



Small Signal Switching Diodes, High Voltage



FEATURES

- Silicon epitaxial planar diode
- Fast switching diode in case SOT-23, especially suited for automatic insertion.
- AEC-Q101 qualified
- 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 www.vishay.com/doc?99912



RoHS COMPLIANT

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

| PARTS TABLE | | | | | |
|-------------|----------------------|------------------------------|--------------|-----------------------|---------------|
| PART | TYPE DIFFERENTIATION | ORDERING CODE | TYPE MARKING | INTERNAL CONSTRUCTION | REMARKS |
| BAS19 | $V_R = 100\text{ V}$ | BAS19-E3-08 or BAS19-E3-18 | A8 | Single diode | Tape and reel |
| | | BAS19-HE3-08 or BAS19-HE3-18 | | | |
| BAS20 | $V_R = 150\text{ V}$ | BAS20-E3-08 or BAS20-E3-18 | A81 | Single diode | Tape and reel |
| | | BAS20-HE3-08 or BAS20-HE3-18 | | | |
| BAS21 | $V_R = 200\text{ V}$ | BAS21-E3-08 or BAS21-E3-18 | A82 | Single diode | Tape and reel |
| | | BAS21-HE3-08 or BAS21-HE3-18 | | | |

| ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25\text{ }^\circ\text{C}$, unless otherwise specified) | | | | | |
|---|-----------------------------|-------|-------------|-------|------|
| PARAMETER | TEST CONDITION | PART | SYMBOL | VALUE | UNIT |
| Continuous reverse voltage | | BAS19 | V_R | 100 | V |
| | | BAS20 | V_R | 150 | V |
| | | BAS21 | V_R | 200 | V |
| Repetitive peak reverse voltage | | BAS19 | V_{RRM} | 120 | V |
| | | BAS20 | V_{RRM} | 200 | V |
| | | BAS21 | V_{RRM} | 250 | V |
| Non repetitive peak forward current | $t = 1\text{ }\mu\text{s}$ | | I_{FSM} | 2.5 | A |
| Non repetitive peak forward surge current | $t = 1\text{ s}$ | | I_{FSM} | 0.5 | A |
| Maximum average forward rectified current ⁽¹⁾ | (av. over any 20 ms period) | | $I_{F(AV)}$ | 200 | mA |
| DC forward current ⁽²⁾ | | | I_F | 200 | mA |
| Repetitive peak forward current | | | I_{FRM} | 625 | mA |
| Power dissipation ⁽²⁾ | | | P_{tot} | 250 | mW |

Notes

⁽¹⁾ Measured under pulse conditions; pulse time = $t_p \geq 0.3\text{ ms}$

⁽²⁾ Device on fiberglass substrate, see layout on next page



| THERMAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) | | | | |
|---|----------------|------------------|---------------|--------------------|
| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
| Thermal resistance junction to ambient air | | $R_{thJA}^{(1)}$ | 430 | $^{\circ}\text{C}$ |
| Junction temperature | | T_j | 150 | $^{\circ}\text{C}$ |
| Storage temperature range | | T_{stg} | - 65 to + 150 | $^{\circ}\text{C}$ |
| Operating temperature range | | T_{op} | - 55 to + 150 | $^{\circ}\text{C}$ |

Note

(1) Device on fiberglass substrate, see layout drawing below

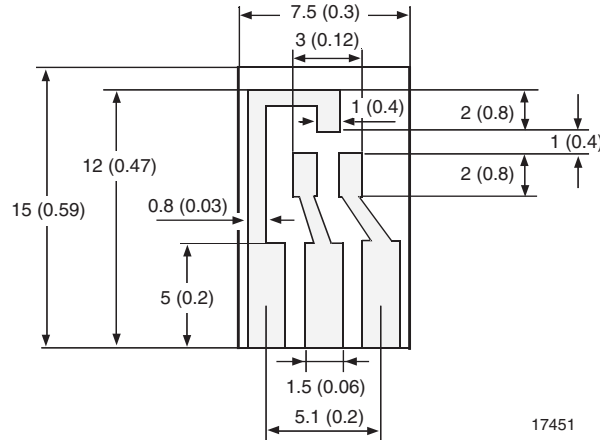
| ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) | | | | | | | |
|--|--|-------|----------|------|------|------|---------------|
| PARAMETER | TEST CONDITION | PART | SYMBOL | MIN. | TYP. | MAX. | UNIT |
| Forward voltage | $I_F = 100\text{ mA}$ | | V_F | | | 1.0 | V |
| | $I_F = 200\text{ mA}$ | | V_F | | | 1.25 | V |
| Leakage current | $V_R = 100\text{ V}$ | BAS19 | I_R | | | 100 | nA |
| | $V_R = 150\text{ V}$ | BAS20 | I_R | | | 100 | nA |
| | $V_R = 200\text{ V}$ | BAS21 | I_R | | | 100 | nA |
| | $V_R = V_{Rmax}, T_j = 150\text{ }^{\circ}\text{C}$ | | I_R | | | 100 | μA |
| Dynamic forward resistance | $I_F = 10\text{ mA}$ | | r_f | | 5 | | Ω |
| Diode capacitance | $V_R = 0, f = 1\text{ MHz}$ | | C_D | | | 5 | pF |
| Reverse recovery time | $I_F = I_R = 30\text{ mA}, R_L = 100\text{ }\Omega, i_R = 3\text{ mA}$ | | t_{rr} | | | 50 | ns |

LAYOUT FOR R_{thJA} TEST

Thickness:

Fiberglass 1.5 mm (0.059 inches)

Copper leads 0.3 mm (0.012 inches)





PACKAGE DIMENSIONS in millimeters (inches): SOT-23



Foot print recommendation:



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