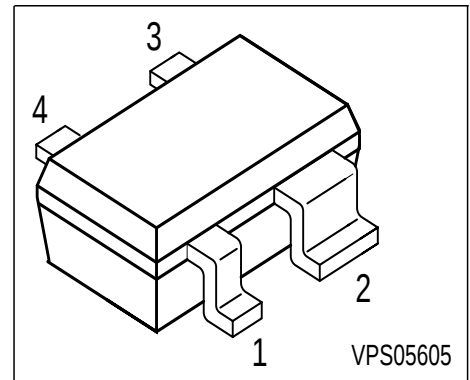


Silicon RF Switching Diode

- 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, $T_S = 138\text{ °C}$	P_{tot}	100	mW
Junction temperature	T_j	150	°C
Operating temperature range	T_{op}	-55 ... 125	°C
Storage temperature	T_{stg}	-55 ... 150	°C

Thermal Resistance

Junction - soldering point ¹⁾	R_{thJS}	≤ 120	K/W
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¹⁾For calculation of R_{thJA} please refer to Application Note Thermal Resistance

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

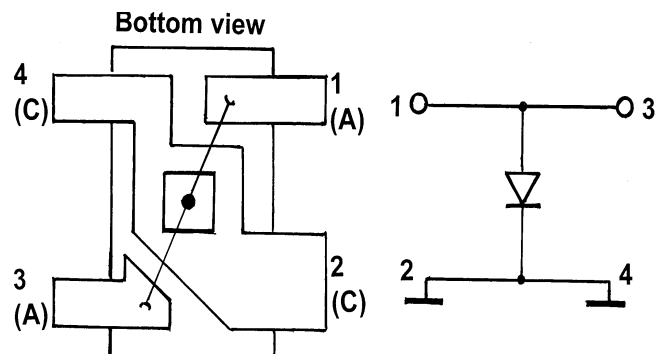
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Characteristics					
Reverse current $V_R = 20\text{ V}$	I_R	-	-	20	nA
Forward voltage $I_F = 100\text{ mA}$	V_F	-	0.93	1	V

AC characteristics

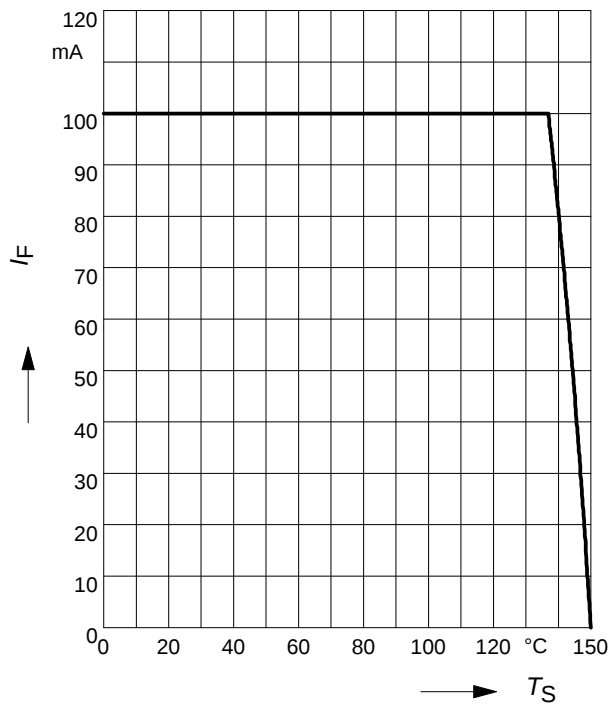
Diode capacitance $V_R = 1\text{ V}, f = 1\text{ MHz}$ $V_R = 3\text{ V}, f = 1\text{ MHz}$	C_T	-	0.6 0.57	-	pF
Forward resistance $I_F = 5\text{ mA}, f = 100\text{ MHz}$	r_f	-	0.7	-	Ω
Series inductance chip to ground	L_S	-	0.15	-	nH

Configuration of the shunt-diode

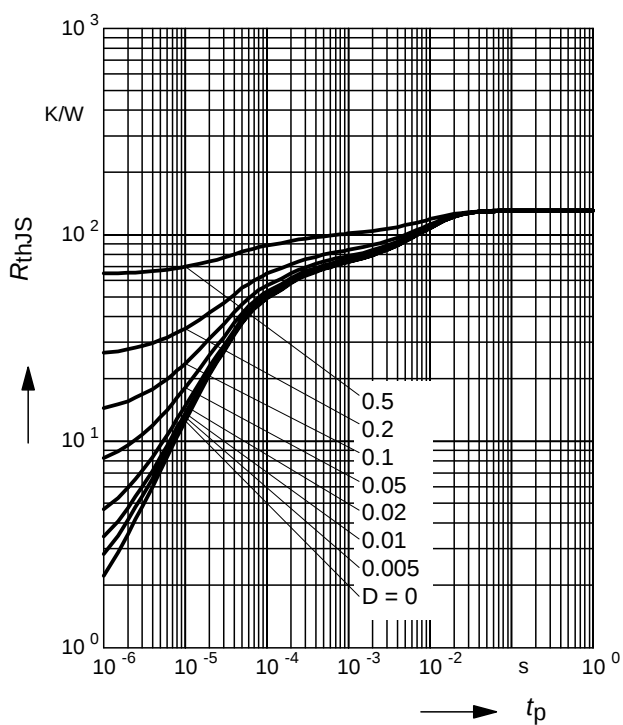
- A perfect ground is essential for optimum isolation
- The anode pins should be used as passage for RF



Forward current $I_F = f(T_S)$

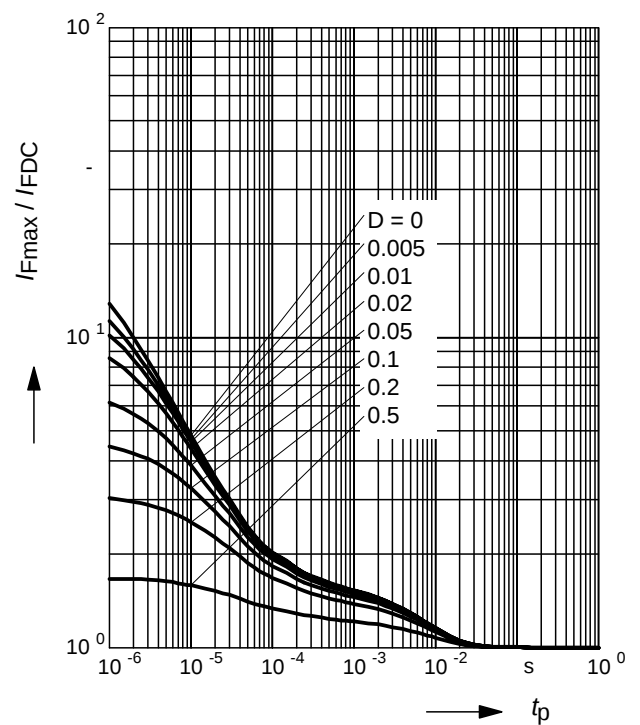


Permissible Pulse Load $R_{thJS} = f(t_p)$



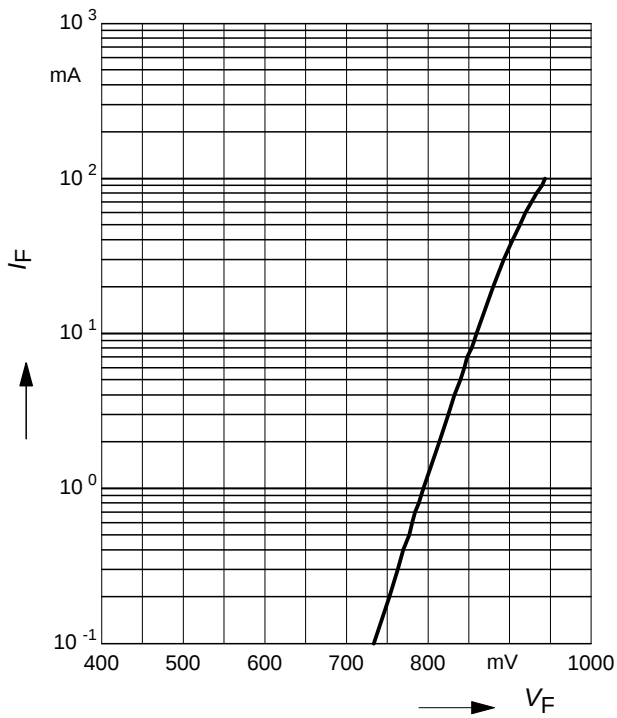
Permissible Pulse Load

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



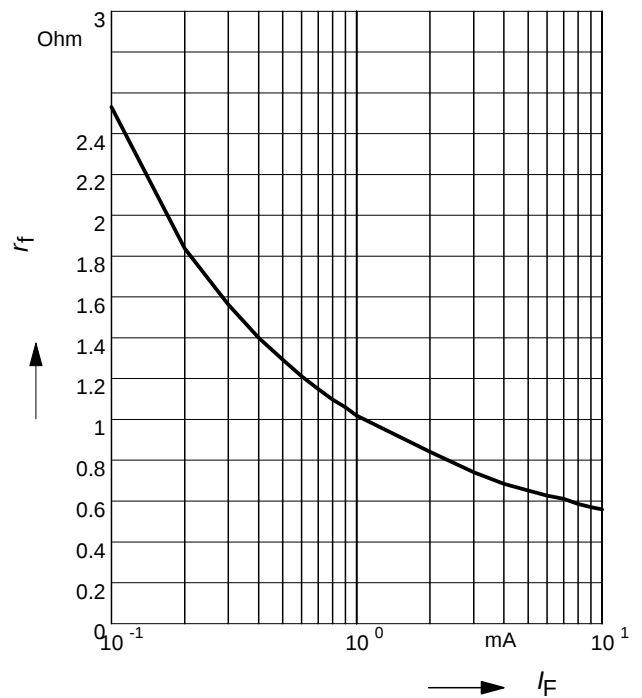
Forward current $I_F = f(V_F)$

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



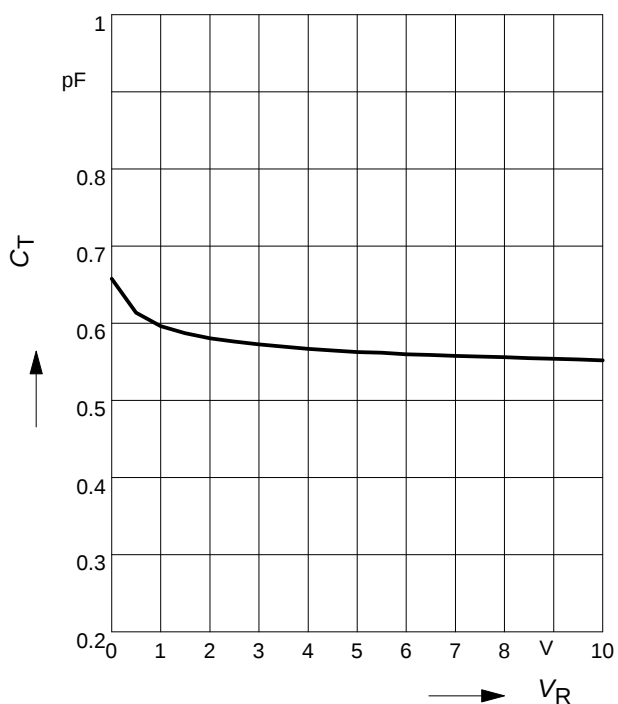
Forward resistance $r_f = f(I_F)$

$f = 100\text{MHz}$



Diode capacitance $C_T = f(V_R)$

$f = 1\text{MHz}$



Diode capacitance $C_T = f(V_R)$

$f = 100\text{MHz}$

