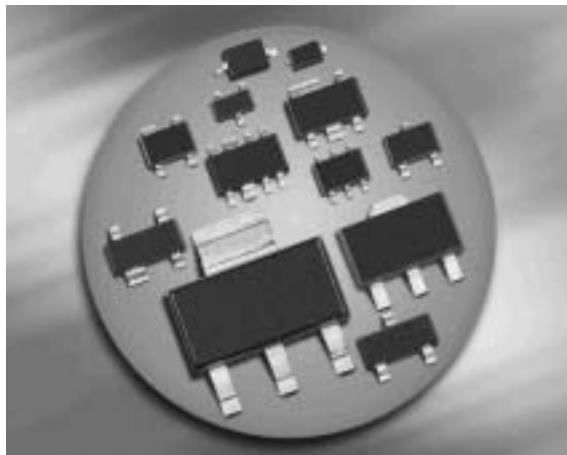
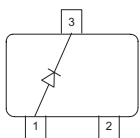


Silicon Switching Diode

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


SMBD914/MMBD914


Type	Package	Configuration	Marking
SMBD914/MMBD914	SOT23	single	s5D

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

Parameter	Symbol	Value	Unit
Diode reverse voltage	V_R	100	V
Peak reverse voltage	V_{RM}	100	
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 $T_S \leq 54^\circ\text{C}$	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⁾ SMBD914/MMBD914	R_{thJS}	≤ 260	K/W

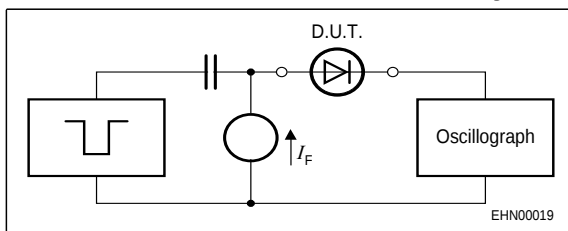
¹⁾Pb-containing package may be available upon special request

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

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Breakdown voltage $I_{(BR)} = 100\ \mu\text{A}$	$V_{(BR)}$	100	-	-	V
Reverse current $V_R = 20\ \text{V}$ $V_R = 75\ \text{V}$ $V_R = 20\ \text{V}, T_A = 150\ ^\circ\text{C}$ $V_R = 75\ \text{V}, T_A = 150\ ^\circ\text{C}$	I_R	- - - -	- - - -	0.025 0.1 30 50	μA
Forward voltage $I_F = 1\ \text{mA}$ $I_F = 10\ \text{mA}$ $I_F = 50\ \text{mA}$ $I_F = 100\ \text{mA}$ $I_F = 150\ \text{mA}$	V_F	- - - - -	- - - - -	715 855 1000 1200 1250	mV
AC Characteristics					
Diode capacitance $V_R = 0\ \text{V}, f = 1\ \text{MHz}$	C_T	-	-	2	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

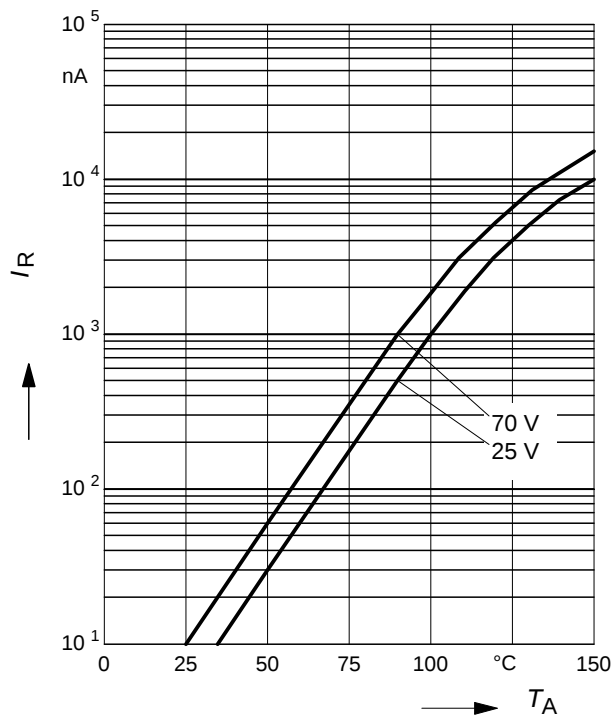


Pulse generator: $t_p = 100\text{ns}$, $D = 0.05$, $t_r = 0.6\text{ns}$,
 $R_i = 50\Omega$

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

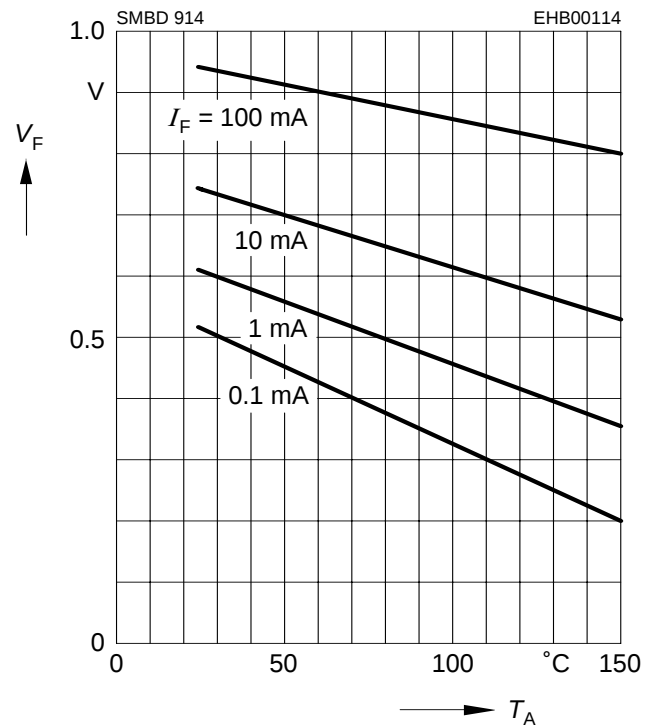
Reverse current $I_R = f(T_A)$

$V_R = \text{Parameter}$



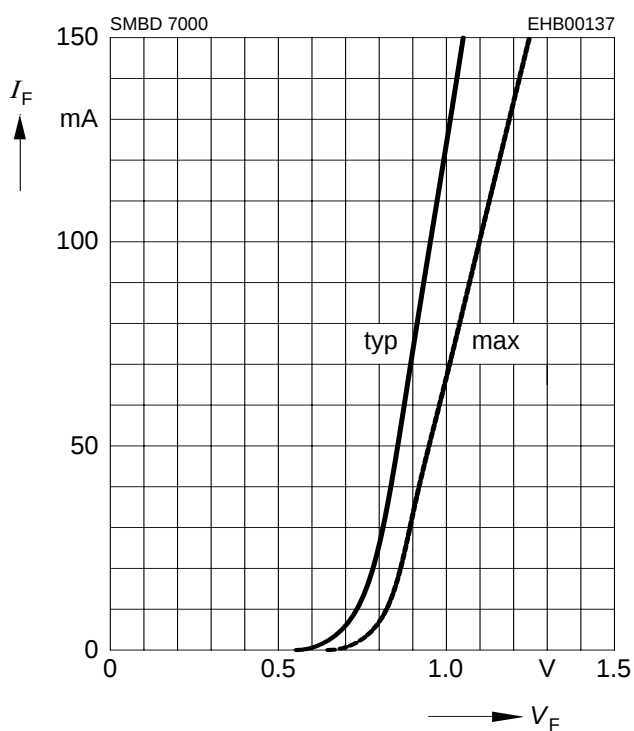
Forward Voltage $V_F = f(T_A)$

$I_F = \text{Parameter}$



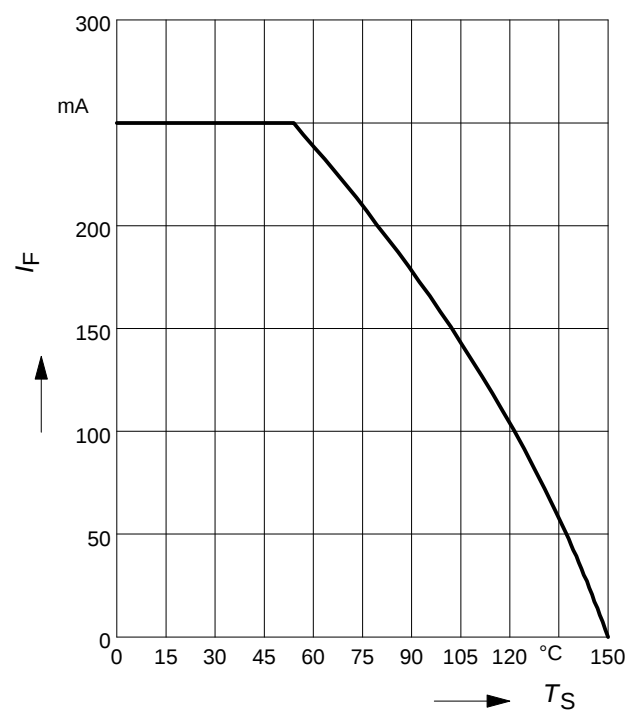
Forward current $I_F = f(V_F)$

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

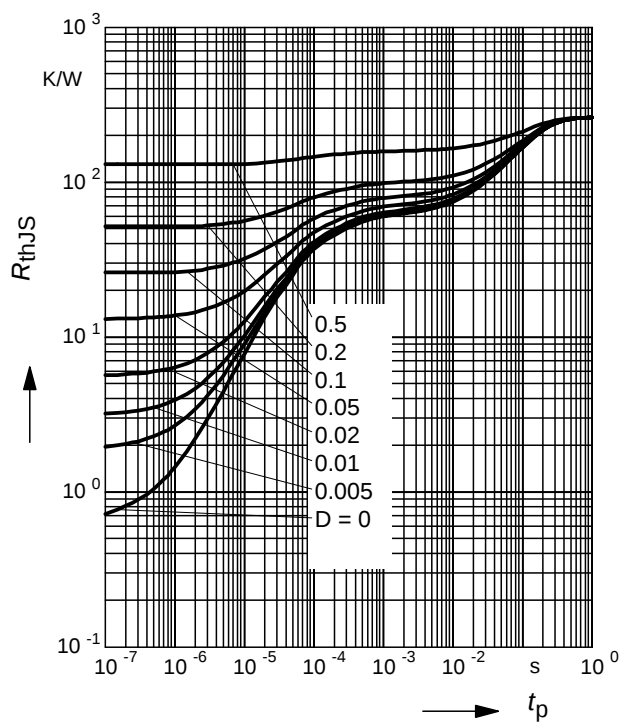


Forward current $I_F = f(T_S)$

SMBD914/MMBD914

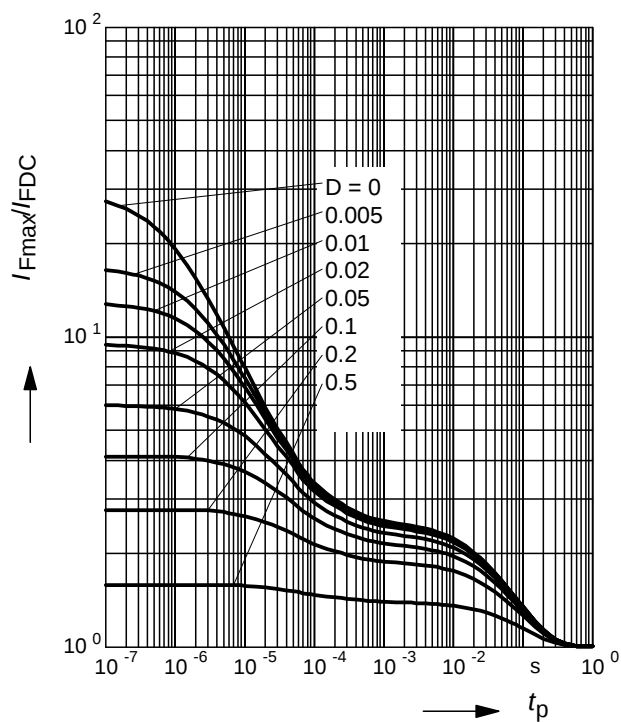


Permissible Puls Load $R_{thJS} = f(t_p)$

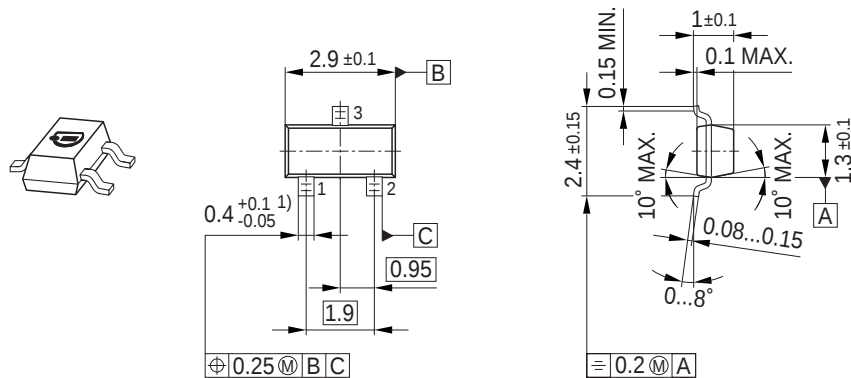


Permissible Pulse Load

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

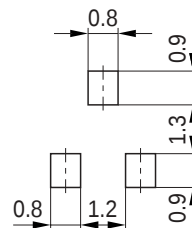


Package Outline

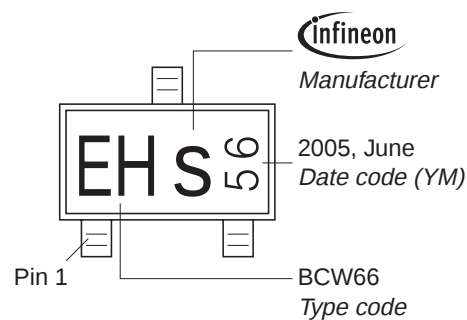


1) Lead width can be 0.6 max. in dambar area

Foot Print

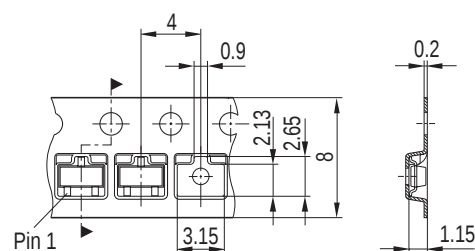


Marking Layout (Example)



Standard Packing

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



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