

## Small Signal Switching Diodes, High Voltage



### FEATURES

- Silicon epitaxial planar diodes
- Saving space
- Hermetic sealed parts
- Fits onto SOD-323/SOT-23 footprints
- Electrical data identical with the devices BAV100 to BAV103, BAV200 to BAV203
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?999912](http://www.vishay.com/doc?999912)



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### MECHANICAL DATA

**Case:** MicroMELF

**Weight:** approx. 12 mg

**Cathode band color:** black

**Packaging codes / options:**

TR3/10K per 13" reel (8 mm tape), 10K/box

TR/2.5K per 7" reel (8 mm tape), 12.5K/box

### APPLICATIONS

- General purposes

### PARTS TABLE

| PART   | TYPE DIFFERENTIATION     | ORDERING CODE           | CIRCUIT CONFIGURATION | REMARKS       |
|--------|--------------------------|-------------------------|-----------------------|---------------|
| BAV300 | $V_{RRM} = 60\text{ V}$  | BAV300-TR3 or BAV300-TR | Single                | Tape and reel |
| BAV301 | $V_{RRM} = 120\text{ V}$ | BAV301-TR3 or BAV301-TR | Single                | Tape and reel |
| BAV302 | $V_{RRM} = 200\text{ V}$ | BAV302-TR3 or BAV302-TR | Single                | Tape and reel |
| BAV303 | $V_{RRM} = 250\text{ V}$ | BAV303-TR3 or BAV303-TR | Single                | Tape and reel |

### ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)

| PARAMETER                       | TEST CONDITION                                       | PART   | SYMBOL    | VALUE | UNIT |
|---------------------------------|------------------------------------------------------|--------|-----------|-------|------|
| Repetitive peak reverse voltage |                                                      | BAV300 | $V_{RRM}$ | 60    | V    |
|                                 |                                                      | BAV301 | $V_{RRM}$ | 120   | V    |
|                                 |                                                      | BAV302 | $V_{RRM}$ | 200   | V    |
|                                 |                                                      | BAV303 | $V_{RRM}$ | 250   | V    |
| Reverse voltage                 |                                                      | BAV300 | $V_R$     | 50    | V    |
|                                 |                                                      | BAV301 | $V_R$     | 100   | V    |
|                                 |                                                      | BAV302 | $V_R$     | 150   | V    |
|                                 |                                                      | BAV303 | $V_R$     | 200   | V    |
| Forward continuous current      |                                                      |        | $I_F$     | 250   | mA   |
| Peak forward surge current      | $t_p = 1\text{ s}, T_j = 25\text{ }^{\circ}\text{C}$ |        | $I_{FSM}$ | 1     | A    |
| Forward peak current            | $f = 50\text{ Hz}$                                   |        | $I_{FM}$  | 625   | mA   |



| <b>THERMAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified) |                                                                                                                         |            |             |                    |
|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|------------|-------------|--------------------|
| PARAMETER                                                                                             | TEST CONDITION                                                                                                          | SYMBOL     | VALUE       | UNIT               |
| Thermal resistance junction to ambient air                                                            | Mounted on epoxy-glass hard tissue, fig. 4<br>35 $\mu\text{m}$ copper clad, 0.9 $\text{mm}^2$ copper area per electrode | $R_{thJA}$ | 500         | K/W                |
| Junction temperature                                                                                  |                                                                                                                         | $T_j$      | 175         | $^{\circ}\text{C}$ |
| Storage temperature range                                                                             |                                                                                                                         | $T_{stg}$  | -65 to +175 | $^{\circ}\text{C}$ |

| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified) |                                                                                 |        |            |      |      |      |               |
|----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|--------|------------|------|------|------|---------------|
| PARAMETER                                                                                                | TEST CONDITION                                                                  | PART   | SYMBOL     | MIN. | TYP. | MAX. | UNIT          |
| Forward voltage                                                                                          | $I_F = 100\text{ mA}$                                                           |        | $V_F$      |      |      | 1    | V             |
| Reverse current                                                                                          | $V_R = 50\text{ V}$                                                             | BAV300 | $I_R$      |      |      | 100  | nA            |
|                                                                                                          | $V_R = 100\text{ V}$                                                            | BAV301 | $I_R$      |      |      | 100  | nA            |
|                                                                                                          | $V_R = 150\text{ V}$                                                            | BAV302 | $I_R$      |      |      | 100  | nA            |
|                                                                                                          | $V_R = 200\text{ V}$                                                            | BAV303 | $I_R$      |      |      | 100  | nA            |
|                                                                                                          | $T_j = 100\text{ }^{\circ}\text{C}$ , $V_R = 50\text{ V}$                       | BAV300 | $I_R$      |      |      | 15   | $\mu\text{A}$ |
|                                                                                                          | $T_j = 100\text{ }^{\circ}\text{C}$ , $V_R = 100\text{ V}$                      | BAV301 | $I_R$      |      |      | 15   | $\mu\text{A}$ |
|                                                                                                          | $T_j = 100\text{ }^{\circ}\text{C}$ , $V_R = 150\text{ V}$                      | BAV302 | $I_R$      |      |      | 15   | $\mu\text{A}$ |
|                                                                                                          | $T_j = 100\text{ }^{\circ}\text{C}$ , $V_R = 200\text{ V}$                      | BAV303 | $I_R$      |      |      | 15   | $\mu\text{A}$ |
| Breakdown voltage                                                                                        | $I_R = 100\text{ }\mu\text{A}$ , $t_p/T = 0.01$ ,<br>$t_p = 0.3\text{ ms}$      | BAV300 | $V_{(BR)}$ | 60   |      |      | V             |
|                                                                                                          |                                                                                 | BAV301 | $V_{(BR)}$ | 120  |      |      | V             |
|                                                                                                          |                                                                                 | BAV302 | $V_{(BR)}$ | 200  |      |      | V             |
|                                                                                                          |                                                                                 | BAV303 | $V_{(BR)}$ | 250  |      |      | V             |
| Diode capacitance                                                                                        | $V_R = 0\text{ V}$ , $f = 1\text{ MHz}$                                         |        | $C_D$      |      | 1.5  |      | pF            |
| Differential forward resistance                                                                          | $I_F = 10\text{ mA}$                                                            |        | $r_f$      |      | 5    |      | $\Omega$      |
| Reverse recovery time                                                                                    | $I_F = I_R = 30\text{ mA}$ , $i_R = 3\text{ mA}$ ,<br>$R_L = 100\text{ }\Omega$ |        | $t_{rr}$   |      |      | 50   | ns            |

## TYPICAL CHARACTERISTICS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)

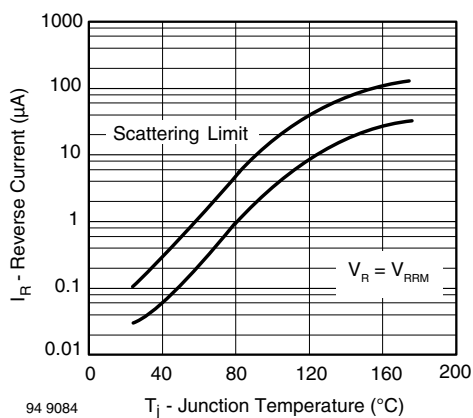


Fig. 1 - Reverse Current vs. Junction Temperature

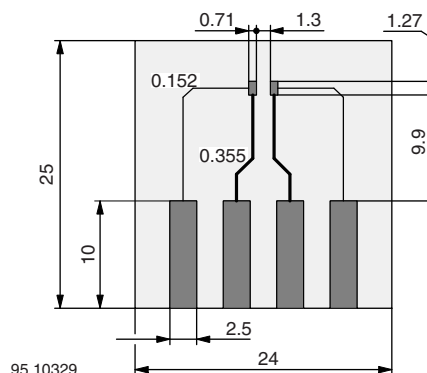


Fig. 4 - Board for  $R_{thJA}$  Definition (in mm)

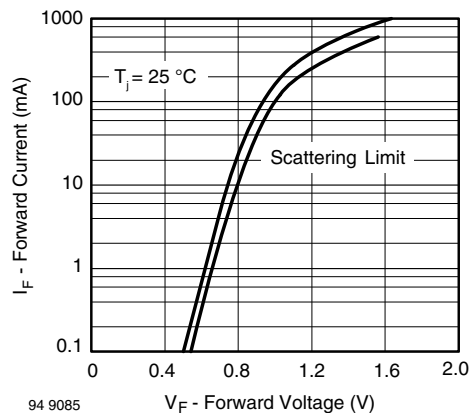


Fig. 2 - Forward Current vs. Forward Voltage

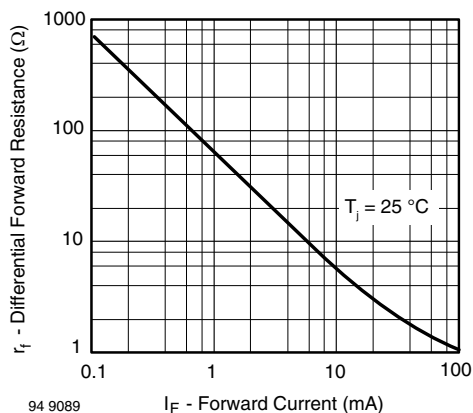
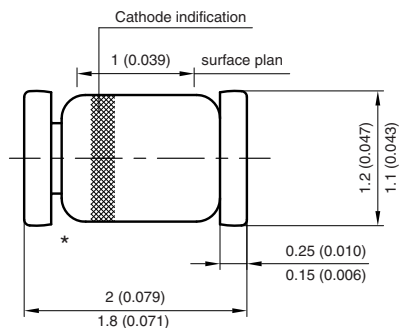


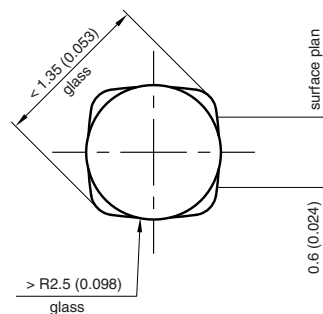
Fig. 3 - Differential Forward Resistance vs. Forward Current



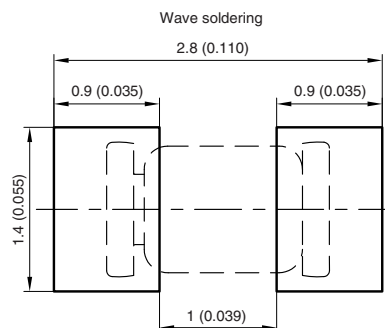
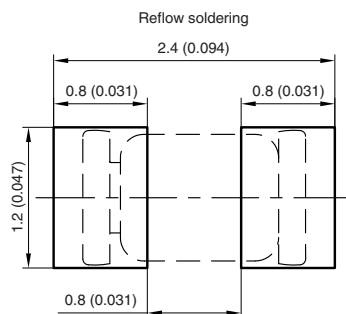
**PACKAGE DIMENSIONS** in millimeters (inches): **MicroMELF**



\* The gap between plug and glass can be either on cathode or anode side



Foot print recommendation:



Created - Date: 26.July.1996  
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96 12072



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