

## Small Signal Switching Diodes, High Voltage



### FEATURES

- Silicon epitaxial planar diodes
- AEC-Q101 qualified
- Material categorization:  
For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

### APPLICATIONS

- General purposes

### MECHANICAL DATA

**Case:** DO-35

**Weight:** approx. 125 mg

**Cathode band color:** black

**Packaging codes/options:**

TR/10K per 13" reel (52 mm tape), 50K/box

TAP/10K per ammpack (52 mm tape), 50K/box

### PARTS TABLE

| PART  | TYPE DIFFERENTIATION     | ORDERING CODE         | TYPE MARKING | INTERNAL CONSTRUCTION | REMARKS               |
|-------|--------------------------|-----------------------|--------------|-----------------------|-----------------------|
| BAV17 | $V_{RRM} = 25\text{ V}$  | BAV17-TR or BAV17-TAP | BAV17        | Single diode          | Tape and reel/ammpack |
| BAV18 | $V_{RRM} = 60\text{ V}$  | BAV18-TR or BAV18-TAP | BAV18        | Single diode          | Tape and reel/ammpack |
| BAV19 | $V_{RRM} = 120\text{ V}$ | BAV19-TR or BAV19-TAP | BAV19        | Single diode          | Tape and reel/ammpack |
| BAV20 | $V_{RRM} = 200\text{ V}$ | BAV20-TR or BAV20-TAP | BAV20        | Single diode          | Tape and reel/ammpack |
| BAV21 | $V_{RRM} = 250\text{ V}$ | BAV21-TR or BAV21-TAP | BAV21        | Single diode          | Tape and reel/ammpack |

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

| PARAMETER                       | TEST CONDITION                                       | PART  | SYMBOL    | VALUE | UNIT |
|---------------------------------|------------------------------------------------------|-------|-----------|-------|------|
| Repetitive peak reverse voltage |                                                      | BAV17 | $V_{RRM}$ | 25    | V    |
|                                 |                                                      | BAV18 | $V_{RRM}$ | 60    | V    |
|                                 |                                                      | BAV19 | $V_{RRM}$ | 120   | V    |
|                                 |                                                      | BAV20 | $V_{RRM}$ | 200   | V    |
|                                 |                                                      | BAV21 | $V_{RRM}$ | 250   | V    |
| Reverse voltage                 |                                                      | BAV17 | $V_R$     | 20    | V    |
|                                 |                                                      | BAV18 | $V_R$     | 50    | V    |
|                                 |                                                      | BAV19 | $V_R$     | 100   | V    |
|                                 |                                                      | BAV20 | $V_R$     | 150   | V    |
|                                 |                                                      | BAV21 | $V_R$     | 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            | $f = 50\text{ Hz}$                                   |       | $I_{FRM}$ | 625   | mA   |
| Power dissipation               |                                                      |       | $P_{tot}$ | 500   | mW   |

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

| PARAMETER                                  | TEST CONDITION                              | SYMBOL     | VALUE         | UNIT               |
|--------------------------------------------|---------------------------------------------|------------|---------------|--------------------|
| Thermal resistance junction to ambient air | $l = 4\text{ mm}$ , $T_L = \text{constant}$ | $R_{thJA}$ | 300           | K/W                |
| Junction temperature                       |                                             | $T_j$      | 175           | $^{\circ}\text{C}$ |
| Storage temperature range                  |                                             | $T_{stg}$  | - 65 to + 175 | $^{\circ}\text{C}$ |

**ELECTRICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , 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                 | $V_R = 20\text{ V}$                                                           | BAV17 | $I_R$      |      |      | 100  | nA            |
|                                 | $V_R = 50\text{ V}$                                                           | BAV18 | $I_R$      |      |      | 100  | nA            |
|                                 | $V_R = 100\text{ V}$                                                          | BAV19 | $I_R$      |      |      | 100  | nA            |
|                                 | $V_R = 150\text{ V}$                                                          | BAV20 | $I_R$      |      |      | 100  | nA            |
|                                 | $V_R = 200\text{ V}$                                                          | BAV21 | $I_R$      |      |      | 100  | nA            |
|                                 | $T_j = 100\text{ }^{\circ}\text{C}$ , $V_R = 20\text{ V}$                     | BAV17 | $I_R$      |      |      | 15   | $\mu\text{A}$ |
|                                 | $T_j = 100\text{ }^{\circ}\text{C}$ , $V_R = 50\text{ V}$                     | BAV18 | $I_R$      |      |      | 15   | $\mu\text{A}$ |
|                                 | $T_j = 100\text{ }^{\circ}\text{C}$ , $V_R = 100\text{ V}$                    | BAV19 | $I_R$      |      |      | 15   | $\mu\text{A}$ |
|                                 | $T_j = 100\text{ }^{\circ}\text{C}$ , $V_R = 150\text{ V}$                    | BAV20 | $I_R$      |      |      | 15   | $\mu\text{A}$ |
| Breakdown voltage               | $I_R = 5\text{ }\mu\text{A}$ , $t_p/T = 0.01$ ,<br>$t_p = 0.3\text{ ms}$      | BAV17 | $V_{(BR)}$ | 25   |      |      | V             |
|                                 |                                                                               | BAV18 | $V_{(BR)}$ | 60   |      |      | V             |
|                                 |                                                                               | BAV19 | $V_{(BR)}$ | 120  |      |      | V             |
|                                 |                                                                               | BAV20 | $V_{(BR)}$ | 200  |      |      | V             |
|                                 |                                                                               | BAV21 | $V_{(BR)}$ | 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            |

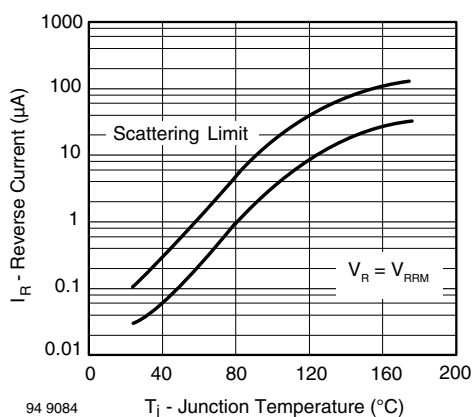
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)

Fig. 1 - Reverse Current vs. Junction Temperature

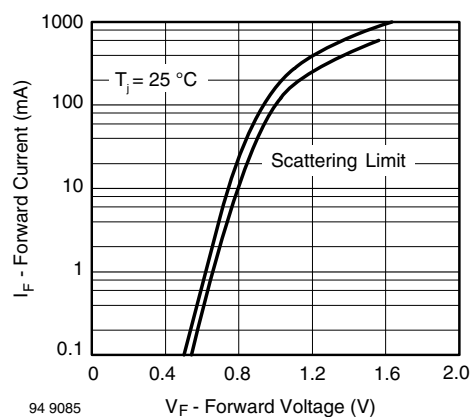


Fig. 2 - Forward Current vs. Forward Voltage

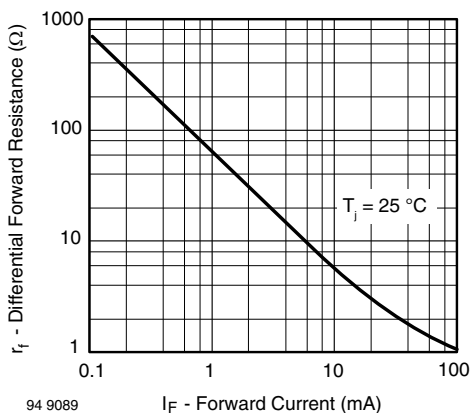
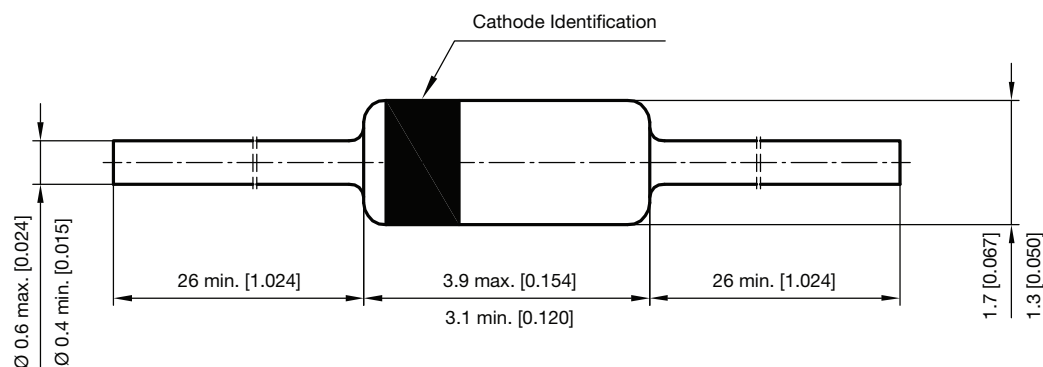


Fig. 3 - Differential Forward Resistance vs. Forward Current

### PACKAGE DIMENSIONS in millimeters (inches): DO-35



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