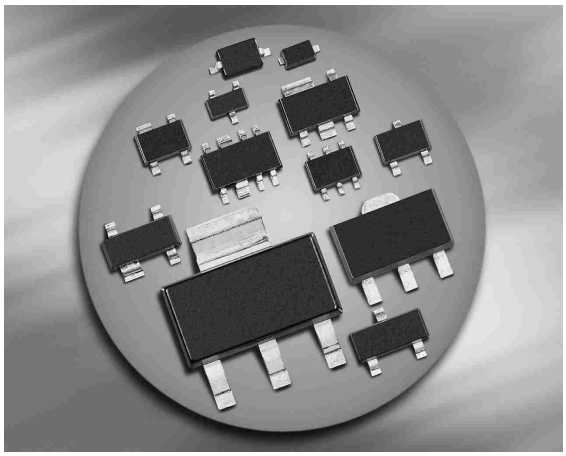
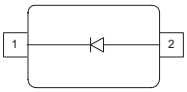
Silicon Variable Capacitance Diode

- For tuning of extended frequency band in VHF TV / VTR tuners
- High capacitance ratio
- Low series inductance
- Low series resistance
- Excellent uniformity and matching due to "in-line" matching assembly procedure



BB639C
BB659C/-02V



Type	Package	Configuration	L_S (nH)	Marking
BB639C	SOD323	single	1.8	yellow S
BB659C	SCD80	single	0.6	HH
BB659C-02V	SC79	single	0.6	H

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

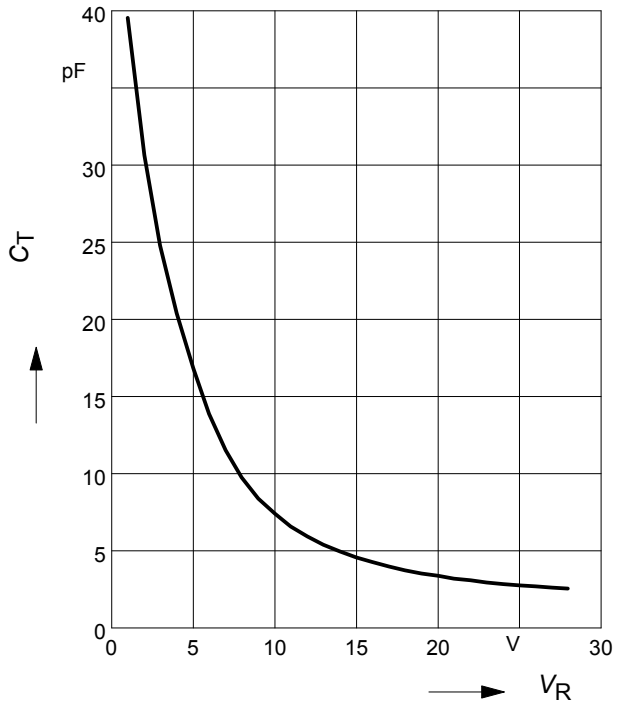
Parameter	Symbol	Value	Unit
Diode reverse voltage	V_R	30	V
Peak reverse voltage (R ≥ 5kΩ)	V_{RM}	35	
Forward current	I_F	20	mA
Operating temperature range	T_{op}	-55 ... 150	°C
Storage temperature	T_{stg}	-55 ... 150	

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

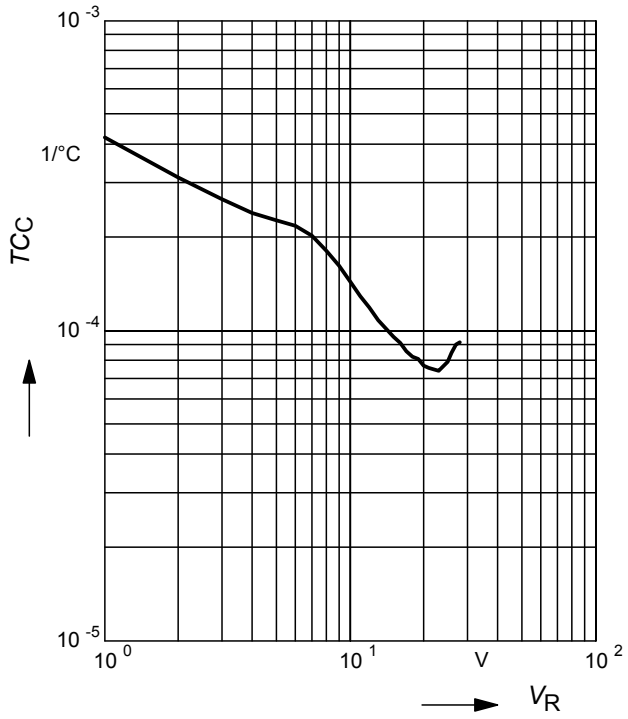
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Reverse current	I_R				nA
V_R = 30 V		-	-	10	
V_R = 30 V, T_A = 85 °C		-	-	200	
AC Characteristics					
Diode capacitance	C_T				pF
V_R = 1 V, f = 1 MHz		36.5	39	42	
V_R = 2 V, f = 1 MHz		27	30.2	33.2	
V_R = 25 V, f = 1 MHz		2.5	2.72	3.05	
V_R = 28 V, f = 1 MHz		2.4	2.55	2.75	
Capacitance ratio	C_{T1}/C_{T28}	14.2	15.3	-	
V_R = 1 V, V_R = 28 V, f = 1 MHz					
Capacitance ratio	C_{T2}/C_{T25}	9.5	11.1	-	
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,					
BB639C		-	-	2.5	
V_R = 1V to 28V , f = 1 MHz, **4** diodes sequence,					
BB659C/-02V		-	0.3	1	
V_R = 1V to 28V, f = 1 MHz, **7** diodes sequence ,					
BB659C/-02V		-	0.5	2	
Series resistance	r_S	-	0.6	0.7	Ω
V_R = 5 V, f = 470 MHz					

[1]For details please refer to Application Note 047

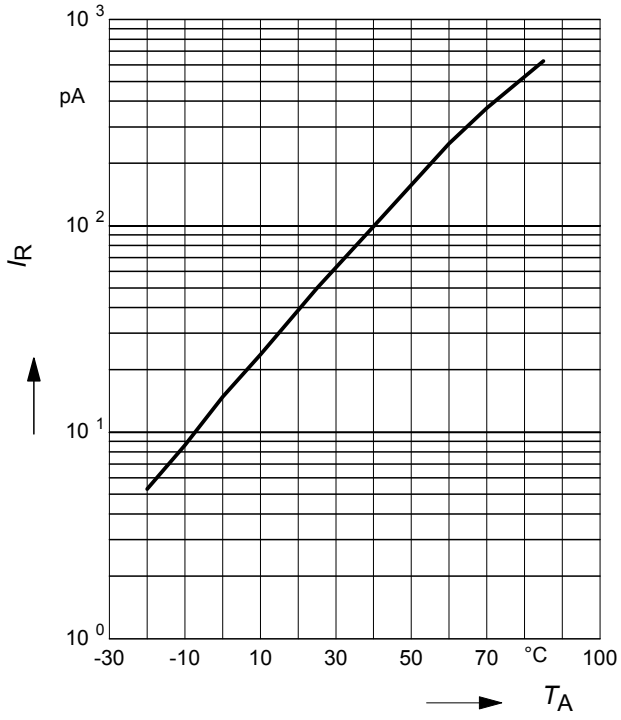
Diode capacitance $C_T = f(V_R)$
f = 1MHz



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



Reverse current $I_R = f(T_A)$
V_R = 28V



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