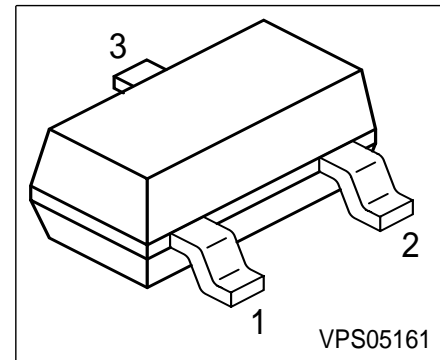


Silicon Switching Diode

- For high-speed switching applications



| Type | Marking | Pin Configuration | | | Package |
|-------|---------|-------------------|-------|-------|---------|
| BAL99 | JFs | 1 = n.c. | 2 = C | 3 = A | SOT23 |

Maximum Ratings

| Parameter | Symbol | Value | Unit |
|--|-----------|-------------|------------------|
| Diode reverse voltage | V_R | 70 | V |
| Peak reverse voltage | V_{RM} | 70 | |
| Forward current | I_F | 250 | mA |
| Surge forward current, $t = 1 \mu s$ | I_{FS} | 4.5 | A |
| Total power dissipation, $T_S = 54 \text{ }^\circ\text{C}$ | P_{tot} | 370 | mW |
| Junction temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | -65 ... 150 | |

Thermal Resistance

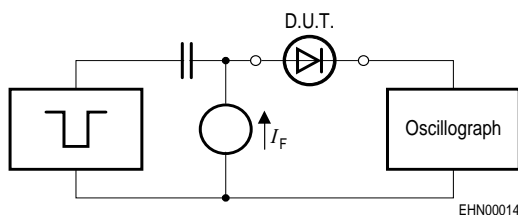
| | | | |
|--|------------|------------|-----|
| Junction - soldering point ¹⁾ | R_{thJS} | ≤ 260 | K/W |
|--|------------|------------|-----|

¹⁾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. | |
| DC characteristics | | | | | |
| Breakdown voltage $I_{(BR)} = 100 \mu\text{A}$ | $V_{(BR)}$ | - | - | - | V |
| Forward voltage $I_F = 1 \text{ mA}$ $I_F = 10 \text{ mA}$ $I_F = 50 \text{ mA}$ $I_F = 150 \text{ mA}$ | V_F | - | - | 715 855 1000 1250 | mV |
| Reverse current $V_R = 70 \text{ V}$ | I_R | - | - | 2.5 | μA |
| Reverse current $V_R = 25 \text{ V}, T_A = 150^\circ\text{C}$ $V_R = 70 \text{ V}$ | I_R | - | - | 30 50 | |
| AC characteristics | | | | | |
| Diode capacitance $V_R = 0 \text{ V}, f = 1 \text{ MHz}$ | C_D | - | - | 1.5 | pF |
| Reverse recovery time $I_F = 10 \text{ mA}, I_R = 10 \text{ mA}, R_L = 100 \Omega$, measured at $I_R = 1 \text{ mA}$ | t_{rr} | - | - | 6 | ns |

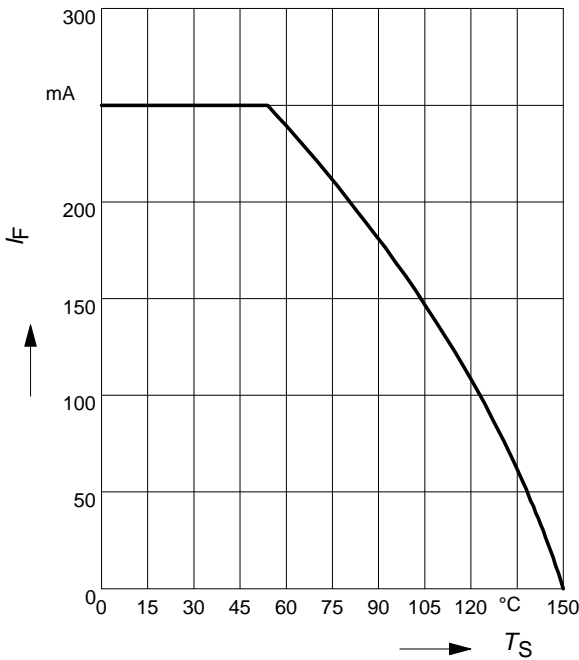
Test circuit for reverse recovery time



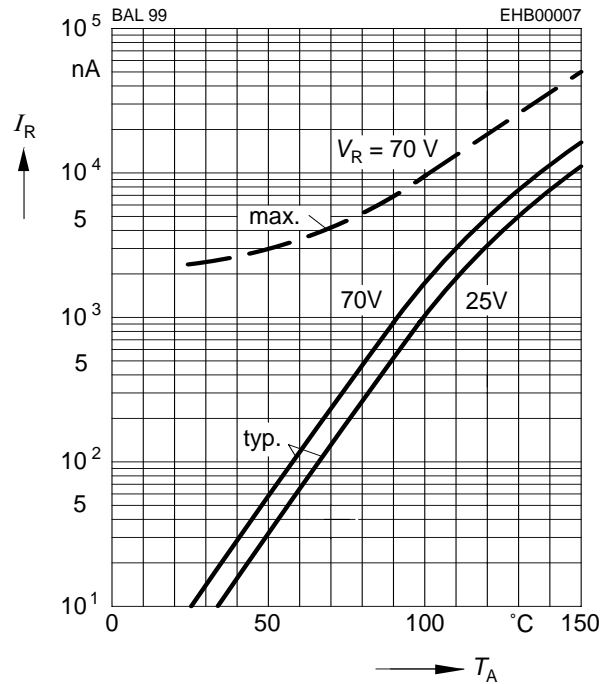
Pulse generator: $t_p = 100\text{ns}$, $D = 0.05$,
 $t_f = 0.6\text{ns}$, $R_i = 50\Omega$

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

Forward current $I_F = f(T_S)$

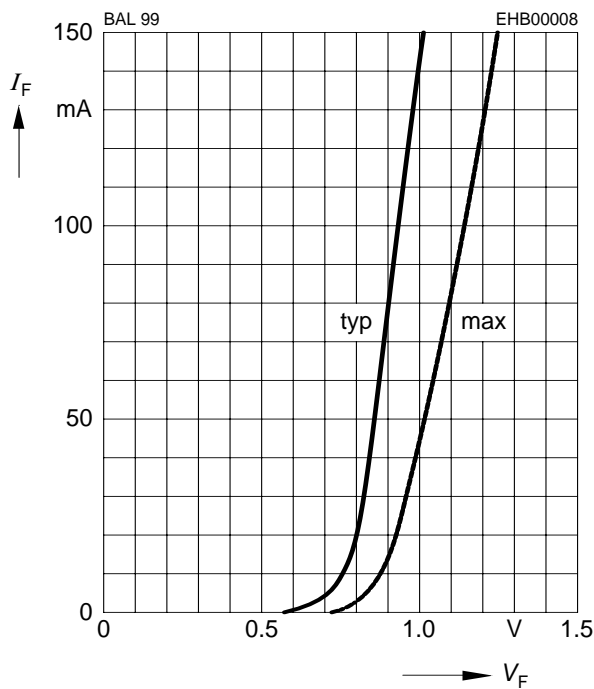


Reverse current $I_R = f(T_A)$



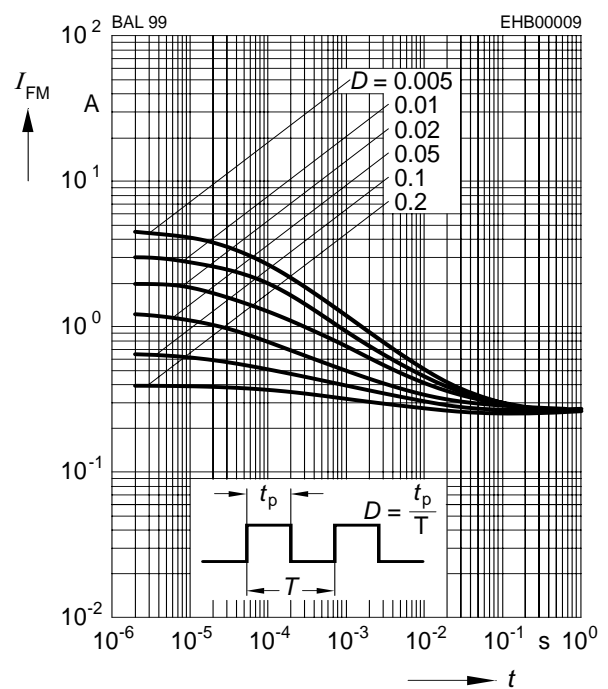
Forward current $I_F = f(V_F)$

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



Peak forward current $I_{FM} = f(t_p)$

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



Forward voltage $V_F = f(T_A)$

