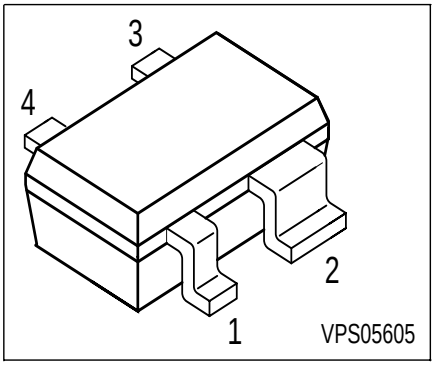
Silicon RF Switching Diode

- Design for use in shunt configuration
- High shunt signal isolation
- Low shunt insertion loss



Type	Marking	Pin Configuration				Package
BAR81W	BBs	1 = A	2 = C	3 = A	4 = C	SOT343

Maximum Ratings

Parameter	Symbol	Value	Unit
Diode reverse voltage	V_R	30	V
Forward current	I_F	100	mA
Total power dissipation, T_S = 138 °C	P_{tot}	100	mW
Junction temperature	T_j	150	°C
Operating temperature range	T_{op}	-55 ... 125	°C
Storage temperature	T_{stg}	-55 ... 150	

Thermal Resistance

Junction - soldering point[1)]	R_{thJS}	≤ 120	K/W

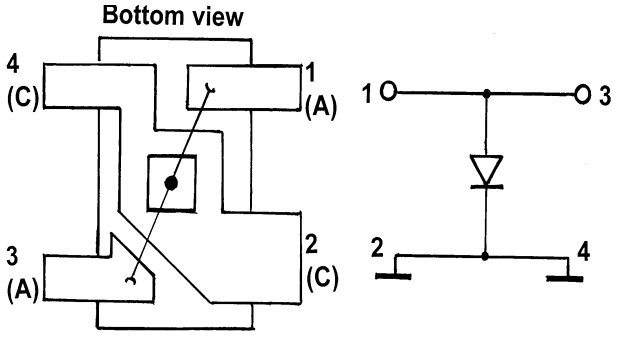
[1]For calculation of R_{thJA} please refer to Application Note Thermal Resistance

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

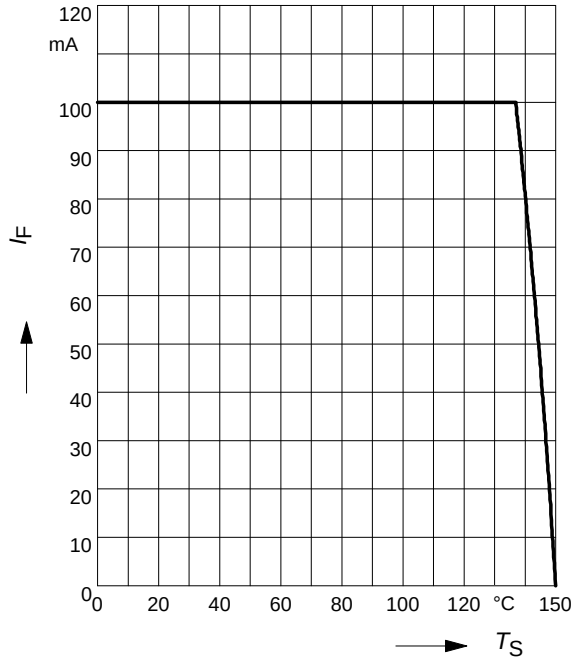
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Characteristics					
Reverse current V_R = 20 V	I_R	-	-	20	nA
Forward voltage I_F = 100 mA	V_F	-	0.93	1	V
AC characteristics					
Diode capacitance	C_T				pF
V_R = 1 V, f = 1 MHz		-	0.6	-	
V_R = 3 V, f = 1 MHz		-	0.57	-	
Forward resistance I_F = 5 mA, f = 100 MHz	r_f	-	0.7	-	Ω
Series inductance chip to ground	L_S	-	0.15	-	nH

Configuration of the shunt-diode

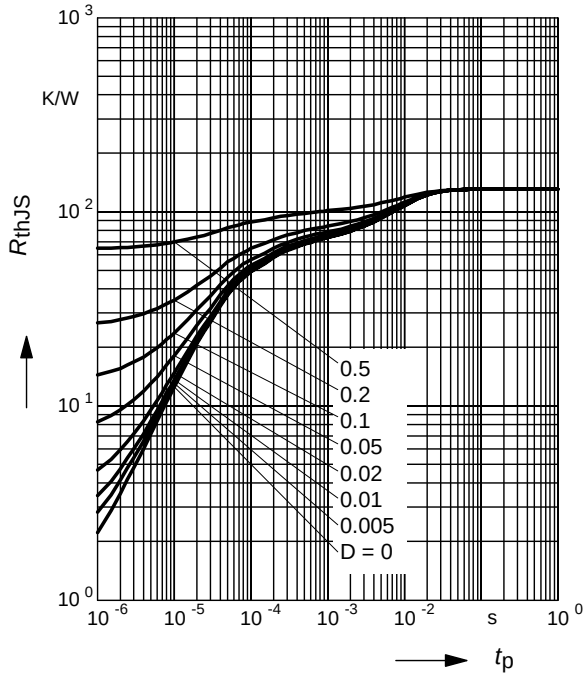
- A perfect ground is essential for optimum isolation
- The anode pins should be used as passage for RF



Forward current $I_F = f(T_S)$

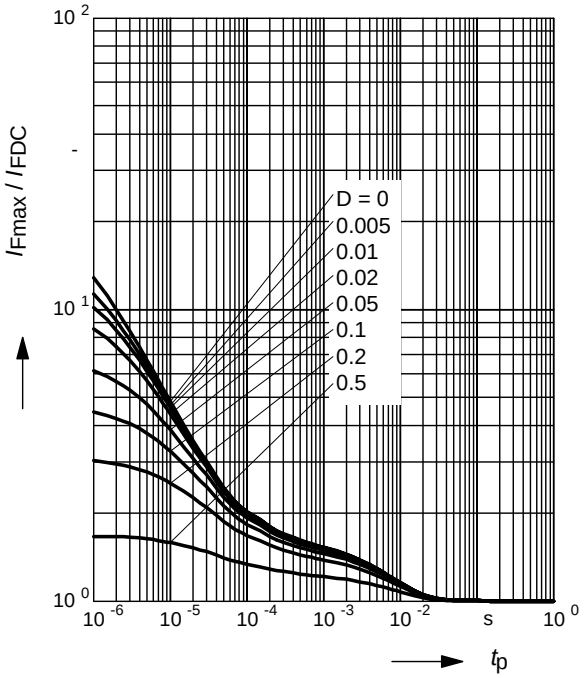


Permissible Pulse Load $R_{thJS} = f(t_p)$



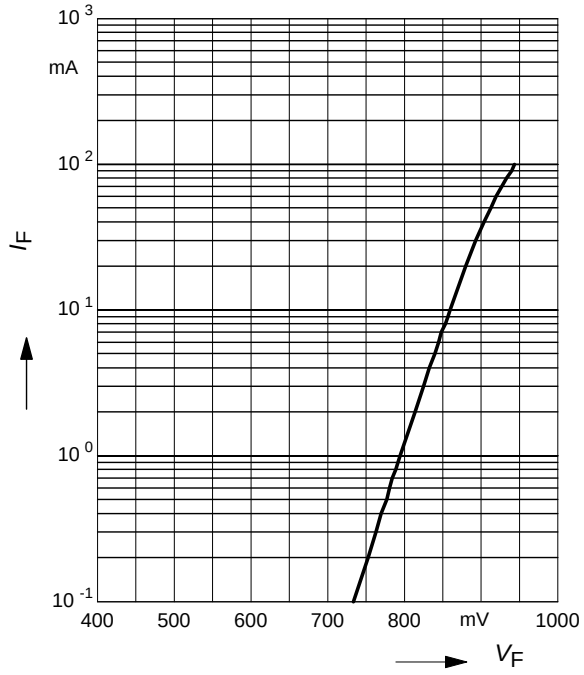
Permissible Pulse Load

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



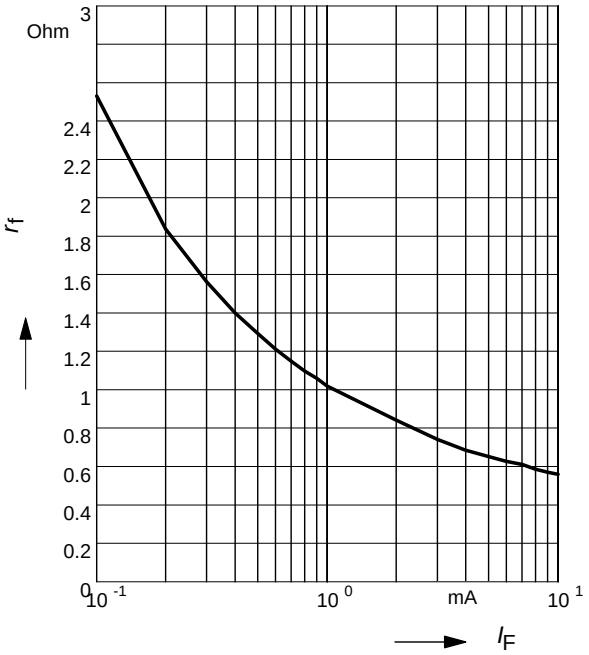
Forward current $I_F = f(V_F)$

T_A = 25°C



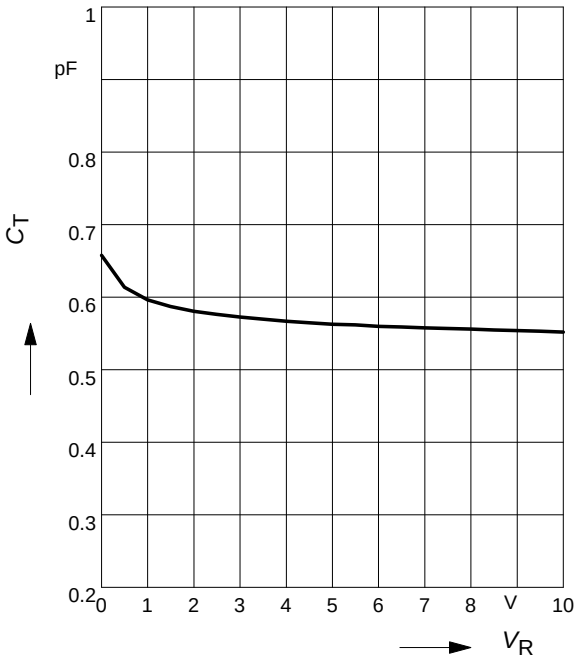
Forward resistance $r_f = f(I_F)$

f = 100MHz



Diode capacitance $C_T = f(V_R)$

f = 1MHz



Diode capacitance $C_T = f(V_R)$

f = 100MHz