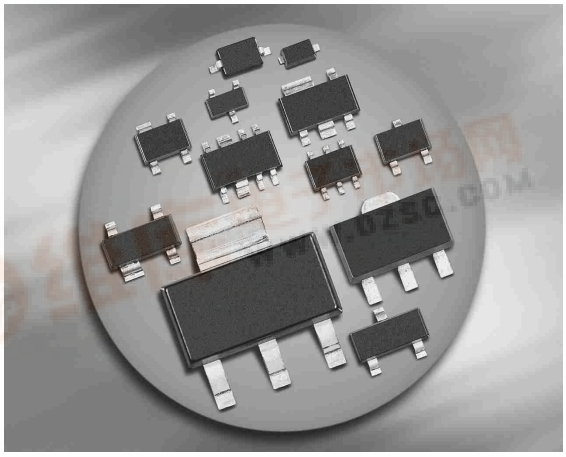
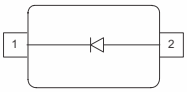
Silicon Tuning Diode

- For VHF 2-Band-hyperband-TV-tuners
- Very high capacitance ratio
- Low series resistance
- Excellent uniformity and matching due to "in-line" matching assembly procedure



BB669
BB689
BB689-02V



Type	Package	Configuration	L_S(nH)	Marking
BB669	SOD323	single	1.8	1
BB689	SCD80	single	0.6	EE
BB689-02V	SC79	Single	0.6	E

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

Parameter	Symbol	Value	Unit
Diode reverse voltage	V_R	30	V
Peak reverse voltage ($R \leq 5k\Omega$)	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

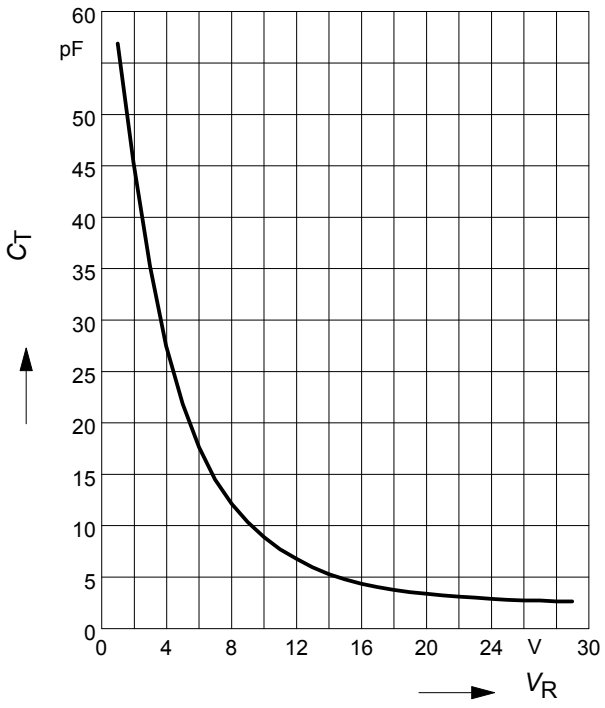
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Reverse current	I_R				nA
V_R = 30 V		-	-	10	
V_R = 30 V, T_A = 85 °C		-	-	200	

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

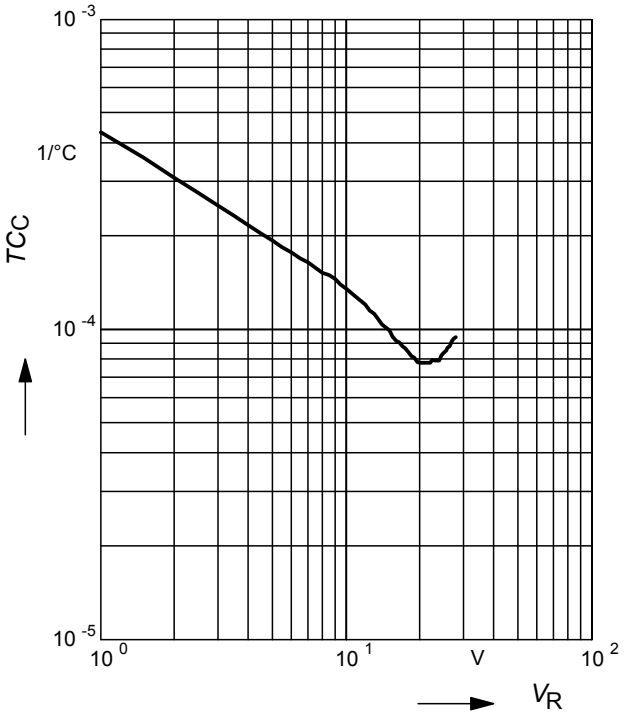
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC Characteristics					
Diode capacitance	C_T				pF
V_R = 1 V, f = 1 MHz		51	56.5	61.5	
V_R = 2 V, f = 1 MHz		39.6	43.4	47.2	
V_R = 25 V, f = 1 MHz		2.6	2.8	3	
V_R = 28 V, f = 1 MHz		2.5	2.7	2.9	
Capacitance ratio V_R = 1 V, V_R = 28 V, f = 1 MHz	C_{T1}/C_{T28}	18	20.9	23.2	-
Capacitance ratio V_R = 2 V, V_R = 25 V, f = 1 MHz	C_{T2}/C_{T25}	14.5	15.5	17	
Capacitance matching[1)] V_R = 1 V, V_R = 28 V, f = 1 MHz	$\Delta C_T/C_T$	-	-	2	%
Series resistance V_R = 8 V, f = 470 MHz	r_S	-	0.85	-	Ω

[1]For details please refer to Application Note 047

Diode capacitance $C_T = f(V_R)$
f = 1MHz



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



Reverse current $I_R = f(V_R)$
T_A = Parameter