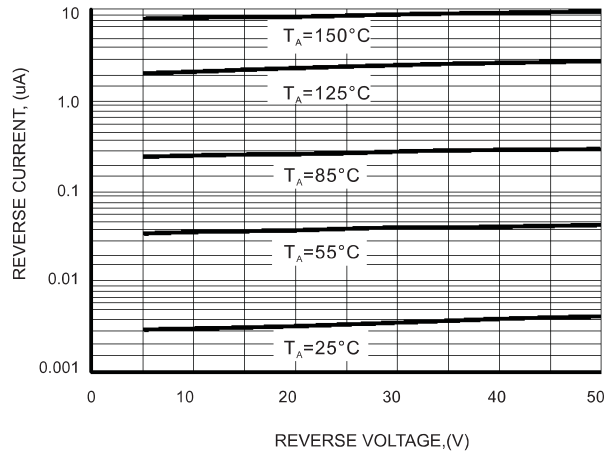


FIG.3a - TYPICAL DIODE CAPACITANCE BAL99/BAV99/BAV70

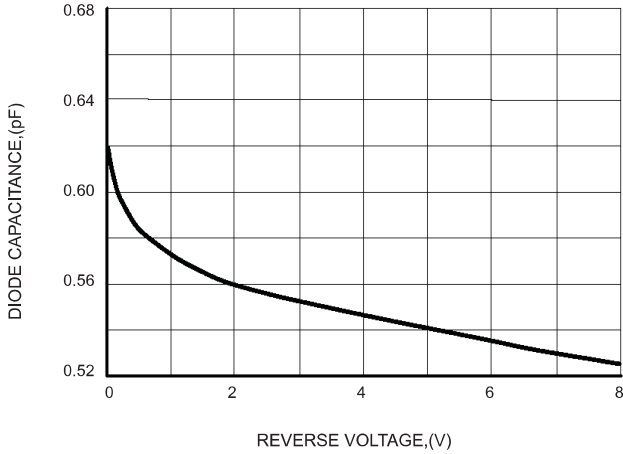
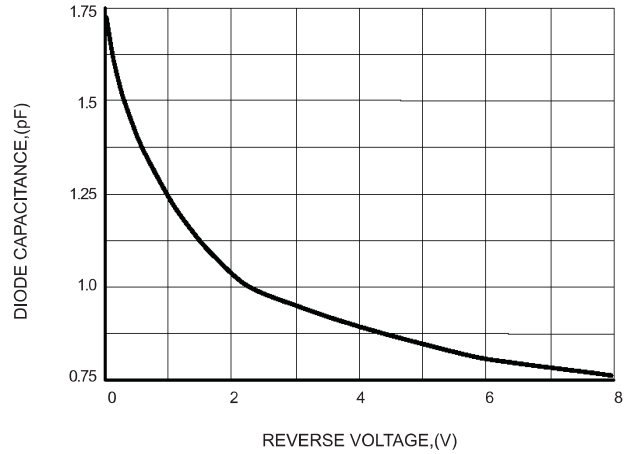
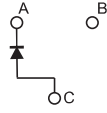
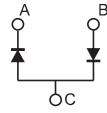
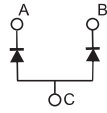
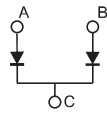


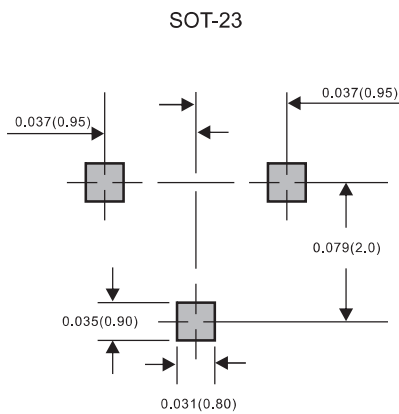
FIG.3b - TYPICAL DIODE CAPACITANCE BAW56



Pinning information

| Type number | Marking code | Symbol |
|-------------|--------------|---|
| BAL99 | A6 |  |
| BAV99 | A7 |  |
| BAW56 | A1 |  |
| BAV70 | A4 |  |

Suggested solder pad layout



Dimensions in inches and (millimeters)