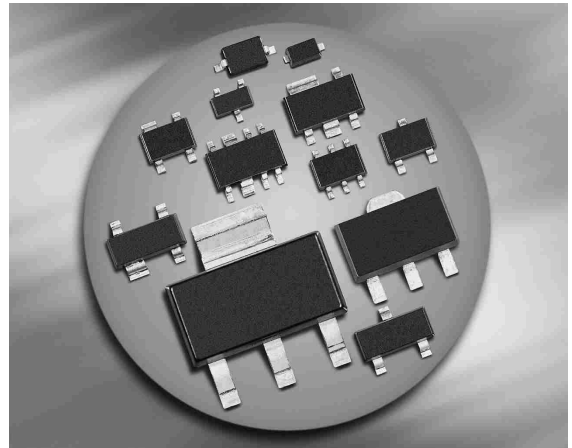
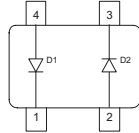
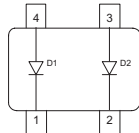
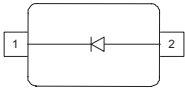


Silicon PIN Diode

- Optimized for low current antenna switches in hand held applications
- Very low forward resistance
(typ. 1.5Ω @ $I_F = 1 \text{ mA}$)
- Low capacitance at zero volt reverse bias at frequencies above 1 GHz (typ. 0.28 pF)
- Very low signal distortion


BAR88-02L
BAR88-02V
BAR88-07L4
BAR88-099L4


Type	Package	Configuration	L_S (nH)	Marking
BAR88-02L	TSLP-2-1	single, leadless	0.4	UU
BAR88-02V	SC79	single	0.6	U
BAR88-07L4*	TSLP-4-4	parallel pair, leadless	0.4	UT
BAR88-099L4*	TSLP-4-4	anti-parallel pair, leadless	0.4	US

* Preliminary Data

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

Parameter	Symbol	Value	Unit
Diode reverse voltage	V_R	80	V
Forward current	I_F	100	mA
Total power dissipation	P_{tot}		mW
BAR88-02L, -07L4, -099L4 $T_S \leq 133^\circ\text{C}$		250	
BAR88-02V, $T_S \leq 123^\circ\text{C}$		250	
Junction temperature	T_j	150	°C
Operating temperature range	T_{op}	-55 ... 125	
Storage temperature	T_{stg}	-55 ... 150	

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point ¹⁾ BAR88-02L, 07L4, -099L4 BAR88-02V	R_{thJS}	≤ 65 ≤ 105	K/W

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

DC Characteristics

Breakdown voltage $I_{(BR)} = 5 \mu\text{A}$	$V_{(BR)}$	80	-	-	V
Reverse current $V_R = 60 \text{ V}$	I_R	-	-	50	nA
Forward voltage $I_F = 1 \text{ mA}$ $I_F = 100 \text{ mA}$	V_F	- -	0.75 0.95	0.9 1.2	V

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

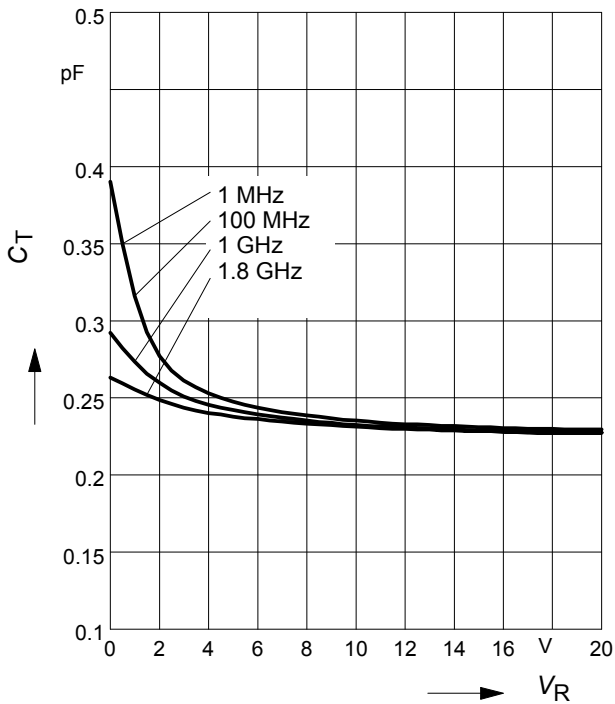
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC Characteristics					
Diode capacitance $V_R = 1\text{ V}, f = 1\text{ MHz}$ $V_R = 0\text{ V}, f = 100\text{ MHz}$ $V_R = 0\text{ V}, f = 1\text{ GHz}$ $V_R = 0\text{ V}, f = 1.8\text{ GHz}$	C_T	- - - -	0.3 0.4 0.28 0.25	0.4 - - -	pF
Reverse parallel resistance $V_R = 0\text{ V}, f = 100\text{ MHz}$ $V_R = 0\text{ V}, f = 1\text{ GHz}$ $V_R = 0\text{ V}, f = 1.8\text{ GHz}$	R_P	- - -	65 2.5 1.5	- - -	k Ω
Forward resistance $I_F = 1\text{ mA}, f = 100\text{ MHz}$ $I_F = 5\text{ mA}, f = 100\text{ MHz}$ $I_F = 10\text{ mA}, f = 100\text{ MHz}$	r_f	- - -	1.5 0.8 0.6	2.5 - -	Ω
Charge carrier life time $I_F = 10\text{ mA}, I_R = 6\text{ mA}$, measured at $I_R = 3\text{ mA}$, $R_L = 100\ \Omega$	τ_{rr}	-	500	-	ns
I-region width	W_I	-	13	-	μm
Insertion loss ¹⁾ $I_F = 1\text{ mA}, f = 1.8\text{ GHz}$ $I_F = 5\text{ mA}, f = 1.8\text{ GHz}$ $I_F = 10\text{ mA}, f = 1.8\text{ GHz}$	$ S_{21} ^2$	- - -	-0.11 -0.07 -0.06	- - -	dB
Isolation ¹⁾ $V_R = 0\text{ V}, f = 0.9\text{ GHz}$ $V_R = 0\text{ V}, f = 1.8\text{ GHz}$ $V_R = 0\text{ V}, f = 2.45\text{ GHz}$	$ S_{21} ^2$	- - -	-15 -11 -9	- - -	

¹⁾BAR88-02L in series configuration, $Z = 50\ \Omega$

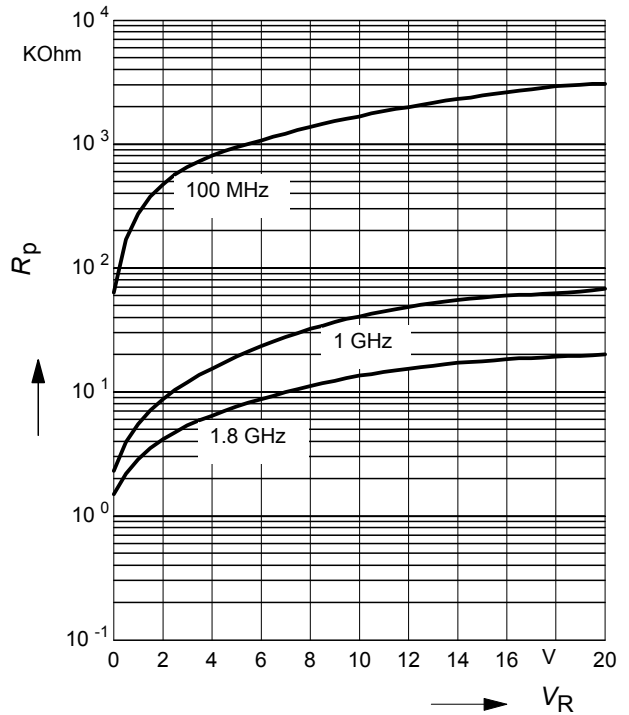
Diode capacitance $C_T = f(V_R)$

$f =$ Parameter



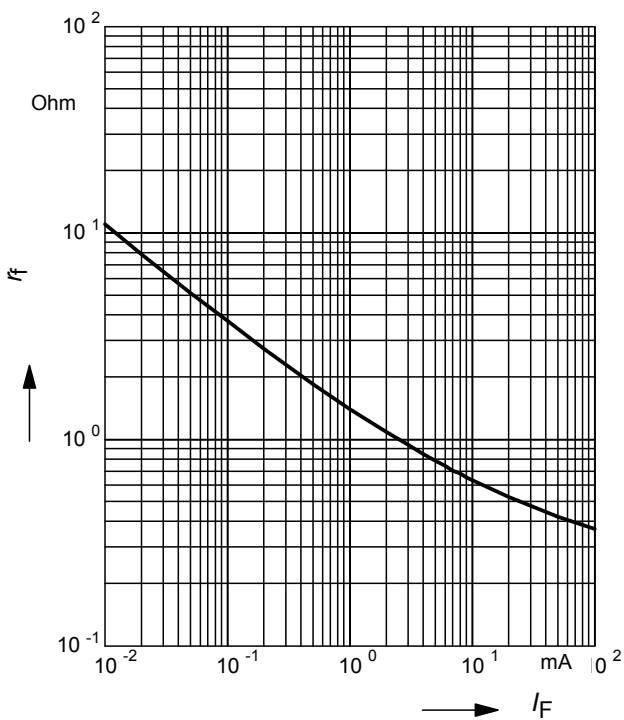
Reverse parallel resistance $R_P = f(V_R)$

$f =$ Parameter



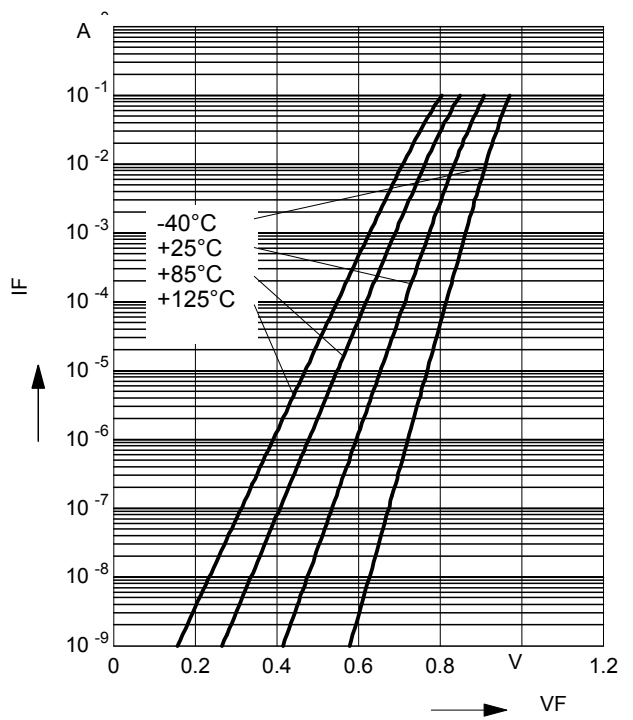
Forward resistance $r_f = f(I_F)$

$f = 100\text{MHz}$



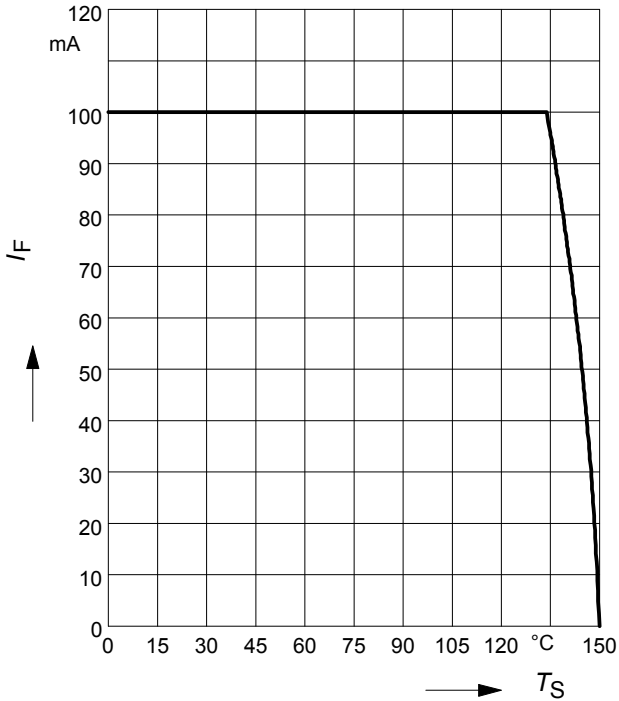
Forward current $I_F = f(V_F)$

$T_A =$ Parameter



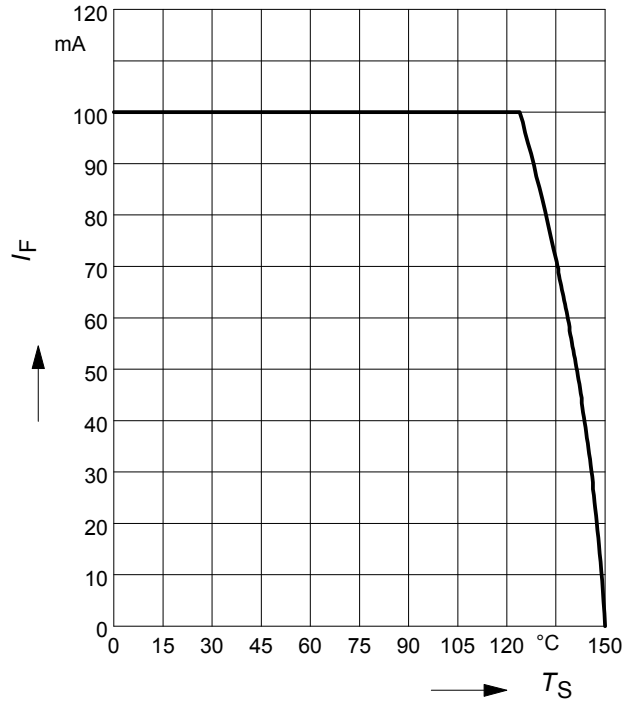
Forward current $I_F = f(T_S)$

BAR88-02L, -07L4, -099L4



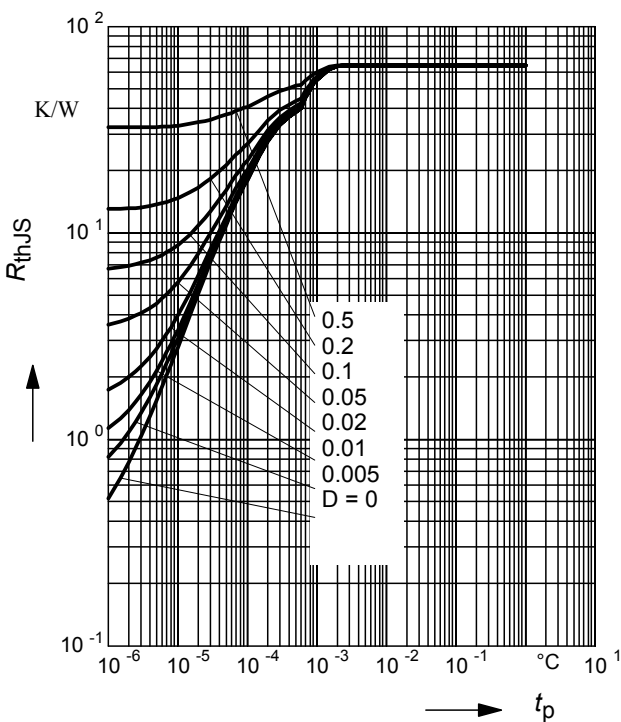
Forward current $I_F = f(T_S)$

BAR88-02V



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

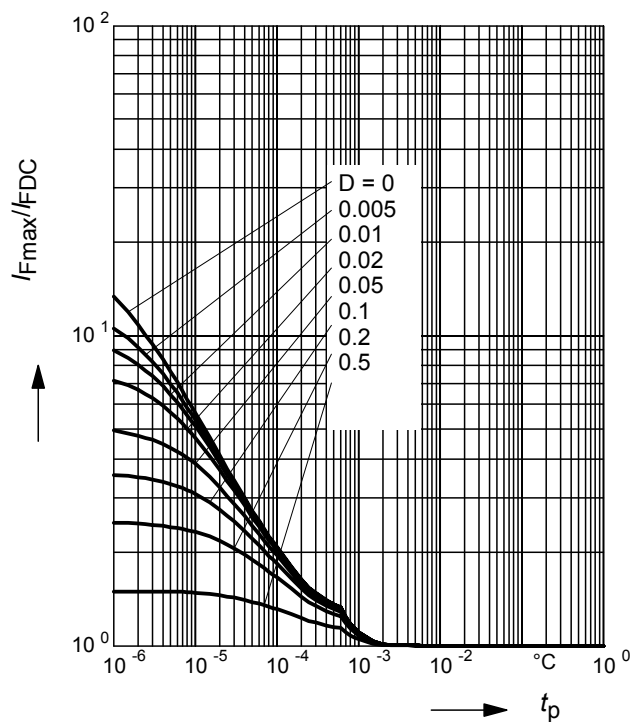
BAR88-02L, -07L4, -099L4



Permissible Pulse Load

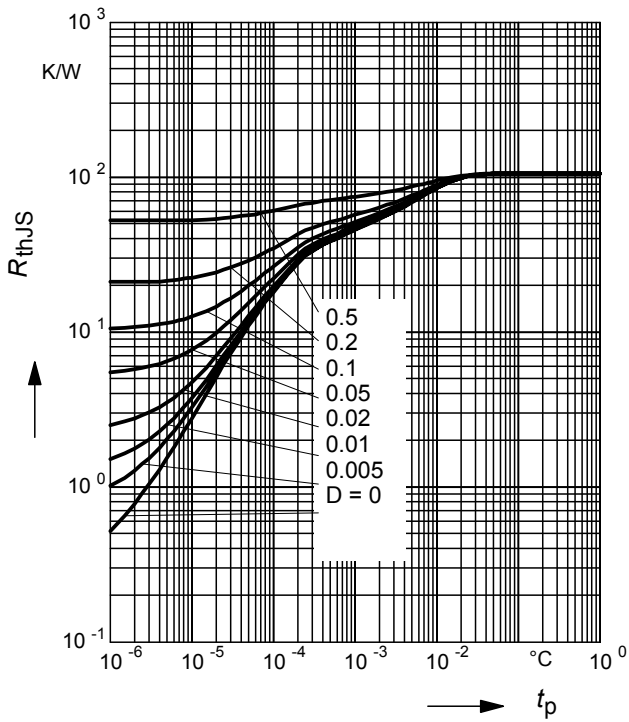
$I_{Fmax} / I_{FDC} = f(t_p)$

BAR88-02L, -07L4, -099L4



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

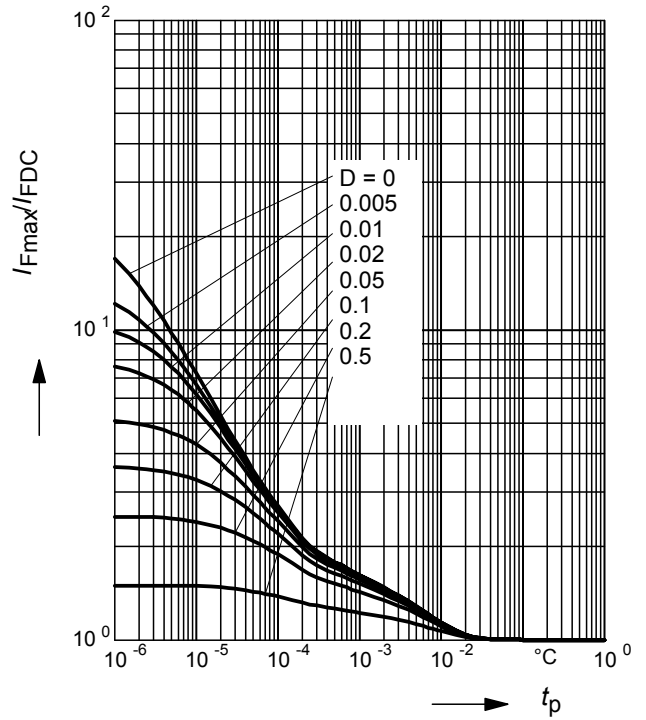
BAR88-02V



Permissible Pulse Load

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

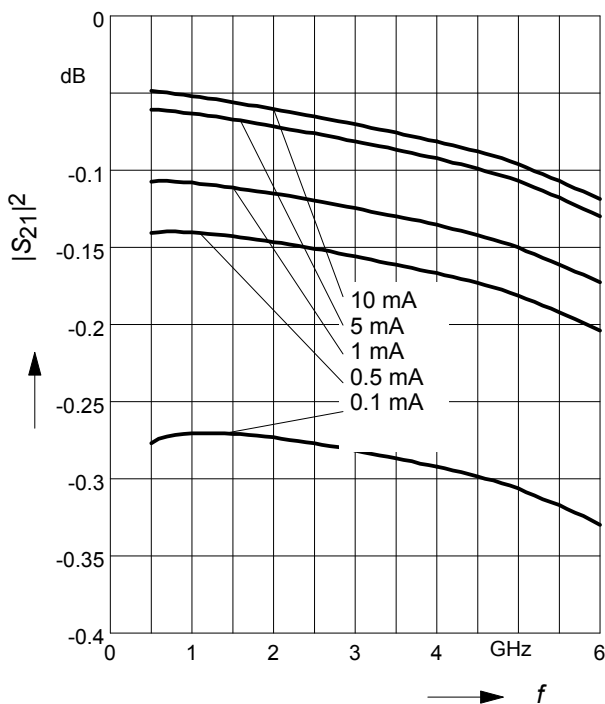
BAR88-02V



Insertion loss $|S_{21}|^2 = f(f)$

I_F = Parameter

BAR88-02L in series configuration, $Z = 50\Omega$



Isolation $|S_{21}|^2 = f(f)$

V_R = Parameter

BAR88-02L in series configuration, $Z = 50\Omega$

