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Vishay Semiconductors

# **Small Signal Switching Diodes**



### **FEATURES**

- Silicon planar diodes
- Very low reverse current
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



HALOGEN FREE

### **APPLICATIONS**

• Protection circuits, time delay circuits, peak follower circuits, logarithmic amplifiers

### **LINKS TO ADDITIONAL RESOURCES**



#### **MECHANICAL DATA**

Case: DO-35 (DO-204AH) Weight: approx. 125 mg Cathode band color: black Packaging codes / options:

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

| PARTS TABLE |                          |                       |                 |                       |                          |  |
|-------------|--------------------------|-----------------------|-----------------|-----------------------|--------------------------|--|
| PART        | TYPE DIFFERENTIATION     | ORDERING CODE         | TYPE<br>MARKING | CIRCUIT CONFIGURATION | REMARKS                  |  |
| BAS33       | $V_{RRM} = 40 \text{ V}$ | BAS33-TAP or BAS33-TR | BAS33           | Single                | Tape and reel / ammopack |  |
| BAS34       | $V_{RRM} = 70 \text{ V}$ | BAS34-TAP or BAS34-TR | BAS34           | Single                | Tape and reel / ammopack |  |

| <b>ABSOLUTE MAXIMUM RATINGS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified) |                       |       |                  |       |      |  |
|--|-----------------------|-------|------------------|-------|------|--|
| PARAMETER  | TEST CONDITION        | PART  | SYMBOL           | VALUE | UNIT |  |
| Panatitiva paak rayaraa valtaga  |                       | BAS33 | $V_{RRM}$        | 40    | V    |  |
| Repetitive peak reverse voltage  |                       | BAS34 | V <sub>RRM</sub> | 70    | V    |  |
| Deverage veltage   |                       | BAS33 | $V_R$            | 30    | V    |  |
| Reverse voltage  |                       | BAS34 | V <sub>R</sub>   | 60    | V    |  |
| Peak forward surge current   | t <sub>p</sub> = 1 μs |       | I <sub>FSM</sub> | 2     | Α    |  |
| Forward continuous current   |                       |       | I <sub>F</sub>   | 200   | mA   |  |

| THERMAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified) |                                     |                   |             |      |  |  |
|--|-------------------------------------|-------------------|-------------|------|--|--|
| PARAMETER  | TEST CONDITION                      | SYMBOL            | VALUE       | UNIT |  |  |
| Thermal resistance junction to ambient air                                     | I = 4 mm, T <sub>L</sub> = constant | R <sub>thJA</sub> | 350         | K/W  |  |  |
| Junction temperature   |                                     | Tj                | 175         | °C   |  |  |
| Storage temperature range  |                                     | T <sub>stg</sub>  | -65 to +175 | °C   |  |  |

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| <b>ELECTRICAL CHARACTERISTICS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified) |  |       |                   |      |      |      |      |
|--|--|-------|-------------------|------|------|------|------|
| PARAMETER  | TEST CONDITION   | PART  | SYMBOL            | MIN. | TYP. | MAX. | UNIT |
| Forward voltage  | I <sub>F</sub> = 100 mA                                  |       | V <sub>F</sub>    |      |      | 1    | V    |
|  | E ≤ 300 lx, V <sub>R</sub>                               |       | I <sub>R</sub>    |      | 1    | 3    | nA   |
| Reverse current  | $E \le 300 \text{ Ix}, V_R, T_j = 125 \text{ °C}$        |       | I <sub>R</sub>    |      |      | 0.5  | μA   |
| neverse current  | $E \le 300 Ix, V_R = 15 V$                               | BAS33 | I <sub>R</sub>    |      | 0.5  | 1    | nA   |
|  | $E \le 300 \text{ Ix}, V_R = 30 \text{ V}$               | BAS34 | I <sub>R</sub>    |      | 0.5  | 1    | nA   |
| Breakdown voltage  | $I_R = 5 \mu A, t_p/T = 0.01,$<br>$t_p = 0.3 \text{ ms}$ | BAS33 | V <sub>(BR)</sub> | 40   |      |      | V    |
| breakdown voltage  |  | BAS34 | V <sub>(BR)</sub> | 70   |      |      | V    |
| Diode capacitance  | $V_R = 0 V, f = 1 MHz,$                                  |       | C <sub>D</sub>    |      |      | 3    | pF   |

## TYPICAL CHARACTERISTICS (T<sub>amb</sub> = 25 °C, unless otherwise specified)

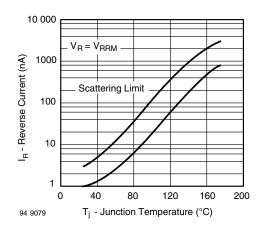


Fig. 1 - Reverse Current vs. Junction Temperature

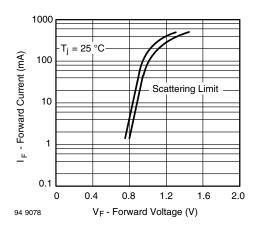
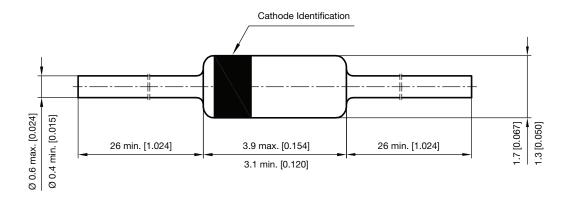


Fig. 2 - Forward Current vs. Forward Voltage

### PACKAGE DIMENSIONS in millimeters (inches): DO-35 (DO-204AH)



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