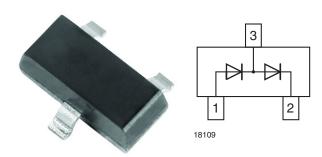
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Vishay Semiconductors

# **Small Signal Switching Diode, Dual in Series**



### LINKS TO ADDITIONAL RESOURCES



#### **MECHANICAL DATA**

Case: SOT-23 Weight: approx. 8.8 mg

Packaging codes / options: 18/10K per 13" reel (8 mm tape), 10K/box 08/3K per 7" reel (8 mm tape), 15K/box

### FEATURES

- Fast switching speed
- High conductance
- Surface mount package ideally suited for automatic insertion
- Connected in series
- AEC-Q101 qualified available
- Base P/N-E3 RoHS-compliant, commercial grade
- Base P/N-HE3 RoHS-compliant, AEC-Q101 qualified
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

| PARTS TABLE |                              |                       |              |               |  |
|-------------|------------------------------|-----------------------|--------------|---------------|--|
| PART        | ORDERING CODE                | CIRCUIT CONFIGURATION | TYPE MARKING | REMARKS       |  |
| BAV99       | BAV99-E3-08 or BAV99-E3-18   | Dual serial           | JE           | Tape and reel |  |
|             | BAV99-HE3-08 or BAV99-HE3-18 | Dual serial           | JE           |               |  |

| <b>ABSOLUTE MAXIMUM RATINGS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified)     |  |                             |       |      |  |
|--|--|-----------------------------|-------|------|--|
| PARAMETER  | TEST CONDITION   | SYMBOL                      | VALUE | UNIT |  |
| Non repetitive peak reverse voltage  |  | V <sub>RM</sub>             | 100   | V    |  |
| Repetitive peak reverse voltage<br>= working peak reverse voltage<br>= DC blocking voltage |  | $V_{RRM} = V_{RWM} = V_{R}$ | 70    |      |  |
| Peak forward surge current   | t <sub>p</sub> = 1 s   |                             | 1     | А    |  |
| reak lorward surge current   | t <sub>p</sub> = 1 μs  | IFSM                        | 4.5   |      |  |
| Average forward current  | Half wave rectification with resistive load<br>and f ≥ 50 MHz, on ceramic substrate<br>10 mm x 8 mm x 0.7 mm | I <sub>F(AV)</sub>          | 150   | mA   |  |
| Forward current  | On ceramic substrate<br>10 mm x 8 mm x 0.7 mm  | ١ <sub>F</sub>              | 250   |      |  |
| Power dissipation  | On ceramic substrate<br>10 mm x 8 mm x 0.7 mm  | P <sub>tot</sub>            | 300   | mW   |  |

| <b>THERMAL CHARACTERISTICS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified) |   |                   |             |      |  |  |
|---|---|-------------------|-------------|------|--|--|
| PARAMETER   | TEST CONDITION                                | SYMBOL VALUE      |             | UNIT |  |  |
| Junction ambient  | On ceramic substrate<br>10 mm x 8 mm x 0.7 mm | R <sub>thJA</sub> | 430         | K/W  |  |  |
| Junction and storage temperature range  |   | $T_j = T_{stg}$   | -55 to +150 | °C   |  |  |
| Operating temperature range   |   | T <sub>op</sub>   | -55 to +150 | °C   |  |  |

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RoHS

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| ELECTRICAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified) |   |                 |      |      |       |      |
|---|---|-----------------|------|------|-------|------|
| PARAMETER   | TEST CONDITION  | SYMBOL          | MIN. | TYP. | MAX.  | UNIT |
|   | I <sub>F</sub> = 1 mA   | V <sub>F</sub>  |      |      | 0.715 | V    |
| Forward voltage   | I <sub>F</sub> = 10 mA  |                 |      |      | 0.855 | V    |
| Forward voltage   | I <sub>F</sub> = 50 mA  |                 |      |      | 1     | V    |
|   | I <sub>F</sub> = 150 mA   |                 |      |      | 1.25  | V    |
|   | V <sub>R</sub> = 70 V   | I <sub>R</sub>  |      |      | 2500  | nA   |
| Reverse current   | V <sub>R</sub> = 70 V, Tj = 150 °C  |                 |      |      | 50    | μA   |
|   | V <sub>R</sub> = 25 V, Tj = 150 °C  |                 |      |      | 30    | μA   |
| Diode capacitance   | $V_R = 0, f = 1 MHz$  | CD              |      |      | 1.5   | pF   |
| Reverse recovery time   | $\label{eq:IF} \begin{array}{l} I_{F}=10 \text{ mA to } i_{R}=1 \text{ mA}, \\ V_{R}=6 \text{ V}, \text{ R}_{L}=100 \ \Omega \end{array}$ | t <sub>rr</sub> |      |      | 6     | ns   |

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

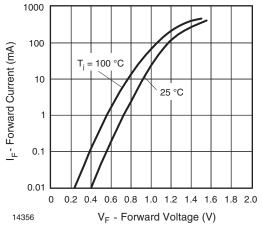
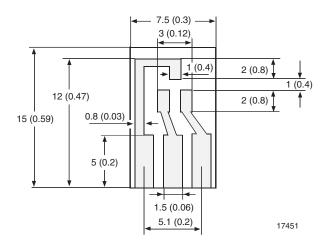
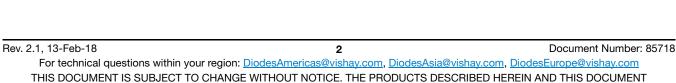


Fig. 1 - Forward Current vs. Forward Voltage

### LAYOUT FOR R<sub>thJA</sub> TEST

Thickness: Fiberglass 1.5 mm (0.059 inches) Copper leads 0.3 mm (0.012 inches)





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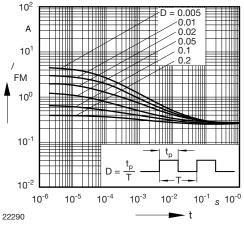
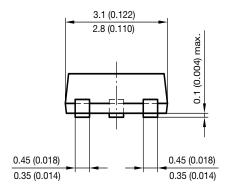


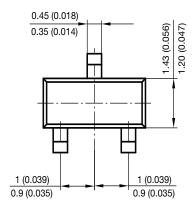
Fig. 2 - Peak forward current  $/_{FM}$  = f (t<sub>p</sub>)

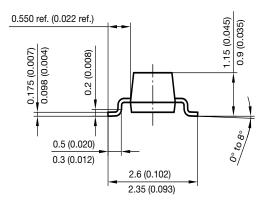


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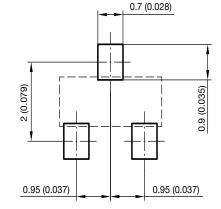
### PACKAGE DIMENSIONS in millimeters (inches): SOT-23







Foot print recommendation:



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