

**Silicon Low Leakage Diode**

- Low-leakage applications
- Medium speed switching times
- Pb-free (RoHS compliant) package <sup>1)</sup>
- Qualified according AEC Q101


**BAS116**


| Type   | Package | Configuration | Marking |
|--------|---------|---------------|---------|
| BAS116 | SOT23   | single        | JVs     |

**Maximum Ratings** at  $T_A = 25^\circ\text{C}$ , unless otherwise specified

| Parameter  | Symbol    | Value       | Unit             |
|--|-----------|-------------|------------------|
| Diode reverse voltage                                  | $V_R$     | 80          | V                |
| Peak reverse voltage                                   | $V_{RM}$  | 85          |                  |
| Forward current  | $I_F$     | 250         | mA               |
| Non-repetitive peak surge forward current              | $I_{FSM}$ |             | A                |
| $t = 1 \mu\text{s}$                                    |           | 4.5         |                  |
| $t = 1 \text{s}$                                       |           | 0.5         |                  |
| Total power dissipation<br>$T_S \leq 54^\circ\text{C}$ | $P_{tot}$ | 370         | mW               |
| Junction temperature                                   | $T_j$     | 150         | $^\circ\text{C}$ |
| Storage temperature                                    | $T_{stg}$ | -65 ... 150 |                  |

**Thermal Resistance**

| Parameter                                | Symbol     | Value      | Unit |
|--|------------|------------|------|
| Junction - soldering point <sup>2)</sup> | $R_{thJS}$ | $\leq 260$ | K/W  |
| BAS116                                   |            |            |      |

<sup>1</sup>Pb-containing package may be available upon special request

<sup>2</sup>For calculation of  $R_{thJA}$  please refer to Application Note Thermal Resistance

**Electrical Characteristics at  $T_A = 25^\circ\text{C}$ , unless otherwise specified**

| Parameter   | Symbol     | Values |      |                             | Unit |
|---|------------|--------|------|-----------------------------|------|
|   |            | min.   | typ. | max.                        |      |
| <b>DC Characteristics</b>   |            |        |      |                             |      |
| Breakdown voltage<br>$I_{(BR)} = 100 \mu\text{A}$   | $V_{(BR)}$ | 85     | -    | -                           | V    |
| Reverse current<br>$V_R = 75 \text{ V}$<br>$V_R = 75 \text{ V}, T_A = 150^\circ\text{C}$                            | $I_R$      | -      | -    | 5<br>80                     | nA   |
| Forward voltage<br>$I_F = 1 \text{ mA}$<br>$I_F = 10 \text{ mA}$<br>$I_F = 50 \text{ mA}$<br>$I_F = 150 \text{ mA}$ | $V_F$      | -      | -    | 900<br>1000<br>1100<br>1250 | mV   |

**AC Characteristics**

|   |          |   |     |     |               |
|---|----------|---|-----|-----|---------------|
| Diode capacitance<br>$V_R = 0 \text{ V}, f = 1 \text{ MHz}$   | $C_T$    | - | 2   | -   | pF            |
| Reverse recovery time<br>$I_F = 10 \text{ mA}, I_R = 10 \text{ mA}, \text{ measured at } I_R = 1 \text{ mA},$<br>$R_L = 100 \Omega$ | $t_{rr}$ | - | 0.6 | 1.5 | $\mu\text{s}$ |

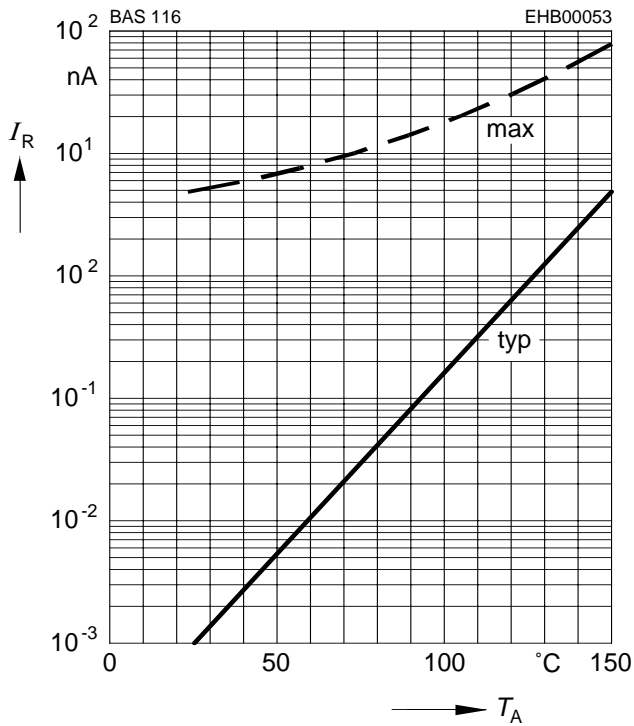
**Test circuit for reverse recovery time**


Puls generator:  $t_p = 10 \mu\text{s}$ ,  $D = 0.05$ ,  
 $t_r = 0.6 \text{ ns}$ ,  $R_i = 50 \Omega$

Oscilloscope:  $R = 50 \Omega$ ,  $t_r = 0.35 \text{ ns}$ ,  $C \leq 1 \text{ pF}$

**Reverse current  $I_R = f(T_A)$**

$V_R = \text{Parameter}$



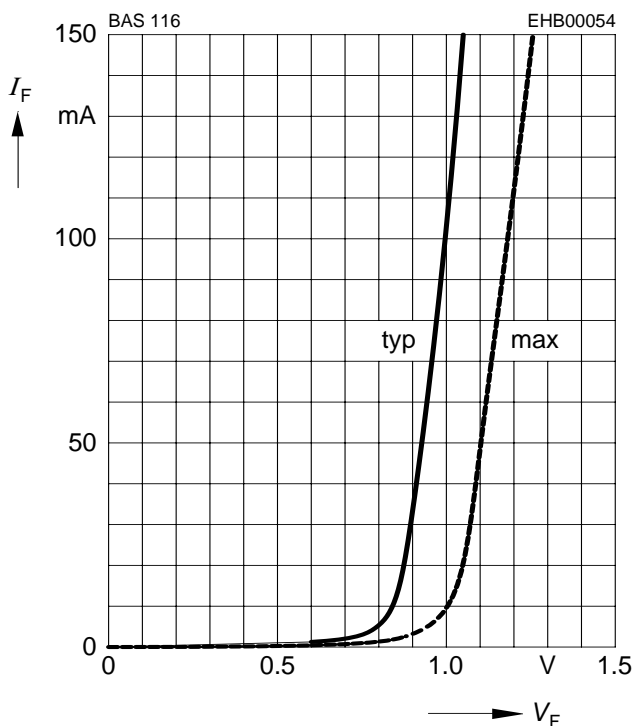
**Forward Voltage  $V_F = f(T_A)$**

$I_F = \text{Parameter}$



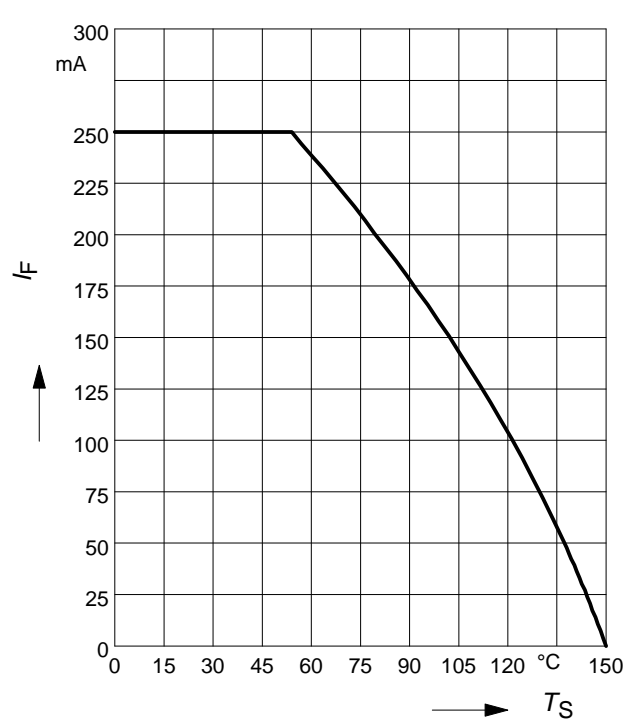
**Forward current  $I_F = f(V_F)$**

$T_A = 25^\circ\text{C}$



**Forward current  $I_F = f(T_S)$**

BAS116



Permissible Puls Load  $R_{thJS} = f(t_p)$



Permissible Pulse Load

$I_{Fmax} / I_{FDC} = f(t_p)$

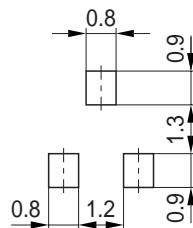


Package Outline



1) Lead width can be 0.6 max. in dambar area

Foot Print



Marking Layout (Example)



Standard Packing

Reel  $\varnothing$ 180 mm = 3.000 Pieces/Reel  
 Reel  $\varnothing$ 330 mm = 10.000 Pieces/Reel



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