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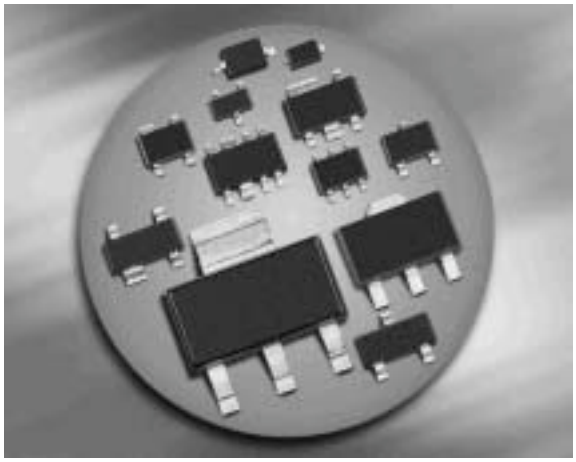
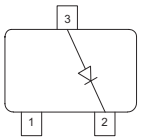
## Silicon Switching Diode

- For high-speed switching applications
- Pb-free (RoHS compliant) package [1)]
- Qualified according AEC Q101



### BAL99




| Type | Package | Configuration | Marking |
|---|---|---|---|
| BAL99 | SOT23 | single | JFs |

**Maximum Ratings** at $T_A$ = 25°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 |
| Peak forward current | $I_{FM}$ | - | |
| Surge forward current, $t$ = 1 µs | $I_{FS}$ | 4.5 | A |
| Total power dissipation<br>$T_S \leq$ 54°C | $P_{tot}$ | 370 | mW |
| Junction temperature | $T_j$ | 150 | °C |
| Storage temperature | $T_{stg}$ | -65 ... 150 | |

**Thermal Resistance**

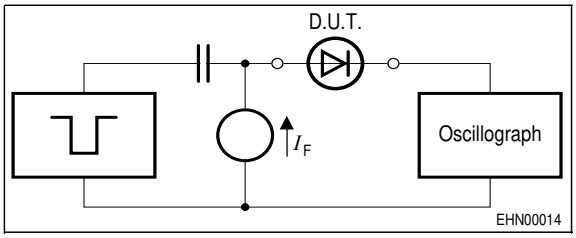
| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Junction - soldering point[2)] | $R_{thJS}$ | ≤ 260 | K/W |

[1]Pb-containing package may be available upon special request
[2]For calculation of $R_{thJA}$ please refer to Application Note Thermal Resistance

**Electrical Characteristics** at $T_A$ = 25°C, unless otherwise specified

| Parameter | Symbol | Values | | | Unit |
|---|---|---|---|---|---|
| | | min. | typ. | max. | |
| **DC Characteristics** | | | | | |
| Breakdown voltage<br>$I_{(BR)}$ = 100 µA | $V_{(BR)}$ | 85 | - | - | V |
| Reverse current | $I_R$ | | | | µA |
| $V_R$ = 70 V | | - | - | 1 | |
| $V_R$ = 25 V, $T_A$ = 150 °C | | - | - | 30 | |
| $V_R$ = 70 V, $T_A$ = 150 °C | | - | - | 50 | |
| Forward voltage | $V_F$ | | | | mV |
| $I_F$ = 1 mA | | - | - | 715 | |
| $I_F$ = 10 mA | | - | - | 855 | |
| $I_F$ = 50 mA | | - | - | 1000 | |
| $I_F$ = 150 mA | | - | - | 1250 | |
| **AC Characteristics** | | | | | |
| Diode capacitance<br>$V_R$ = 0 V, $f$ = 1 MHz | $C_T$ | - | - | 1.5 | pF |
| Reverse recovery time<br>$I_F$ = 10 mA, $I_R$ = 10 mA, measured at $I_R$ = 1mA ,<br>$R_L$ = 100 Ω | $t_{rr}$ | - | - | 4 | ns |

**Test circuit for reverse recovery time**

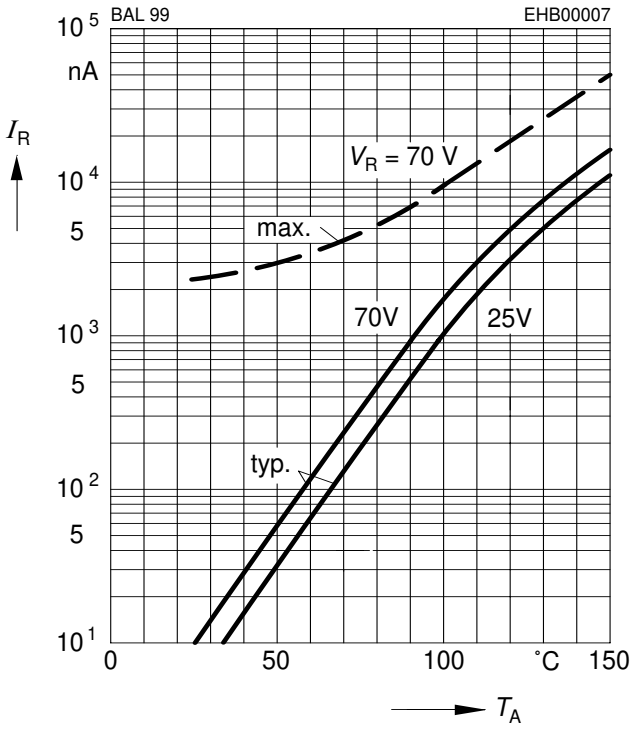



Puls generator: $t_p$ = 100ns, $D$ = 0.05,
$t_r$ = 0.6ns, $R_i$ = 50Ω

Oscillograph: $R$ = 50, $t_r$ = 0.35ns
$C \leq$ 1pf

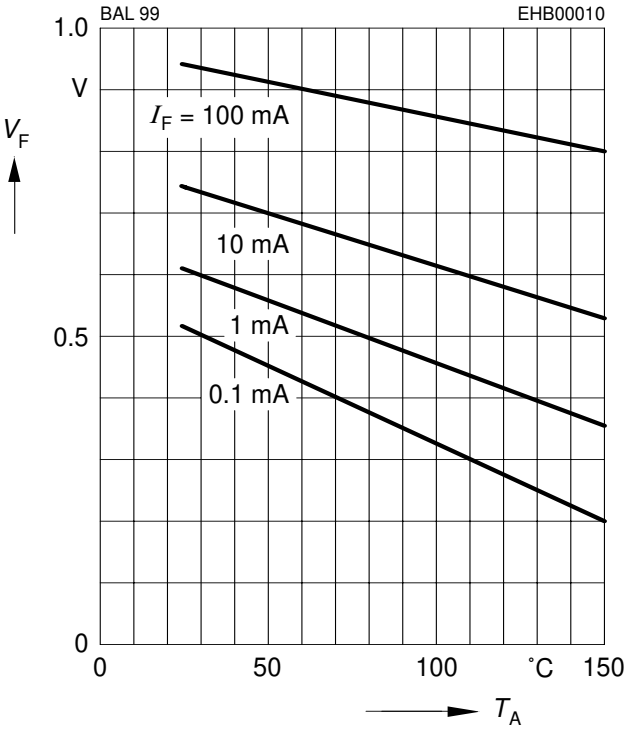
**Reverse current** $I_R = f(T_A)$

$V_R$ = Parameter

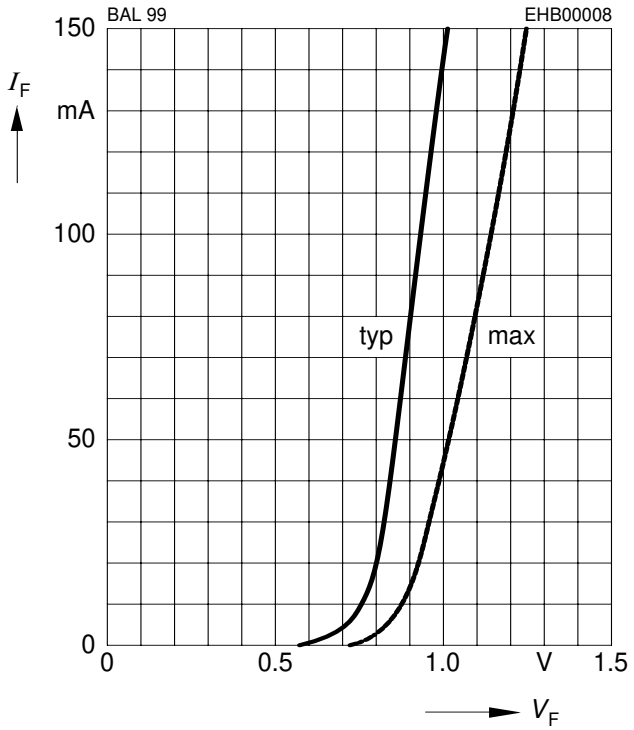



**Forward Voltage** $V_F = f(T_A)$

$I_F$ = Parameter

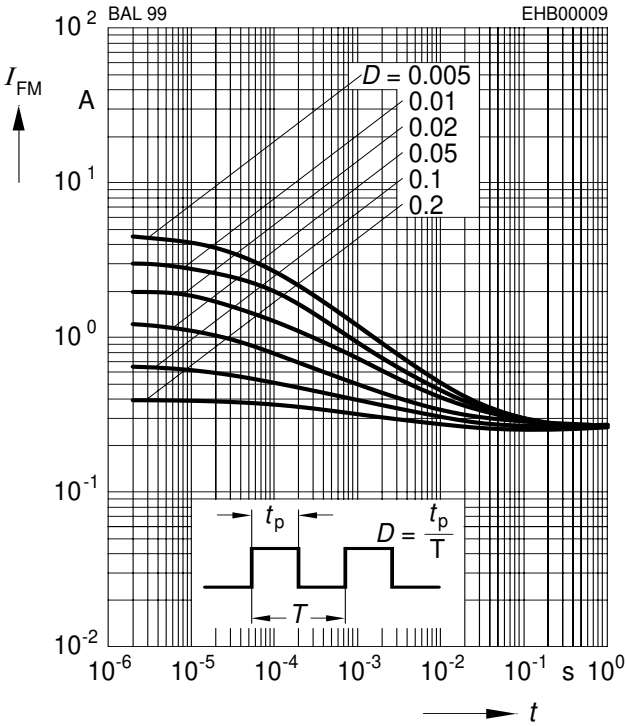



**Forward current** $I_F = f(V_F)$

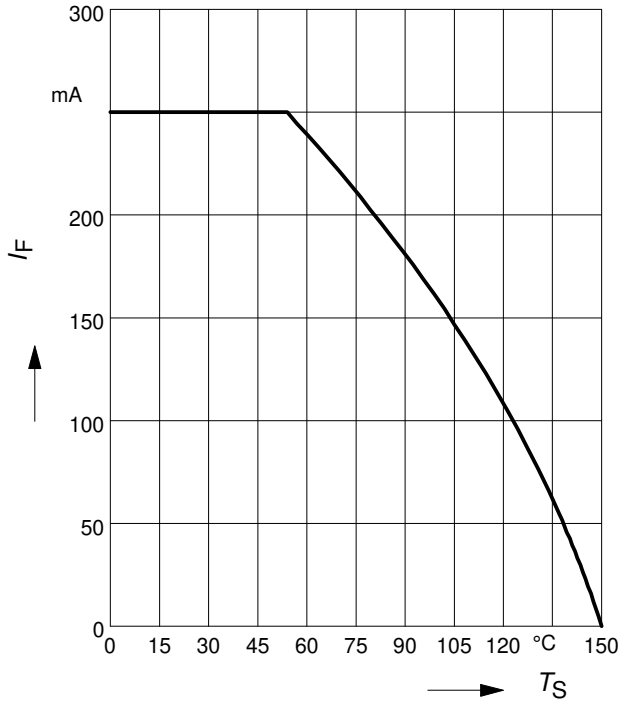



**Peak forward current** $I_{FM} = f(t_p)$

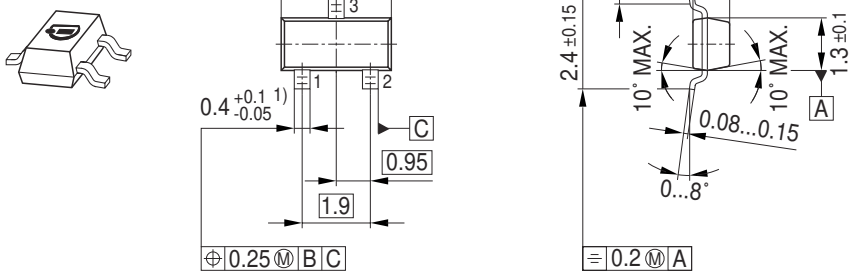
$T_A$ = 25°C



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

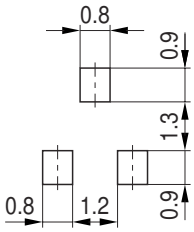


## Package Outline

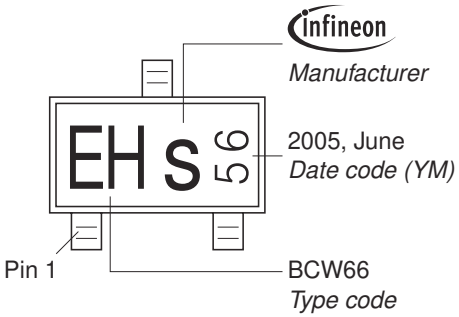



1) Lead width can be 0.6 max. in dambar area

## Foot Print

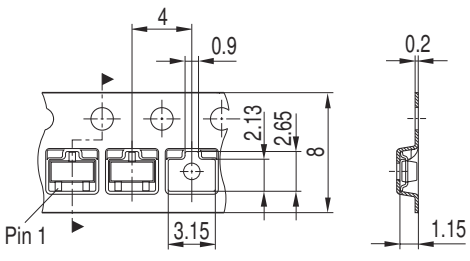



## Marking Layout (Example)




## Standard Packing

Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel



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