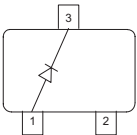


**Silicon Switching Diode**

- For high-speed switching applications


**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	°C
Storage temperature	$T_{stg}$	-65 ... 150	

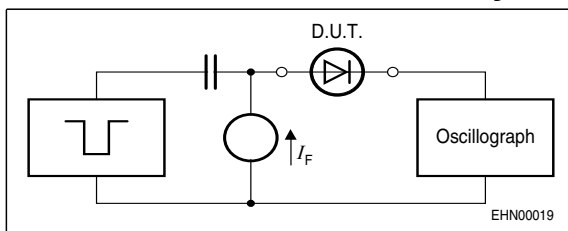
**Thermal Resistance**

Parameter	Symbol	Value	Unit
Junction - soldering point <sup>1)</sup> SMBD914/MMBD914	$R_{thJS}$	$\leq 260$	K/W

<sup>1)</sup>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.	
<b>DC Characteristics</b>					
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	$\mu\text{A}$
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
<b>AC Characteristics</b>					
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

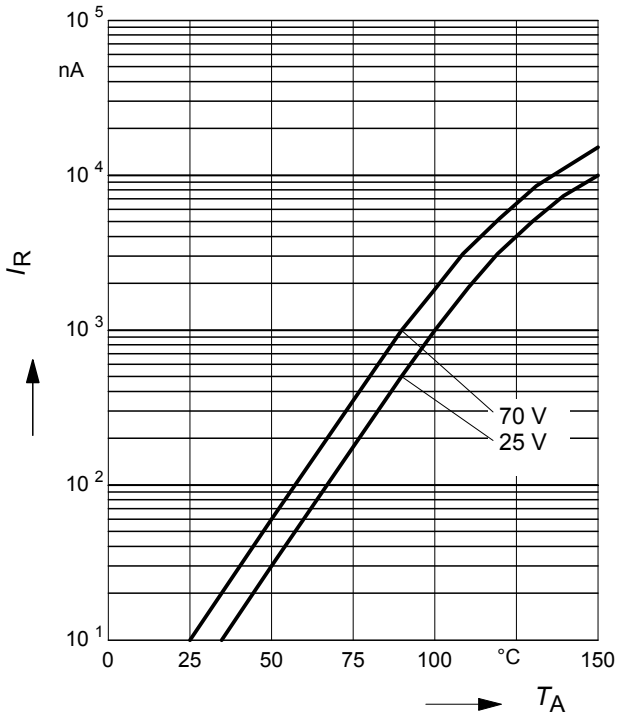
**Test circuit for reverse recovery time**


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

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

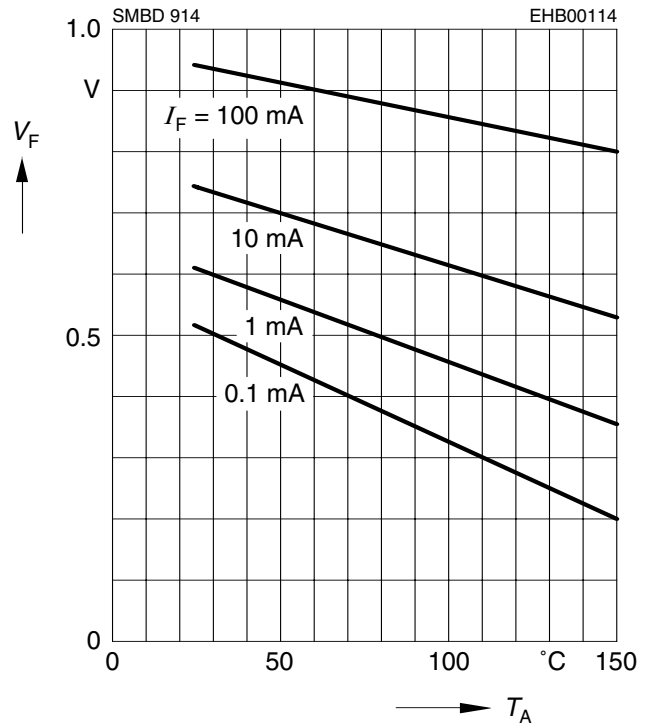
Reverse current  $I_R = f(T_A)$

$V_R = \text{Parameter}$



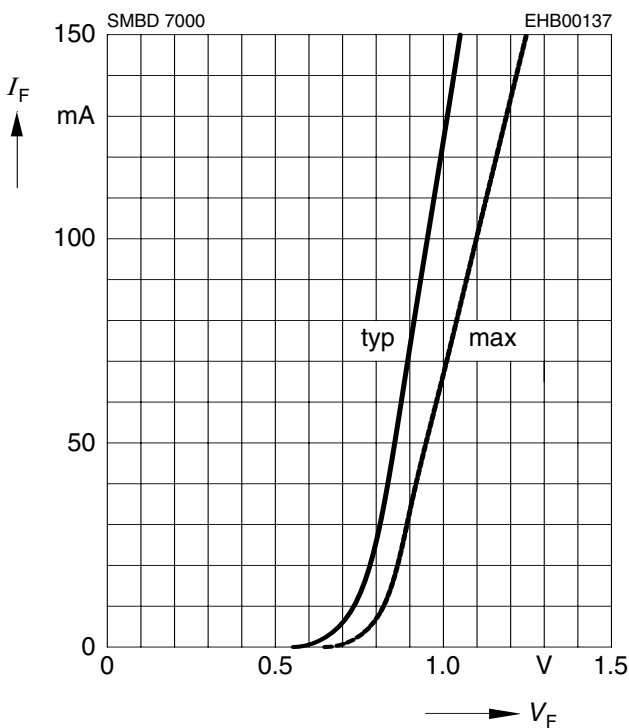
Forward Voltage  $V_F = f(T_A)$

$I_F = \text{Parameter}$



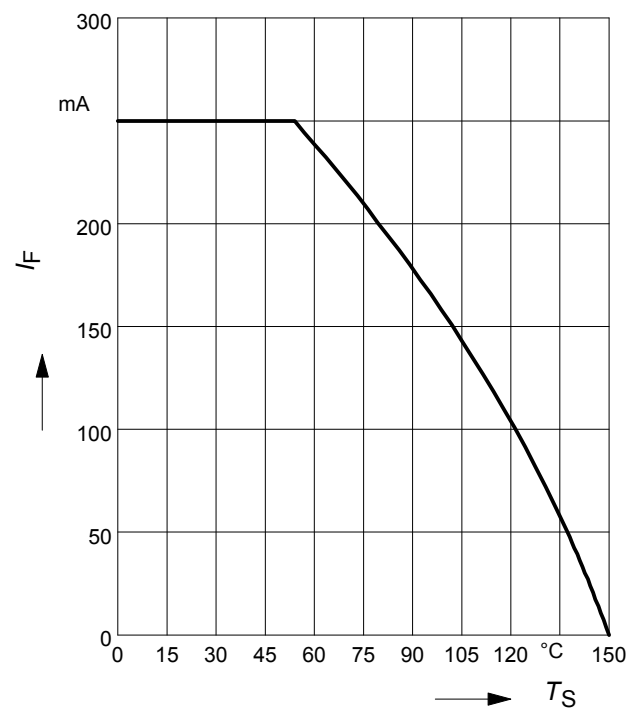
Forward current  $I_F = f(V_F)$

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

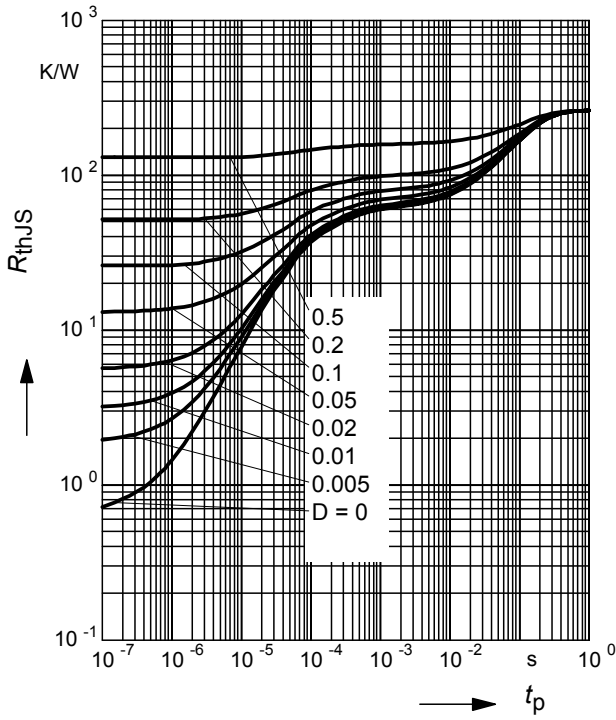


Forward current  $I_F = f(T_S)$

SMBD914/MMBD914



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



Permissible Pulse Load

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

