

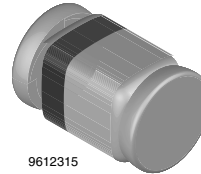
## Small Signal Switching Diodes, Low Leakage Current

### Features

- Silicon Planar Diodes
- Saving space
- Hermetic sealed parts
- Fits onto SOD-323/SOT-23 footprints
- Electrical data identical with the devices BAQ33 to BAQ35/BAQ133 to BAQ135
- Very low reverse current
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition



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



9612315

### Applications

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

### Mechanical Data

**Case:** MicroMELF

**Weight:** approx. 12 mg

**Cathode band color:** black

**Packaging codes/options:**

TR3 / 10 k per 13" reel (8 mm tape), 10 k/box

TR / 2.5 k per 7" reel (8 mm tape), 12.5 k/box

### Parts Table

| Part   | Type differentiation     | Ordering code           | Remarks       |
|--------|--------------------------|-------------------------|---------------|
| BAQ333 | $V_{RRM} = 40\text{ V}$  | BAQ333-TR3 or BAQ333-TR | Tape and Reel |
| BAQ334 | $V_{RRM} = 70\text{ V}$  | BAQ334-TR3 or BAQ334-TR | Tape and Reel |
| BAQ335 | $V_{RRM} = 140\text{ V}$ | BAQ335-TR3 or BAQ335-TR | Tape and Reel |

### Absolute Maximum Ratings

$T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified

| Parameter                  | Test condition               | Part   | Symbol    | Value | Unit |
|----------------------------|------------------------------|--------|-----------|-------|------|
| Reverse voltage            |                              | BAQ333 | $V_R$     | 30    | V    |
|                            |                              | BAQ334 | $V_R$     | 60    | V    |
|                            |                              | BAQ335 | $V_R$     | 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 | Mounted on epoxy-glass hard tissue, fig. 1                                | $R_{thJA}$ | 500           | K/W                |
|  | 35 $\mu\text{m}$ copper clad, 0.9 $\text{mm}^2$ copper area per electrode | $R_{thJA}$ | 500           | 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   | $I_F = 100\text{ mA}$  |        | $V_F$      |      |      | 1000 | mV            |
| 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  | $\mu\text{A}$ |
|                   | $E \leq 300\text{ lx}$ , $V_R = 15\text{ V}$                               | BAQ333 | $I_R$      |      | 0.5  | 1    | nA            |
|                   | $E \leq 300\text{ lx}$ , $V_R = 30\text{ V}$                               | BAQ334 | $I_R$      |      | 0.5  | 1    | nA            |
|                   | $E \leq 300\text{ lx}$ , $V_R = 60\text{ V}$                               | BAQ335 | $I_R$      |      | 0.5  | 1    | nA            |
| Breakdown voltage | $I_R = 5\text{ }\mu\text{A}$ , $t_p/T = 0.01$ ,<br>$t_p = 0.3\text{ ms}$   | BAQ333 | $V_{(BR)}$ | 40   |      |      | V             |
|                   |  | BAQ334 | $V_{(BR)}$ | 70   |      |      | V             |
|                   |  | BAQ335 | $V_{(BR)}$ | 140  |      |      | V             |
| Diode capacitance | $V_R = 0$ , $f = 1\text{ MHz}$   |        | $C_D$      |      |      | 3    | pF            |

### Typical Characteristics

$T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified

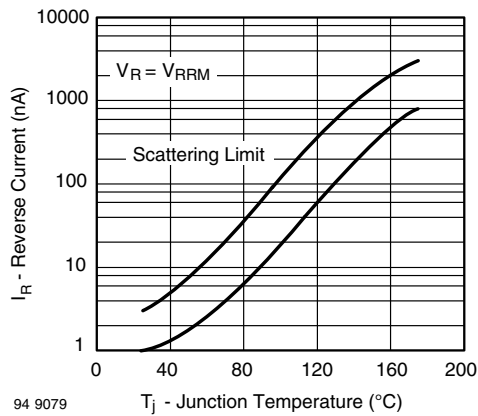


Figure 1. Reverse Current vs. Junction Temperature

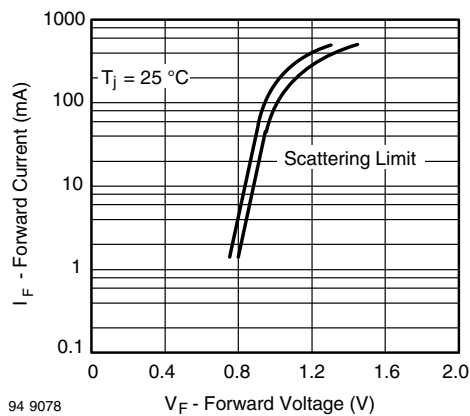


Figure 2. Forward Current vs. Forward Voltage

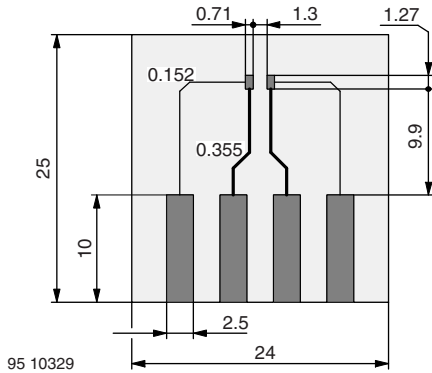
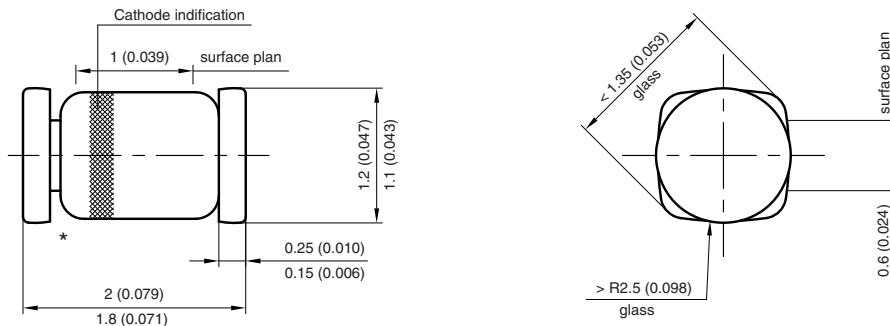


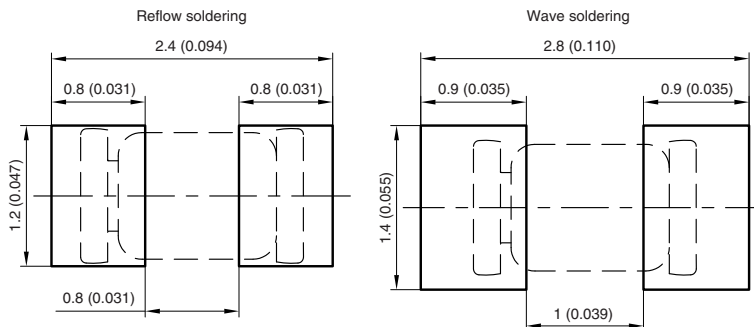
Figure 3. Board for  $R_{thJA}$  Definition (in mm)

## Package Dimensions in millimeters (inches): MicroMELF



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

Foot print recommendation:



Created - Date: 26.July.1996  
 Rev. 13 - Date: 07.June.2006  
 Document no.: 6.560-5007.01-4  
 96 12072



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