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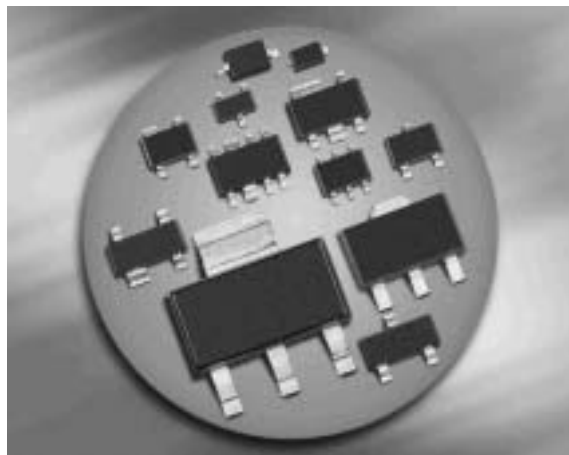
sales@integrated-circuit.com



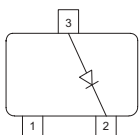
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Silicon Switching Diode

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



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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

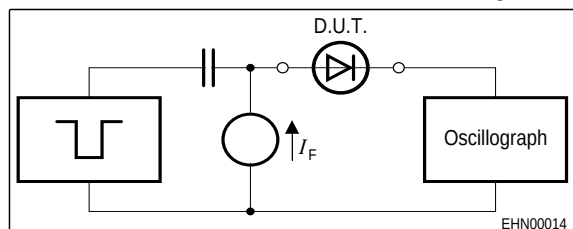


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Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

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

Test circuit for reverse recovery time



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

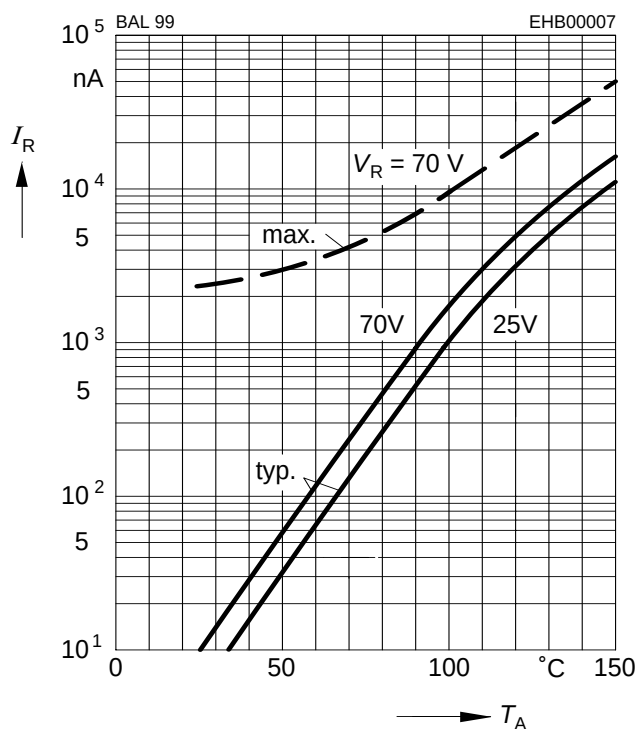
Oscilloscope: $R = 50$, $t_r = 0.35\text{ns}$
 $C \leq 1\text{pf}$



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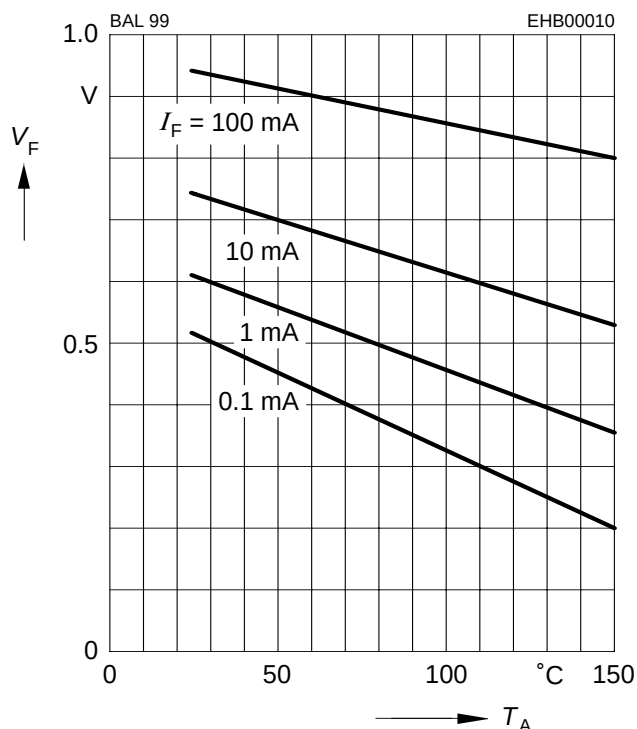
Reverse current $I_R = f(T_A)$

V_R = Parameter

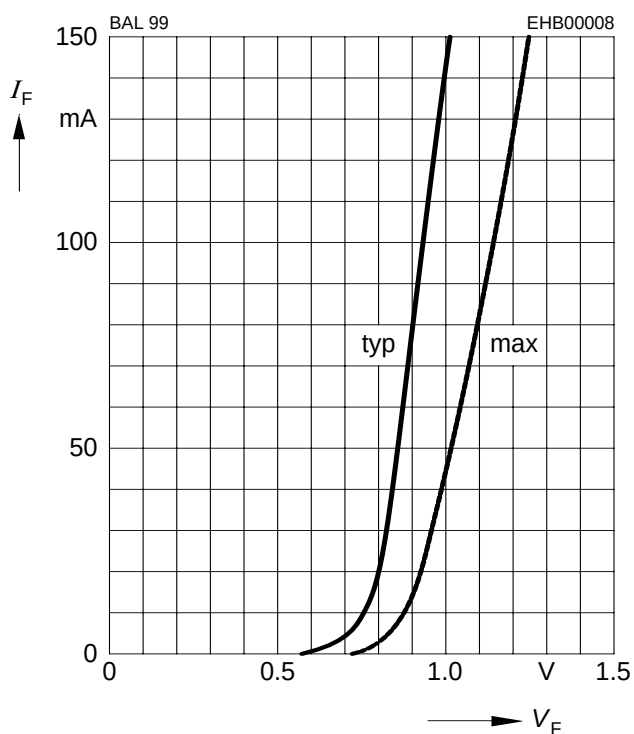


Forward Voltage $V_F = f(T_A)$

I_F = Parameter

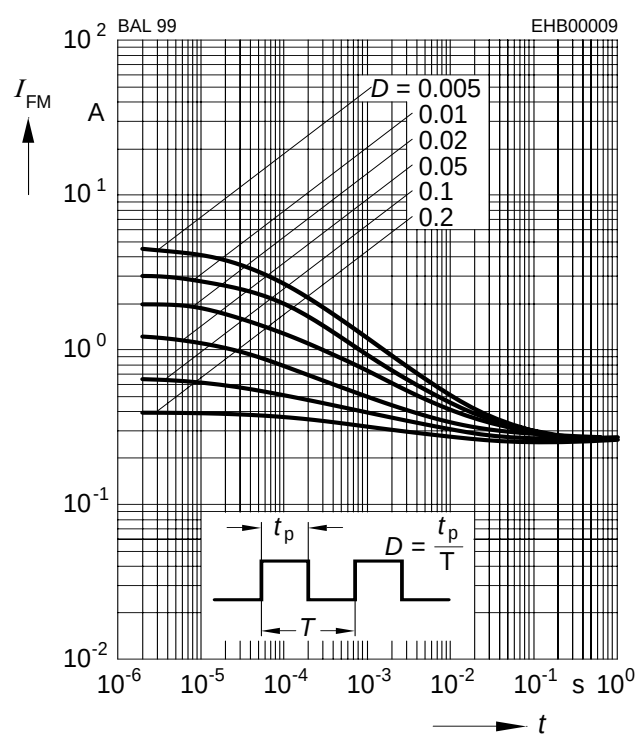


Forward current $I_F = f(V_F)$



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

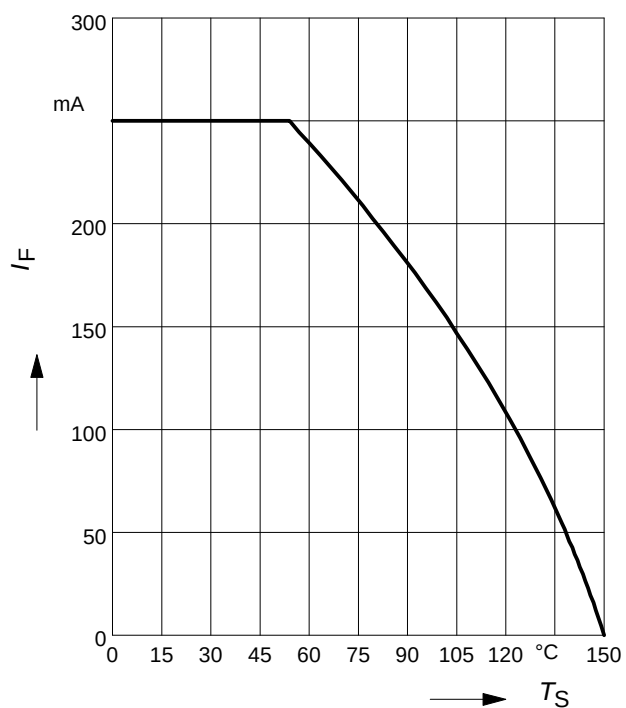
$T_A = 25^\circ\text{C}$





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Forward current $I_F = f(T_S)$

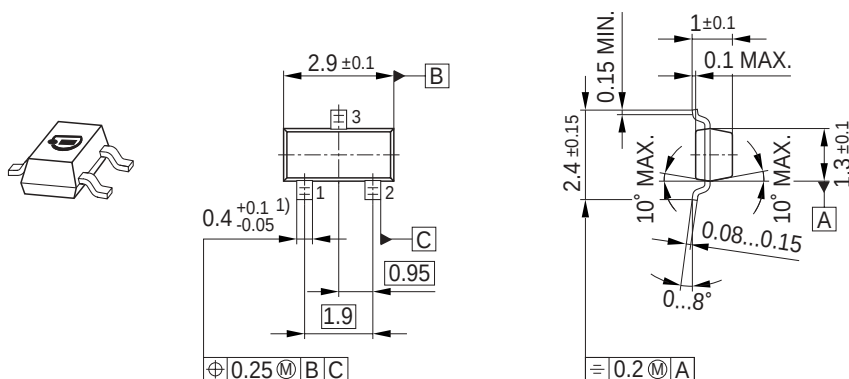




Package SOT23

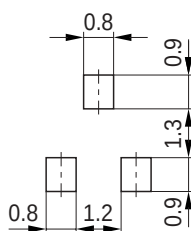
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Package Outline

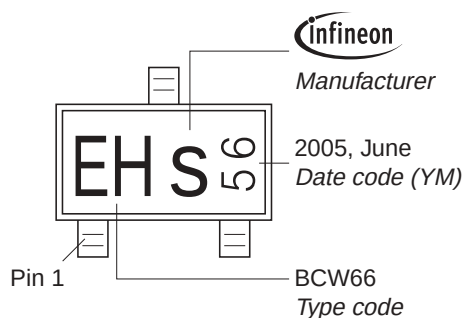


1) Lead width can be 0.6 max. in dambar area

Foot Print

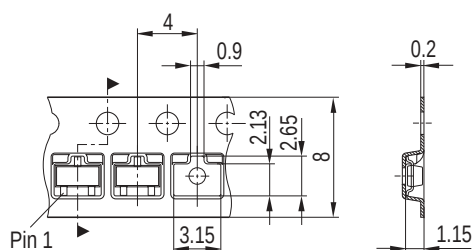


Marking Layout (Example)



Standard Packing

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





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