

## 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	$I_R = 5\text{ }\mu\text{A}$ , $t_p/T = 0.01$ , $t_p = 0.3\text{ ms}$	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

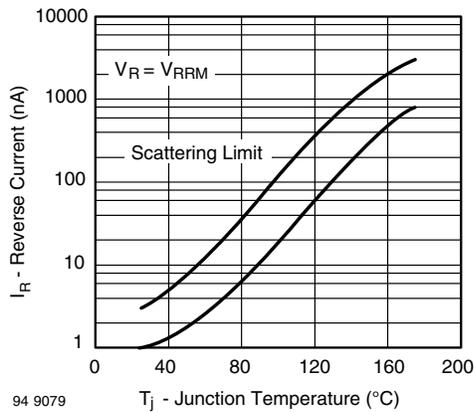


Figure 1. Reverse Current vs. Junction Temperature

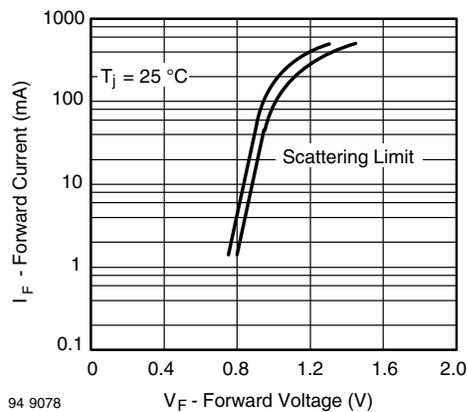


Figure 2. Forward Current vs. Forward Voltage

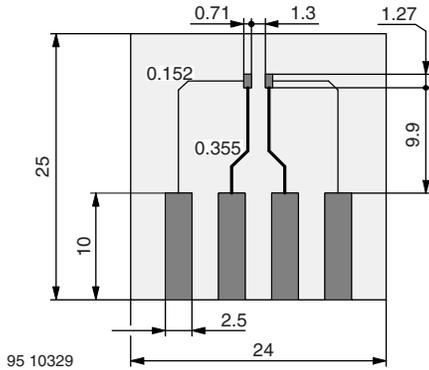
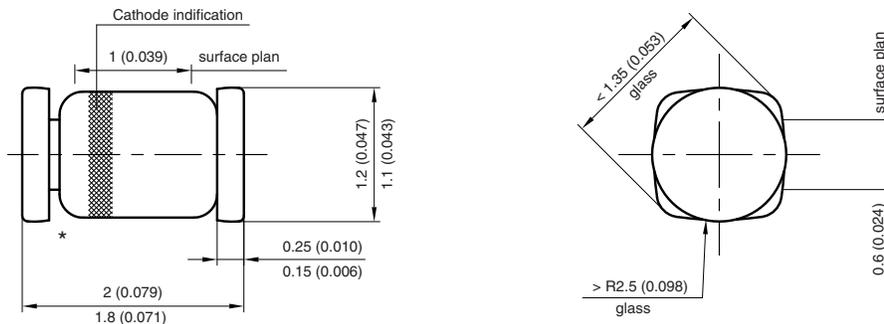


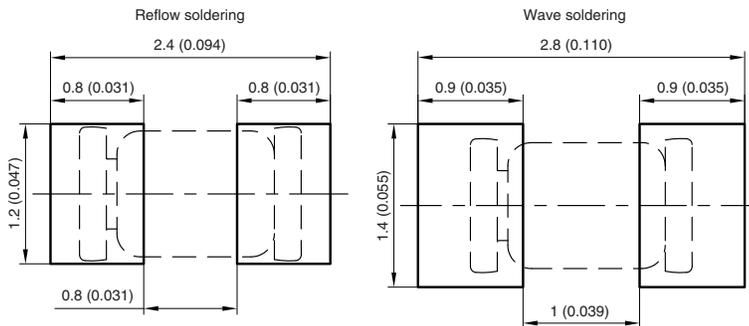
Figure 3. Board for  $R_{thJA}$  Definition (in mm)

## Package Dimensions in millimeters (inches): MicroMELF



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

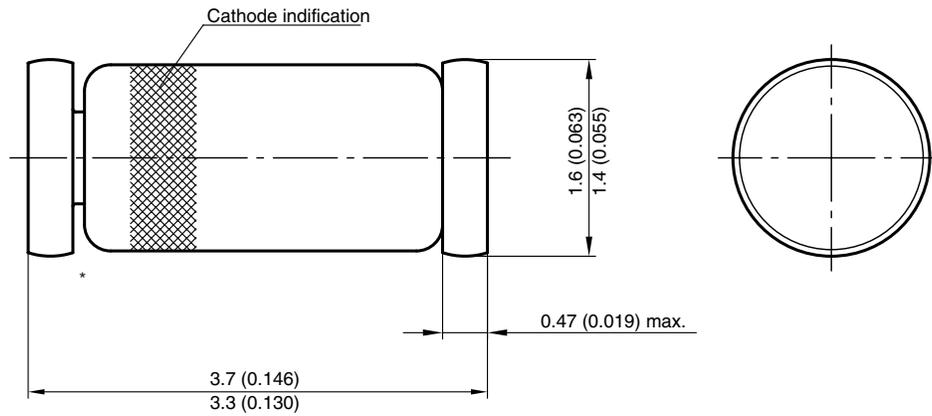
Foot print recommendation:



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

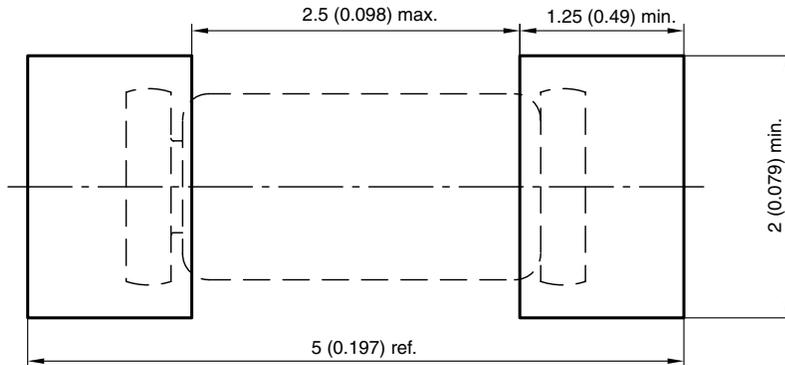


**PACKAGE DIMENSIONS** in millimeters (inches)



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

Foot print recommendation:



Document no.:6.560-5005.01-4  
Rev. 8 - Date: 07.June.2006  
96 12070



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