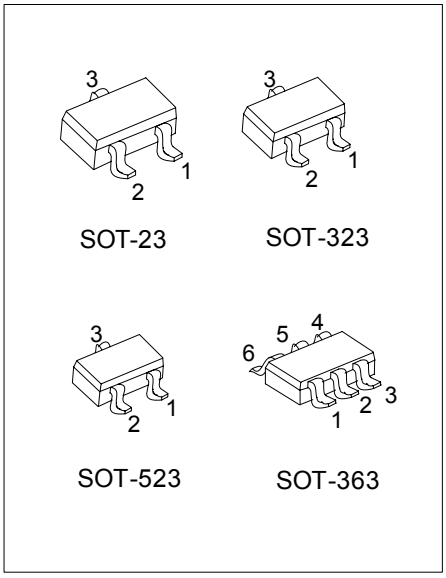
# BAV99

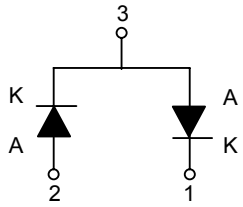
**DIODE**

## HIGH CONDUCTANCE ULTRA FAST DIODE

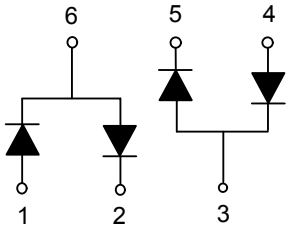



*Pb-free plating product number: BAV99L

### ■ EQUIVALENT




For 3 Pin Package

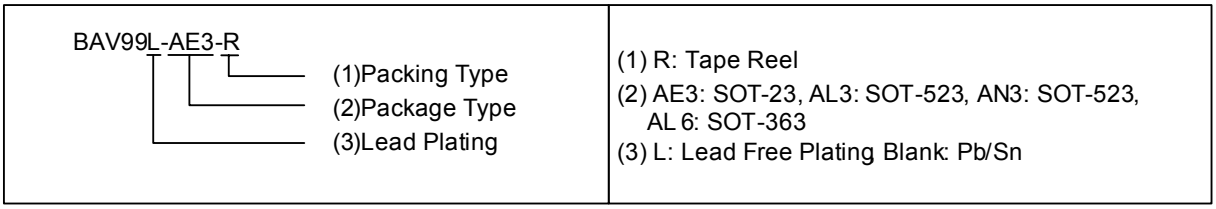



For 6 Pin Package

### ■ ORDERING INFORMATION

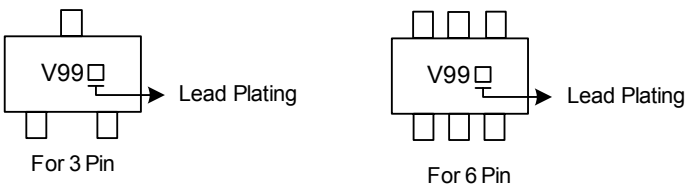
| Order Number | | Package | Pin Assignment | | | | | | Packing |
|---|---|---|---|---|---|---|---|---|---|
| Normal | Lead Free Plating | | 1 | 2 | 3 | 4 | 5 | 6 | |
| BAV99-AE3-R | BAV99L-AE3-R | SOT-23 | K1 | A2 | K2A1 | - | - | - | Tape Reel |
| BAV99-AL3-R | BAV99L-AL3-R | SOT-323 | K1 | A2 | K2A1 | - | - | - | Tape Reel |
| BAV99-AN3-R | BAV99L-AN3-R | SOT-523 | K1 | A2 | K2A1 | - | - | - | Tape Reel |
| BAV99-AL6-R | BAV99L-AL6-R | SOT-363 | A1 | K1 | A2K2 | A2 | K2 | A1K1 | Tape Reel |

Note: Pin Assignment: A: Anode K: Cathode




(1) R: Tape Reel
(2) AE3: SOT-23, AL3: SOT-523, AN3: SOT-523, AL 6: SOT-363
(3) L: Lead Free Plating Blank: Pb/Sn

### ■ MARKING



## ■ ABSOLUTE MAXIMUM RATINGS* (Ta = 25℃, unless otherwise specified.)

| PARAMETER | | | SYMBOL | RATINGS | UNIT |
|---|---|---|---|---|---|
| Working Inverse Voltage | | | $W_{IV}$ | 70 | V |
| Average Rectified Current | | | $I_{F(AV)}$ | 200 | mA |
| DC Forward Current | | | $I_{FM}$ | 600 | mA |
| Recurrent Peak Forward Current | | | $I_{FRM}$ | 700 | mA |
| Non-repetitive Peak Forward Surge Current | Pulse width = 1.0 second | | $I_{FSM}$ | 1.0 | A |
| | Pulse width = 1.0 microsecond | | | 2.0 | |
| Total Device Dissipation | | SOT-23 | $P_D$ | 350 | mW |
| | | SOT-363 | | 200 | mW |
| Junction Temperature | | | $T_J$ | +125 | ℃ |
| Storage Temperature | | | $T_{STG}$ | -40 ~ +150 | ℃ |

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

Note: 1. These ratings are based on a maximum junction temperature of 150°C

2. These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.
3. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

## ■ THERMAL DATA

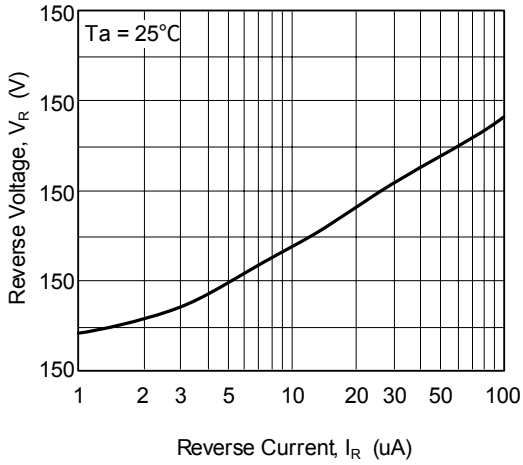
| PARAMETER | | SYMBOL | RATINGS | UNIT |
|---|---|---|---|---|
| Thermal Resistance Junction to Ambient | SOT-23 | $\theta_{JA}$ | 357 | ℃/W |
| | SOT-363 | | 625 | ℃/W |

## ■ ELECTRICAL CHARACTERISTICS (Ta = 25℃, unless otherwise specified.)

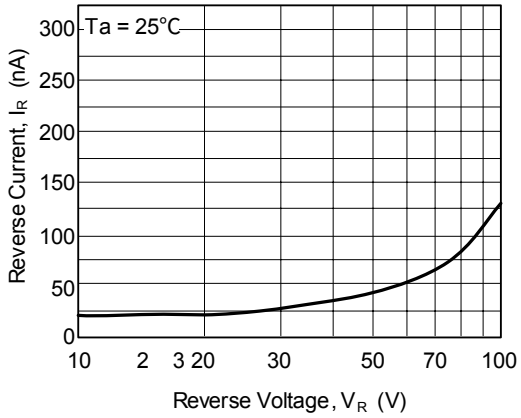
| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Breakdown Voltage | $V_R$ | $I_R$ = 100μA | 70 | | | V |
| Maximum Instantaneous Forward Voltage | $V_{FM}$ | $I_F$ = 1.0mA | | | 715 | mV |
| | | $I_F$ = 10mA | | | 855 | mV |
| | | $I_F$ = 50mA | | | 1.0 | V |
| | | $I_F$ = 150mA | | | 1.25 | V |
| Peak Forward Voltage | $V_{SM}$ | $I_F$ = 10mA, $t_R$ = 20nS | | | 1.75 | V |
| Maximum Instantaneous Reverse Current | $I_{RM}$ | $V_R$ = 70V<br>$V_R$ = 25V, Ta = 150°C<br>$V_R$ = 70V, Ta = 150°C | | | 2.5<br>30<br>50 | μA |
| Diode Capacitance | $C_O$ | $V_R$ = 0, f = 1.0MHz | | | 1.5 | pF |
| Reverse Recovery Time | $t_{RR}$ | $I_F$ = $I_R$ = 10mA, $I_{RR}$ = 1.0mA<br>$R_L$ = 100Ω | | | 6.0 | ns |

## ■ TYPICAL CHARACTERISTICS

Reverse Voltage vs. Reverse Current
BV - 1.0 ~ 100 uA

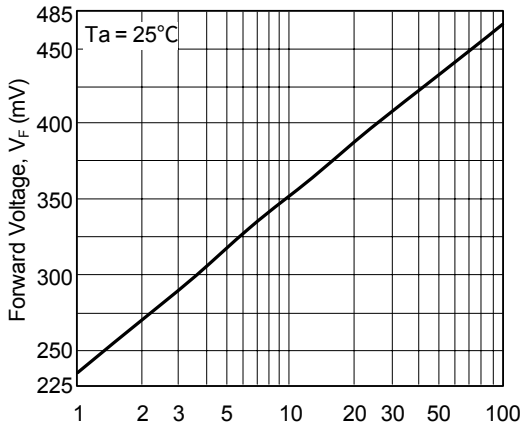



Reverse Current vs. Reverse Voltage
$I_R$ - 10 ~ 100 V

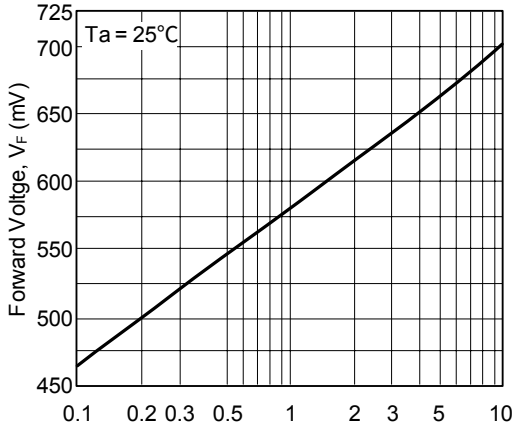



GENERAL RULE : The Reverse Current of a diode will approximately double for every ten (10) Degree C increase in Temperature

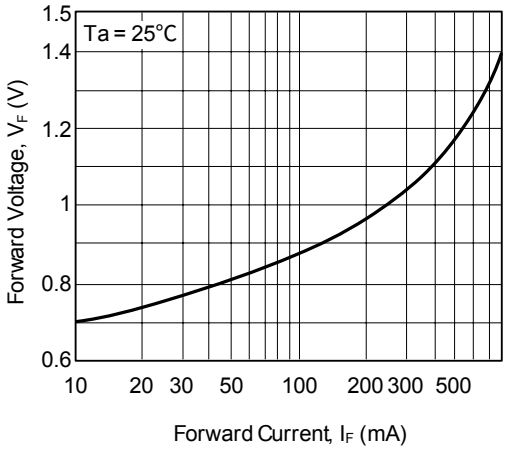
Forward Voltage vs. Forward Current
$V_F$ - 1.0 ~ 100 uA



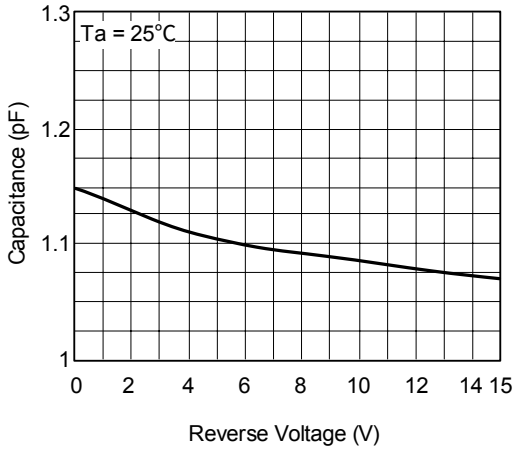

Forward Voltage vs. Forward Current
$V_F$ – 0.1 ~ 10 mA




Forward Voltage vs. Forward Current
$V_F$ - 1.0 ~ 800 mA

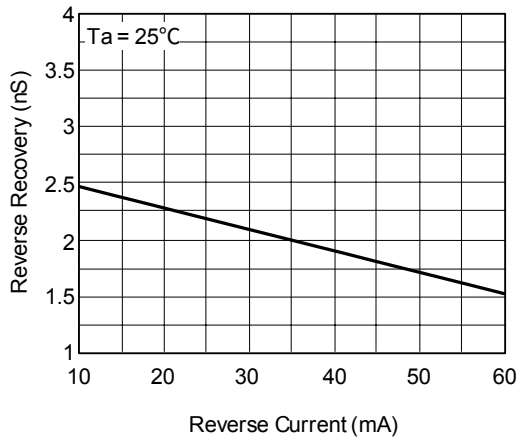



Capacitance vs. Reverse Voltage
$V_R$ - 0.0 ~ 15 V



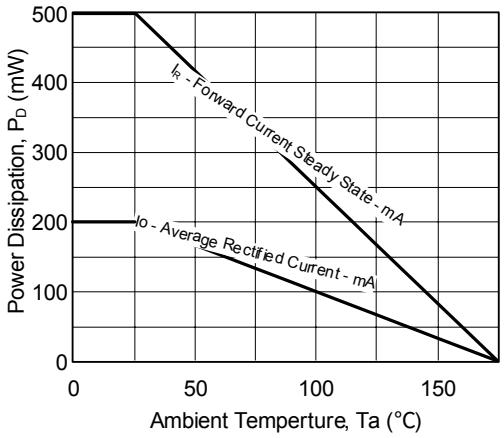
## ■ TYPICAL CHARACTERISTICS(Cont.)

Reverse Recovery Time vs. Reverse Current $T_{RR}$ - $I_R$ 10 mA vs. 60 mA




IRR (Reverse Recovery Current ) = 1.0 mA - Rloop = 100 Ω

Average Rectified Current(Io) & Forward Current($I_F$) versus Ambient Temperature($T_a$)




Power Derating Curve