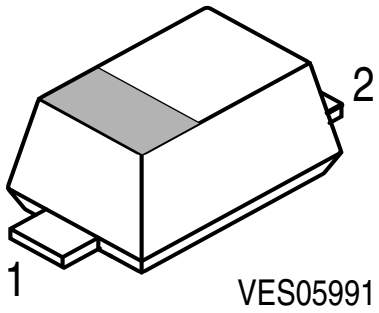
Silicon Variable Capacitance Diode



- For VHF/UHF-TV-tuners
- High capacitance ratio
- Low series inductance
- Low series resistance
- Extremely small plastic SMD package
- Excellent uniformity and matching due to "in-line" matching assembly procedure

Type	Marking	Pin Configuration			Package
BB 659C inline matched	H	1 = C	2 = A	-	SCD-80
BB 659C unmatched	H	1 = C	2 = A	-	SCD-80

Maximum Ratings

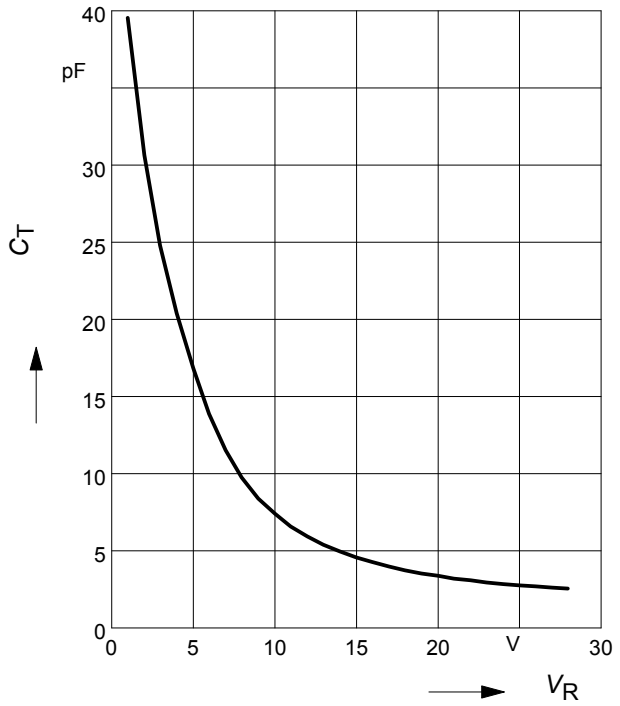
Parameter	Symbol	Value	Unit
Diode reverse voltage	V_R	30	V
Peak reverse voltage, (R ≥ 5kΩ)	V_{RM}	35	
Forward current	I_F	20	mA
Operating temperature range	T_{op}	-55 ... 150	°C
Storage temperature	T_{stg}	-55 ... 150	

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

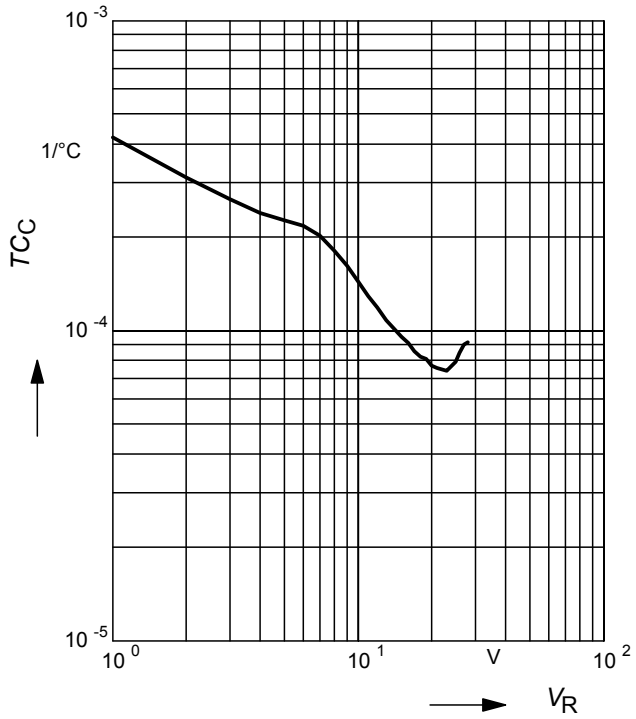
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Reverse current	I_R				nA
V_R = 30 V		-	-	10	
V_R = 30 V, T_A = 85 °C		-	-	200	
AC Characteristics					
Diode capacitance	C_T				pF
V_R = 1 V, f = 1 MHz		36.5	39	42	
V_R = 2 V, f = 1 MHz		27	30.2	33.2	
V_R = 25 V, f = 1 MHz		2.5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

[1]In-line matching. For details please refer to Application Note 047

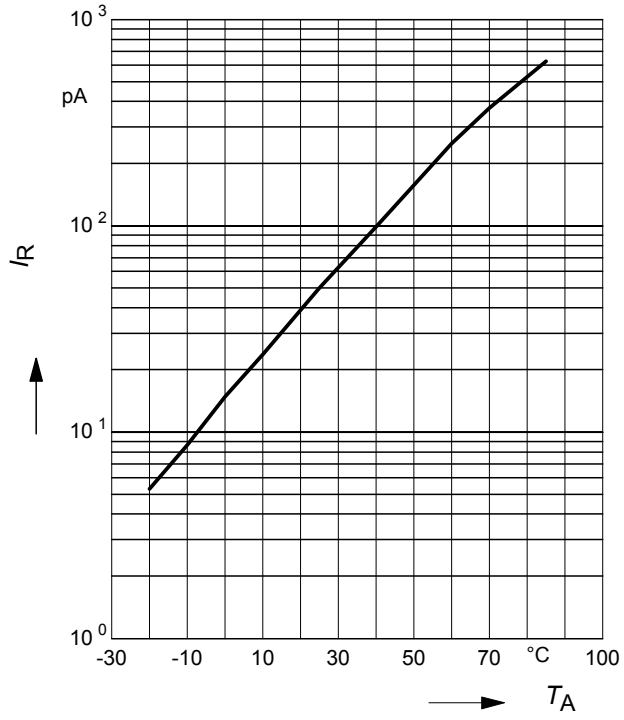
Diode capacitance $C_T = f(V_R)$
f = 1MHz



Temperature coefficient of the diode capacitance $TC_C = f(V_R)$



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



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