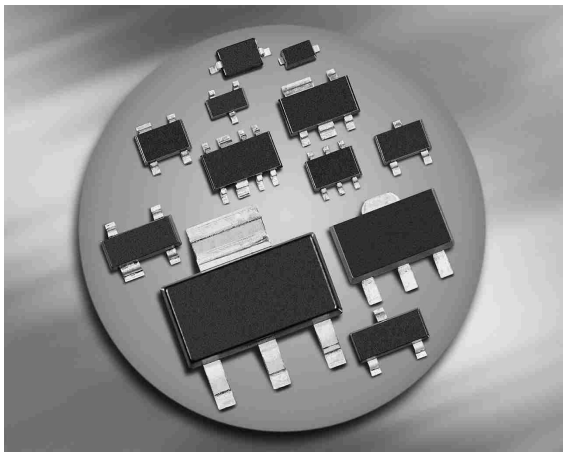
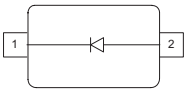
Silicon Tuning Diode

- For UHF-TV-tuners
- High capacitance ratio
- Low series inductance
- Low series resistance
- Excellent uniformity and matching due to "in-line" matching assembly procedure



BB535
BB555/-02V



Type	Package	Configuration	L_S (nH)	Marking
BB535	SOD323	single	1.8	white S
BB555	SCD80	single	0.6	BB
BB555-02V	SC79	single	0.6	B

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

Parameter	Symbol	Value	Unit
Diode reverse voltage	V_R	30	V
Peak reverse voltage $R \geq 5k\Omega$	V_{RM}	35	
Forward current	I_F	20	mA
Operating temperature range	T_{op}	-55 ... 150	°C
Storage temperature	T_{stg}	-55 ... 150	

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Reverse current	I_R				nA
V_R = 30 V		-	-	10	
V_R = 30 V, T_A = 85 °C		-	-	200	

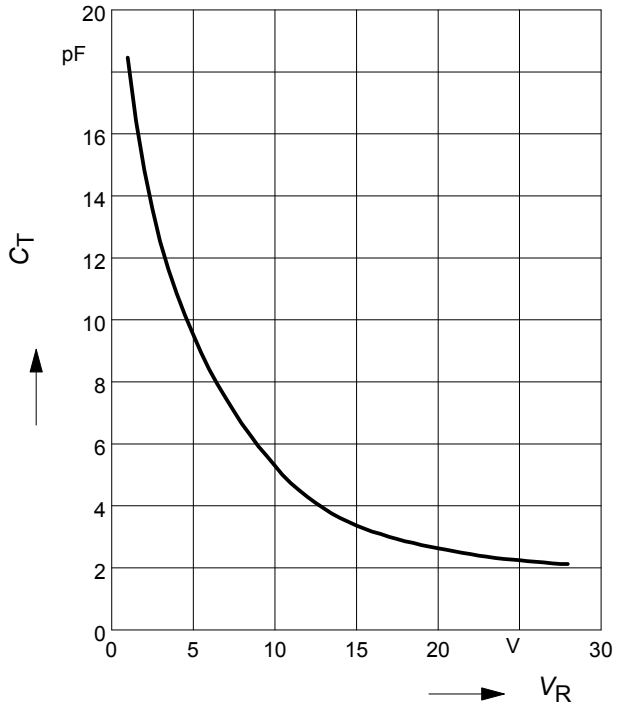
Electrical Characteristics

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC Characteristics					
Diode capacitance	C_T				pF
V_R = 1 V, f = 1 MHz		17.5	18.7	20	
V_R = 2 V, f = 1 MHz		14.01	15	16.1	
V_R = 25 V, f = 1 MHz		2.05	2.24	2.4	
V_R = 28 V, f = 1 MHz		1.9	2.1	2.3	
Capacitance ratio	C_{T1}/C_{T28}	8.2	8.9	9.8	-
V_R = 1 V, V_R = 28 V, f = 1 MHz					
Capacitance ratio	C_{T2}/C_{T25}	6	6.7	7.5	
V_R = 2 V, V_R = 25 V, f = 1 MHz					
Capacitance matching[1)]	$\Delta C_T/C_T$				%
V_R = 1V to 28V, f = 1 MHz, **7** diodes sequence, BB535		-	-	2.5	
V_R = 1V to 28V, f = 1 MHz, **4** diodes sequence, BB555/-02V		-	0.15	1	
V_R = 1V to 28V, f = 1 MHz, **7** diodes sequence, BB555/-02V		-	0.25	2	
Series resistance	r_S	-	0.58	0.75	Ω
V_R = 3 V, f = 470 MHz					

[1]For details please refer to Application Note 047

Diode capacitance $C_T = f(V_R)$

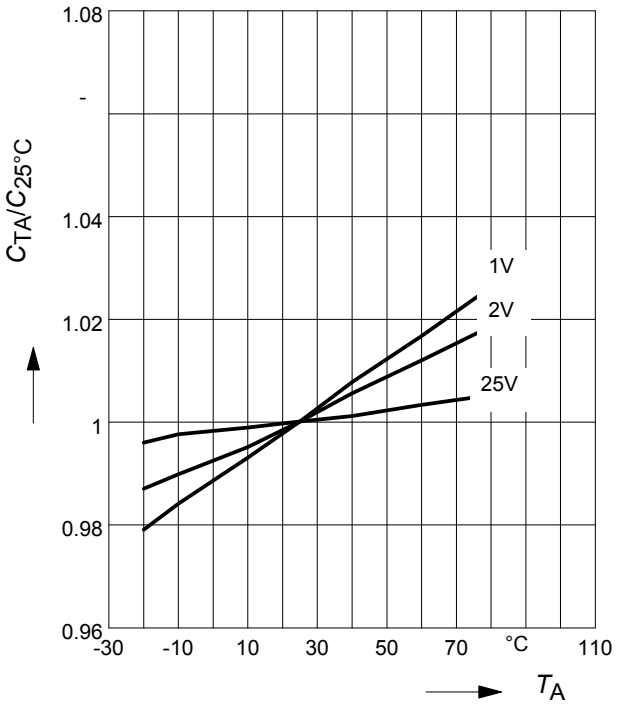
f = 1MHz



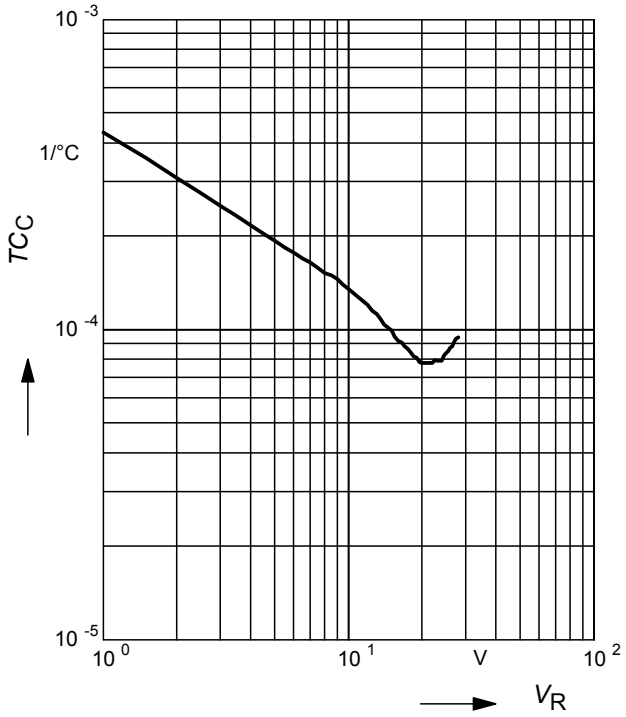
Normalized diode capacitance

$C_{(TA)}/C_{(25°C)} = f(T_A)$; f = 1MHz

V_R = Parameter

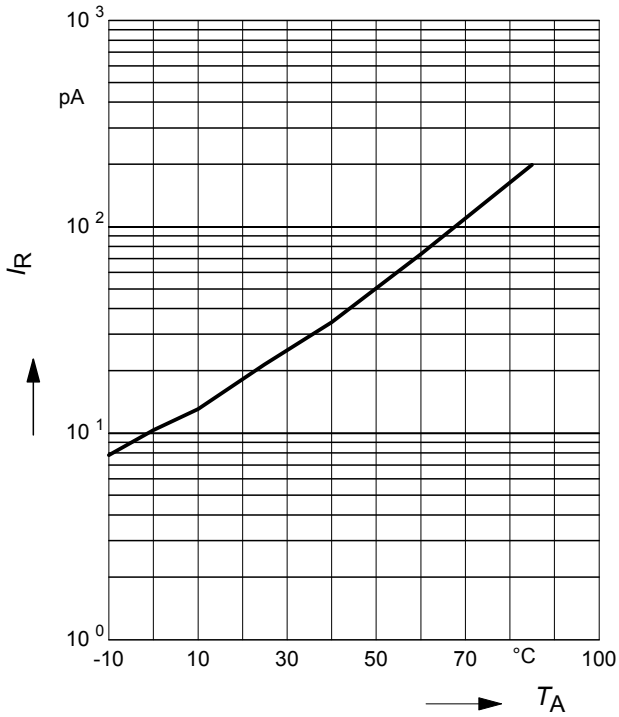


Temperature coefficient of the diode capacitance $T_{Cc} = f(V_R)$



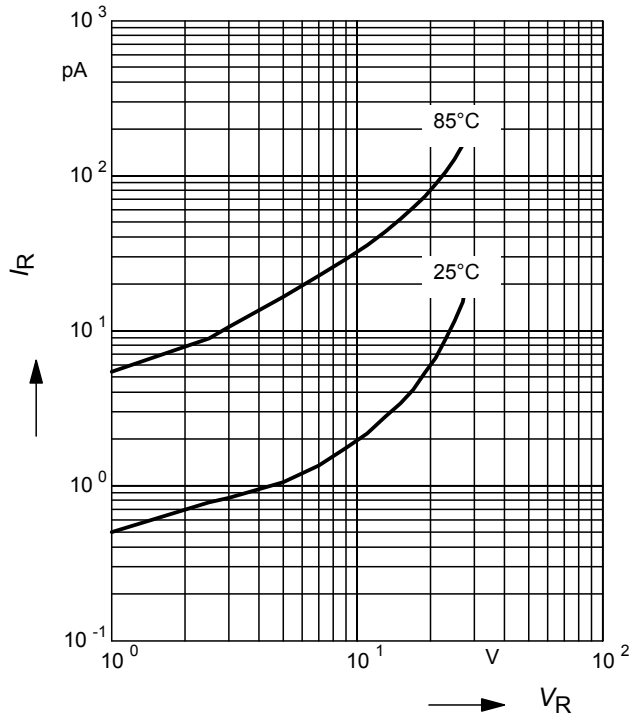
Reverse current $I_R = f(T_A)$

V_R = 28 V



Reverse current $I_R = f(V_R)$

T_A = Parameter



Published by Infineon Technologies AG,
St.-Martin-Strasse 53,
81669 München

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