



# Small Signal Switching Diodes, Low Leakage Current



### FEATURES

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



RoHS COMPLIANT

### APPLICATIONS

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

**DESIGN SUPPORT TOOLS** click logo to get started



### MECHANICAL DATA

**Case:** MiniMELF (SOD-80)

**Weight:** approx. 31 mg

**Cathode band color:** black

**Packaging codes / options:**

GS18/10K per 13" reel (8 mm tape), 10K/box

GS18/10K per 13" reel (8 mm tape), 10K/box

| PARTS TABLE |                          |                          |              |                       |               |
|-------------|--------------------------|--------------------------|--------------|-----------------------|---------------|
| PART        | TYPE DIFFERENTIATION     | ORDERING CODE            | TYPE MARKING | CIRCUIT CONFIGURATION | REMARKS       |
| BAQ33       | $V_{RRM} = 40\text{ V}$  | BAQ33-GS18 or BAQ33-GS08 | -            | Single                | Tape and reel |
| BAQ34       | $V_{RRM} = 70\text{ V}$  | BAQ34-GS18 or BAQ34-GS08 | -            | Single                | Tape and reel |
| BAQ35       | $V_{RRM} = 140\text{ V}$ | BAQ35-GS18 or BAQ35-GS08 | -            | 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   |                              | BAQ33 | $V_{RRM}$ | 40    | V    |
|   |                              | BAQ34 | $V_{RRM}$ | 70    | V    |
|   |                              | BAQ35 | $V_{RRM}$ | 140   | V    |
| Reverse voltage   |                              | BAQ33 | $V_R$     | 30    | V    |
|   |                              | BAQ34 | $V_R$     | 60    | V    |
|   |                              | BAQ35 | $V_R$     | 125   | V    |
| Peak forward surge current  | $t_p = 1\text{ }\mu\text{s}$ |       | $I_{FSM}$ | 2     | A    |
| Forward continuous current  |                              |       | $I_F$     | 200   | mA   |

| THERMAL CHARACTERISTICS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified) |                                       |            |             |                    |
|--|---------------------------------------|------------|-------------|--------------------|
| PARAMETER  | TEST CONDITION                        | SYMBOL     | VALUE       | UNIT               |
| Thermal resistance junction to ambient air   | On PC board<br>50 mm x 50 mm x 1.6 mm | $R_{thJA}$ | 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  | $E \leq 300\text{ lx}$ , rated $V_R$                                       |       | $I_R$      |      | 1    | 3    | nA            |
|  | $E \leq 300\text{ lx}$ , rated $V_R$ , $T_j = 125\text{ }^{\circ}\text{C}$ |       | $I_R$      |      |      | 0.5  | $\mu\text{A}$ |
|  | $E \leq 300\text{ lx}$ , $V_R = 15\text{ V}$                               | BAQ33 | $I_R$      |      | 0.5  | 1    | nA            |
|  | $E \leq 300\text{ lx}$ , $V_R = 30\text{ V}$                               | BAQ34 | $I_R$      |      | 0.5  | 1    | nA            |
|  | $E \leq 300\text{ lx}$ , $V_R = 60\text{ V}$                               | BAQ35 | $I_R$      |      | 0.5  | 1    | nA            |
| Breakdown voltage  | $I_R = 5\text{ }\mu\text{A}$ , $t_p/T = 0.01$ ,<br>$t_p = 0.3\text{ ms}$   | BAQ33 | $V_{(BR)}$ | 40   |      |      | V             |
|  | $I_R = 5\text{ }\mu\text{A}$ , $t_p/T = 0.01$ ,<br>$t_p = 0.3\text{ ms}$   | BAQ34 | $V_{(BR)}$ | 70   |      |      | V             |
|  |  | BAQ35 | $V_{(BR)}$ | 140  |      |      | V             |
| Diode capacitance  | $V_R = 0\text{ V}$ , $f = 1\text{ MHz}$                                    |       | $C_D$      |      |      | 3    | pF            |

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

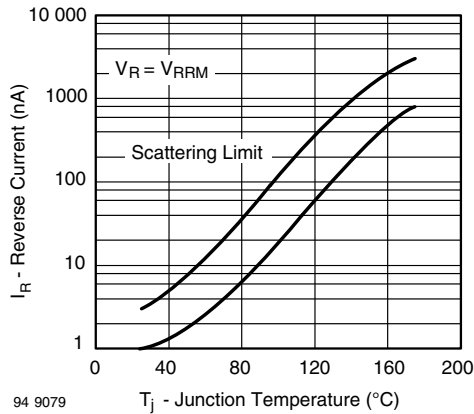


Fig. 1 - Reverse Current vs. Junction Temperature

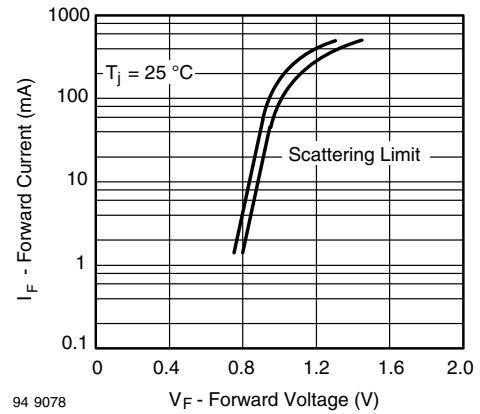


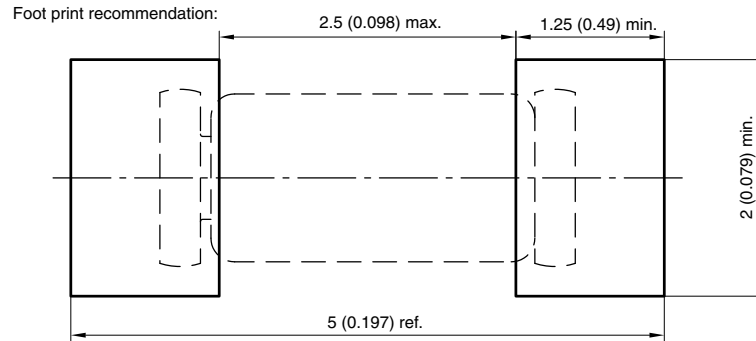
Fig. 2 - Forward Current vs. Forward Voltage



## PACKAGE DIMENSIONS in millimeters (inches): MiniMELF (SOD-80)



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



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