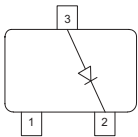


Silicon Switching Diode

- For high-speed switching applications
- Pb-free (RoHS compliant) package¹⁾
- Qualified according AEC Q101



BAL99



Type	Package	Configuration	Marking
BAL99	SOT23	single	JFs

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
Peak forward current	I_{FM}	-	
Surge forward current, $t = 1 \mu\text{s}$	I_{FS}	4.5	A
Total power dissipation $T_S \leq 54^\circ\text{C}$	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 ²⁾	R_{thJS}	≤ 260	K/W

¹Pb-containing package may be available upon special request

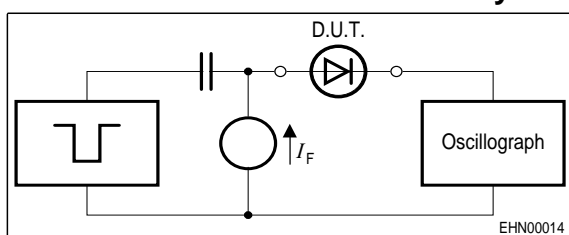
²For calculation of R_{thJA} please refer to Application Note Thermal Resistance

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Breakdown voltage $I_{(BR)} = 100 \mu\text{A}$	$V_{(BR)}$	85	-	-	V
Reverse current $V_R = 70 \text{ V}$ $V_R = 25 \text{ V}, T_A = 150^\circ\text{C}$ $V_R = 70 \text{ V}, T_A = 150^\circ\text{C}$	I_R	-	-	1 30 50	μA
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

AC Characteristics

Diode capacitance $V_R = 0 \text{ V}, f = 1 \text{ MHz}$	C_T	-	-	1.5	pF
Reverse recovery time $I_F = 10 \text{ mA}, I_R = 10 \text{ mA}$, measured at $I_R = 1 \text{ mA}$, $R_L = 100 \Omega$	t_{rr}	-	-	4	ns

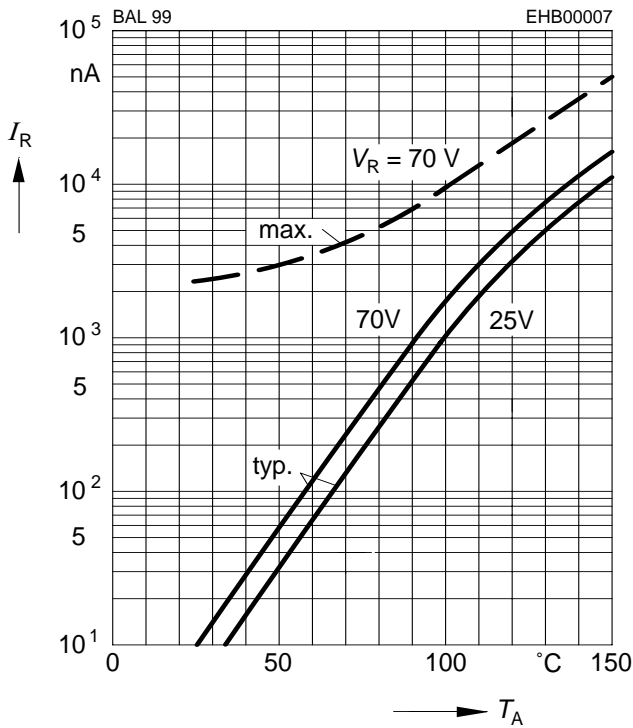
Test circuit for reverse recovery time


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

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

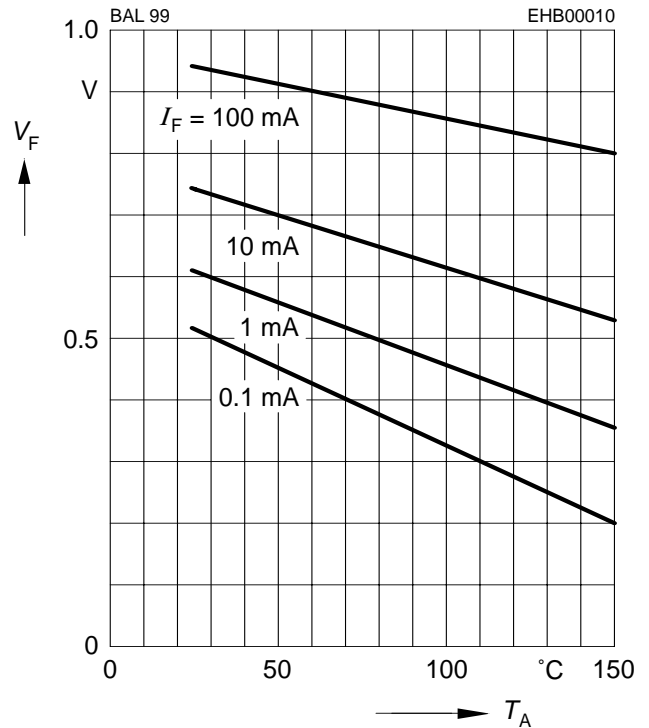
Reverse current $I_R = f(T_A)$

$V_R = \text{Parameter}$

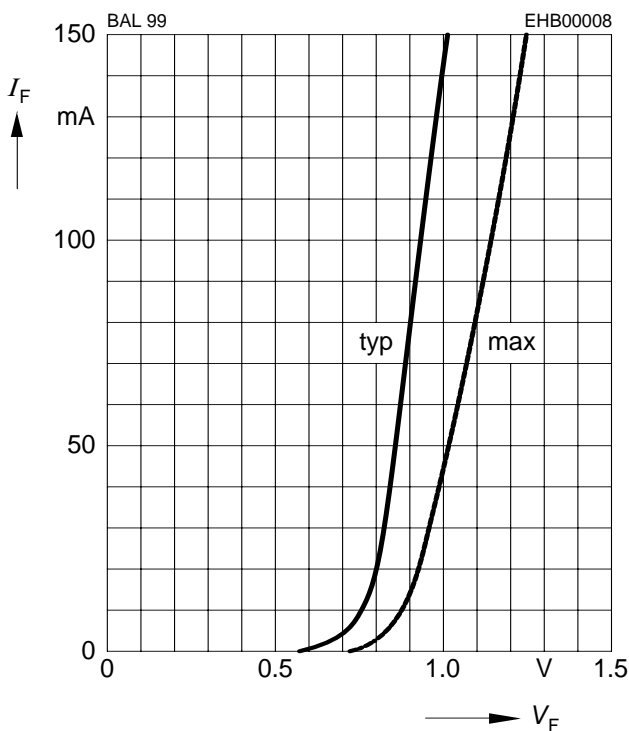


Forward Voltage $V_F = f(T_A)$

$I_F = \text{Parameter}$

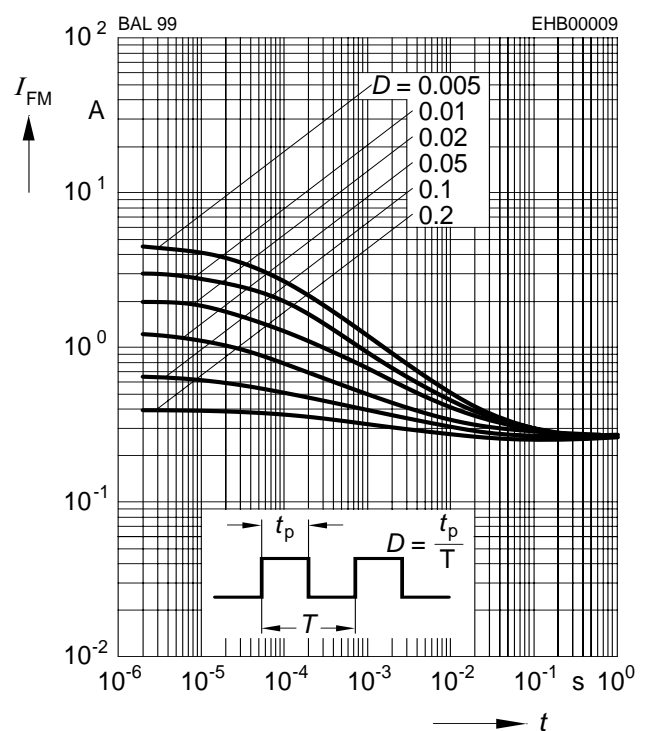


Forward current $I_F = f(V_F)$

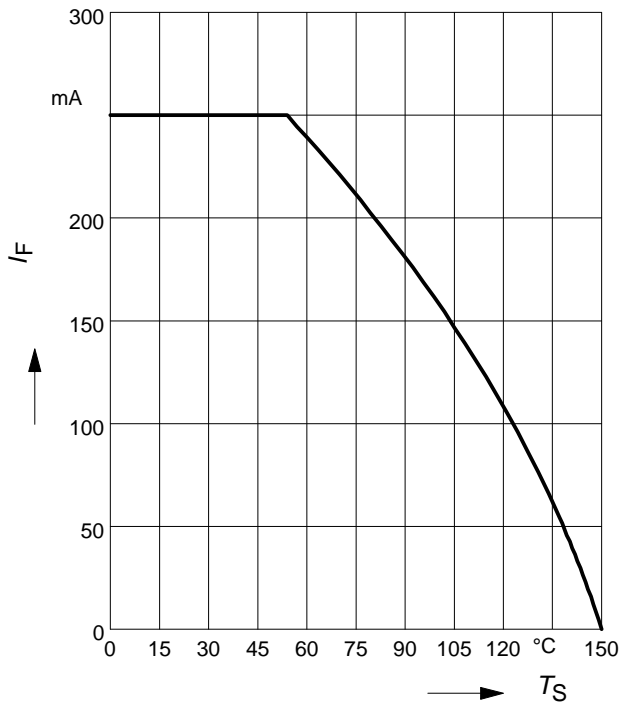


Peak forward current $I_{FM} = f(t_p)$

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



Forward current $I_F = f(T_S)$

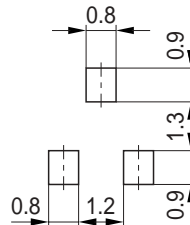


Package Outline



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

Foot Print

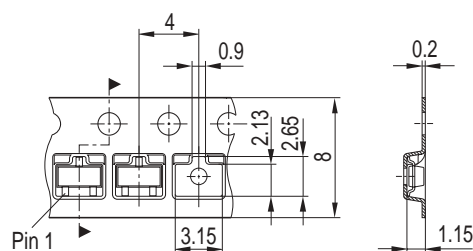


Marking Layout (Example)



Standard Packing

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



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