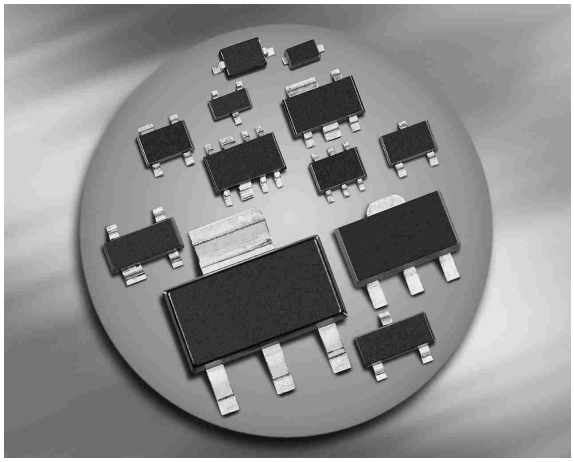
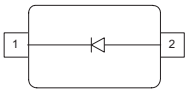
Silicon PIN Diode

- Designed for antenna switch modules (ASM) in battery-powered mobile systems
- Low capacitance at zero volts reverse bias at frequencies above 1 GHz (typ. 0.24 pF)
- Low forward resistance (typ. 1.2 Ω @ I_F = 5 mA)
- Fast switching



BAR95-02LS



Type	Package	Configuration	L_S(nH)	Marking
BAR95-02LS	TSSLP-2-1	single, leadless	0.2	C

Maximum Ratings at T_A = 25°C, unless otherwise specified

Parameter	Symbol	Value	Unit
Diode reverse voltage	V_R	50	V
Forward current	I_F	100	mA
Total power dissipation T_S ≤ 136 °C	P_{tot}	150	mW
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)]	R_{thJS}	≤ 95	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.	
DC Characteristics					
Breakdown voltage $I_{(BR)}$ = 5 µA	$V_{(BR)}$	50	-	-	V
Reverse current V_R = 35 V	I_R	-	-	10	nA
Forward voltage I_F = 10 mA I_F = 100 mA	V_F	 - -	 - -	 0.9 1.2	V

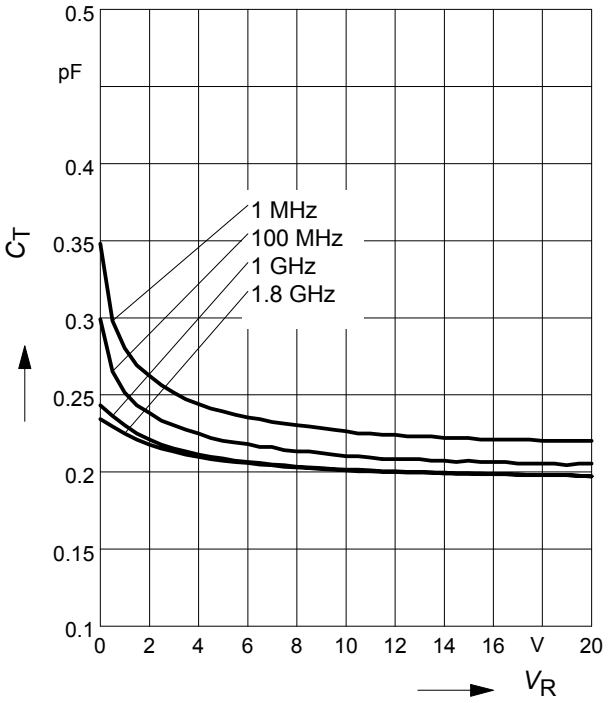
Electrical Characteristics at T_A = 25°C, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC Characteristics					
Diode capacitance	C_T				pF
V_R = 1 V, f = 1 MHz		-	0.25	0.35	
V_R = 0 V, f = 100 MHz		-	0.3	-	
V_R = 0 V, f = 1 GHz		-	0.24	-	
V_R = 0 V, f = 1.8 GHz		-	0.23	-	
Reverse parallel resistance	R_P				kΩ
V_R = 0 V, f = 100 MHz		-	30	-	
V_R = 0 V, f = 1 GHz		-	5	-	
V_R = 0 V, f = 1.8 GHz		-	3	-	
Forward resistance	r_f				Ω
I_F = 1 mA, f = 100 MHz		-	3.5	-	
I_F = 5 mA, f = 100 MHz		-	1.2	-	
I_F = 10 mA, f = 100 MHz		-	0.8	1.5	
Charge carrier life time	τ_{rr}	-	500	-	ns
I_F = 10 mA, I_R = 6 mA, measured at I_R = 3 mA, R_L = 100 Ω					
I-region width	W_I	-	19	-	µm
Insertion loss[1)]	$\|S_{21}\|^2$				dB
I_F = 1 mA, f = 1.8 GHz		-	-0.3	-	
I_F = 5 mA , f = 1.8 GHz		-	-0.1	-	
I_F = 10 mA, f = 1.8 GHz		-	-0.08	-	
Isolation[1)]	$\|S_{21}\|^2$				
V_R = 0 V, f = 0.9 GHz		-	-17	-	
V_R = 0 V, f = 1.8 GHz		-	-12	-	
V_R = 0 V, f = 2.45 GHz		-	-10	-	

[1]BAR95-02LS in series configuration, Z = 50 Ω

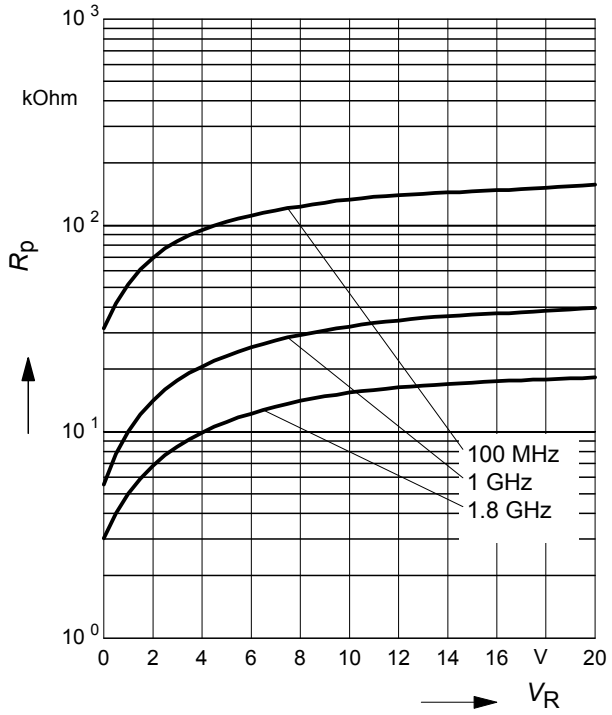
Diode capacitance $C_T = f\ (V_R)$

f = Parameter



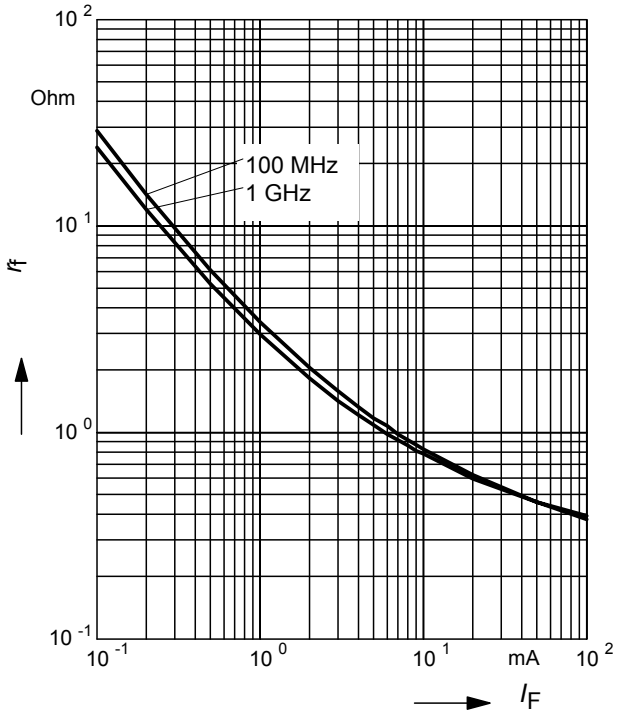
Reverse parallel resistance $R_P = f(V_R)$

f = Parameter



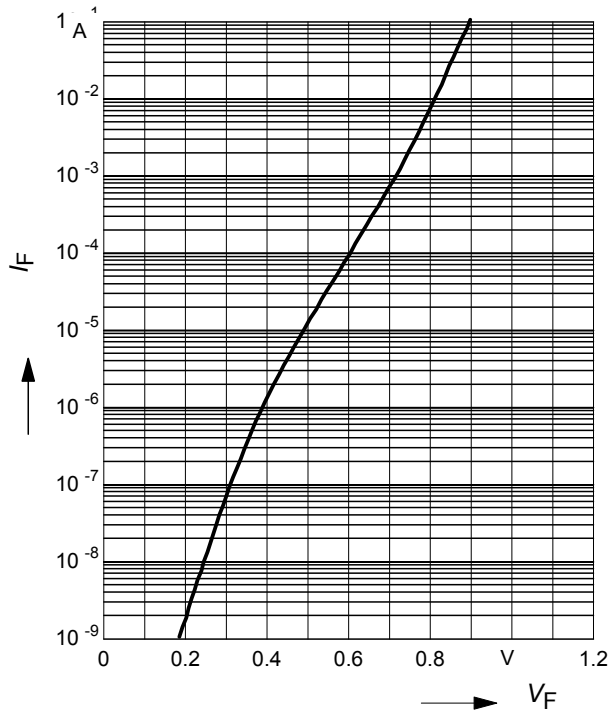
Forward resistance $r_f = f\ (I_F)$

f = Parameter

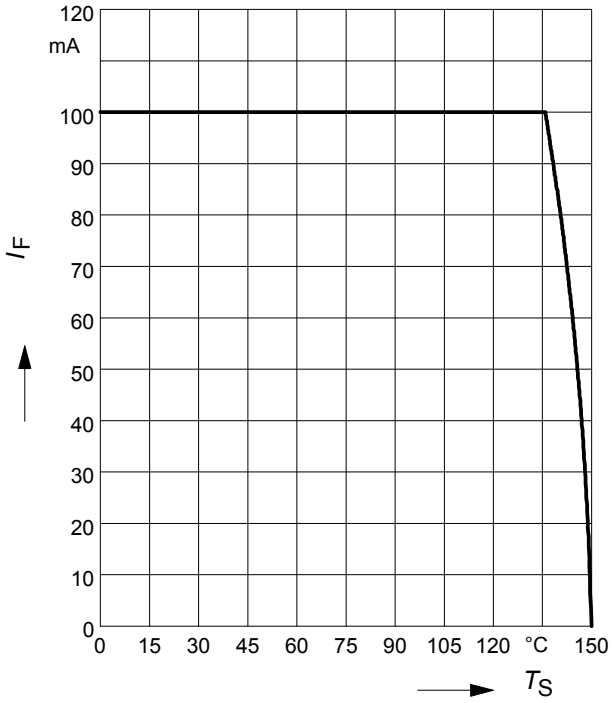


Forward current $I_F = f\ (V_F)$

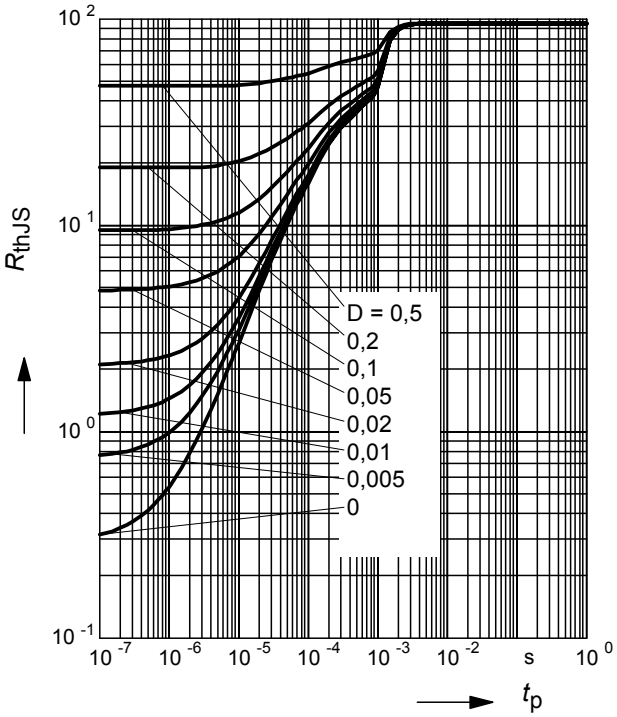
T_A = 25 °C



Forward current $I_F = f(T_S)$

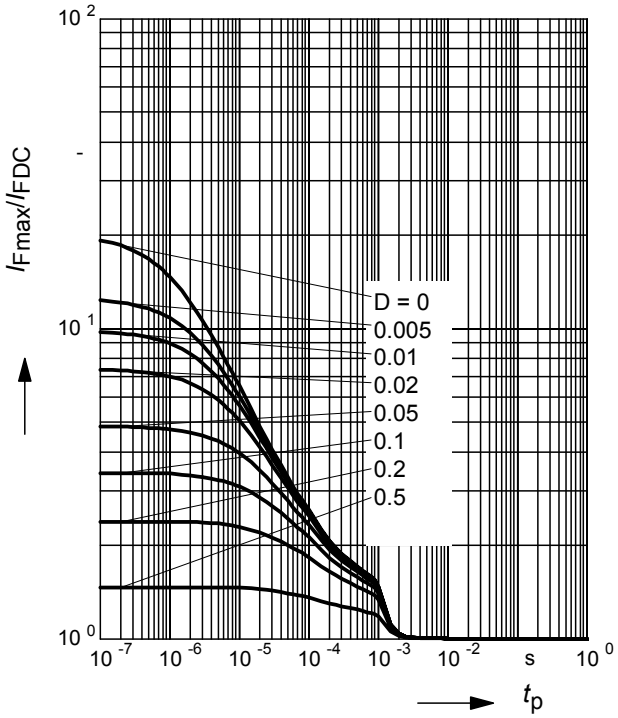


Permissible Puls Load $R_{thJS} = f(t_p)$

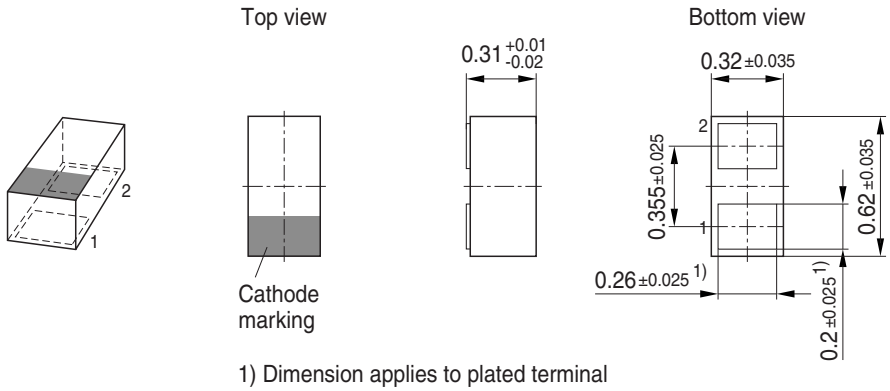


Permissible Pulse Load

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



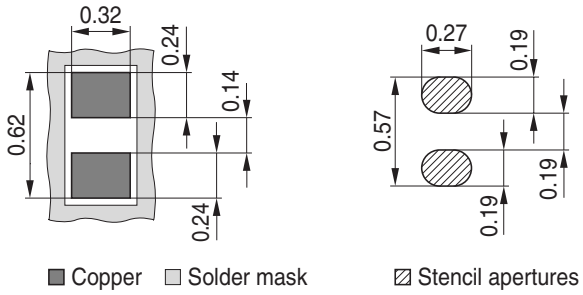
Package Outline



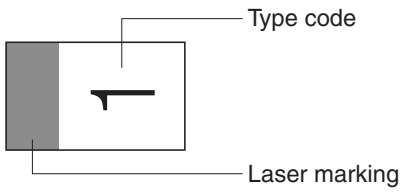
1) Dimension applies to plated terminal

Foot Print

For board assembly information please refer to Infineon website "Packages"

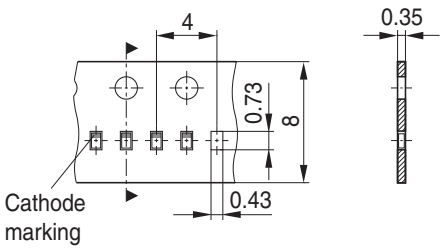


Marking Layout



Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel



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