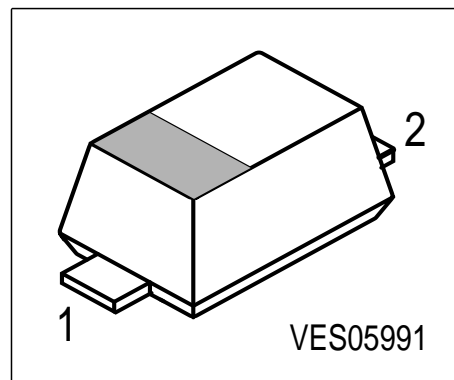


## Silicon Tuning Diode

- For VHF-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	Ordering Code	Pin Configuration		Package
BB 659	D	Q62702-B0875 unmatched	1 = C	2 = A	SCD-80
BB 659	D	Q62702-B0854 inline matched			

### Maximum Ratings

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	

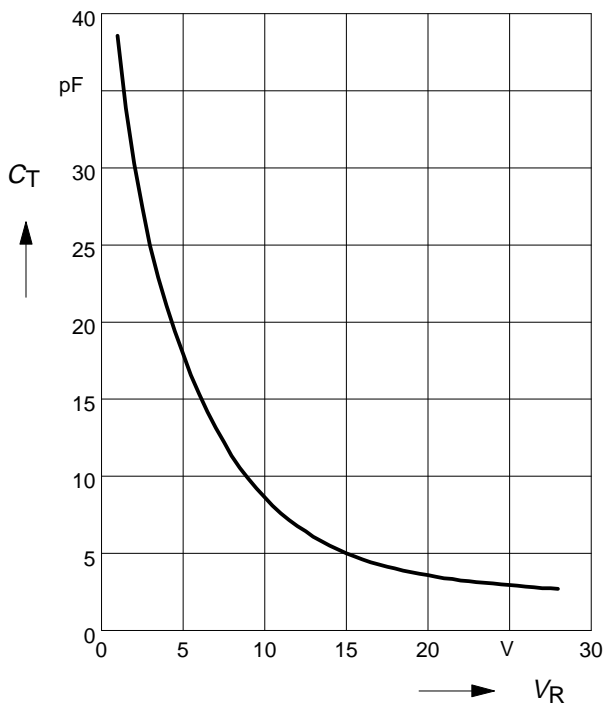
**Electrical Characteristics** at  $T_A = 25^\circ\text{C}$ , unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
<b>DC characteristics</b>					
Reverse current $V_R = 30\text{ V}$	$I_R$	-	-	10	nA
Reverse current $V_R = 30\text{ V}, T_A = 85^\circ\text{C}$	$I_R$	-	-	100	
<b>AC characteristics</b>					
Diode capacitance $V_R = 1\text{ V}, f = 1\text{ MHz}$ $V_R = 2\text{ V}, f = 1\text{ MHz}$ $V_R = 25\text{ V}, f = 1\text{ MHz}$ $V_R = 28\text{ V}, f = 1\text{ MHz}$	$C_T$	36 27.5 2.5 2.4	38.3 30.1 2.89 2.6	40 32 3.2 2.9	pF
Capacitance ratio $V_R = 2\text{ V}, V_R = 25\text{ V}, f = 1\text{ MHz}$	$C_{T2}/C_{T25}$	9.8	10.4	-	-
Capacitance ratio $V_R = 1\text{ V}, V_R = 28\text{ V}, f = 1\text{ MHz}$	$C_{T1}/C_{T28}$	13.5	14.7	-	
Capacitance matching <sup>1)</sup> $V_R = 1\text{V to } 28\text{V}, f = 1\text{ MHz}, 4\text{ diodes sequence}$ $V_R = 1\text{V to } 28\text{V}, f = 1\text{ MHz}, 7\text{ diodes sequence}$	$\Delta C_T/C_T$	- -	0.3 0.4	1 2	%
Series resistance $V_R = 5\text{ V}, f = 470\text{ MHz}$	$r_s$	-	0.65	0.7	$\Omega$
Series inductance	$L_s$	-	0.6	-	nH

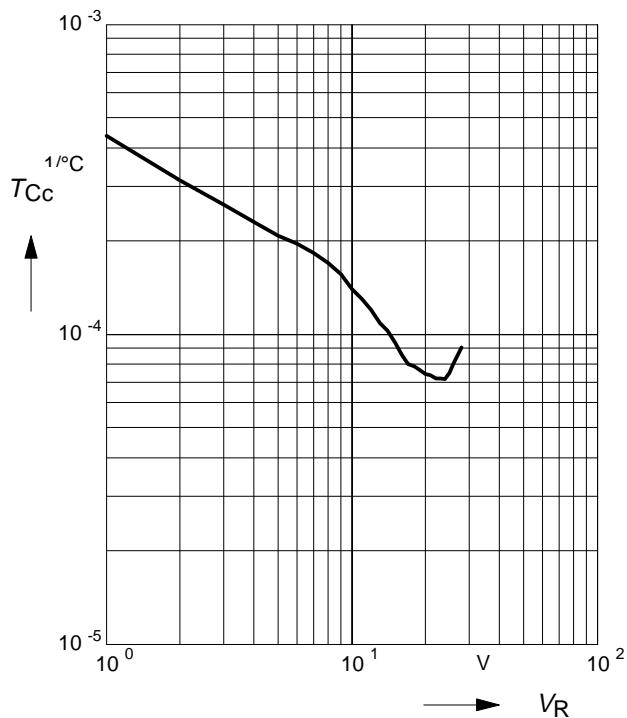
1) In-line matching. For details please refer to Application Note 047

Diode capacitance  $C_T = f(V_R)$

$f = 1\text{MHz}$

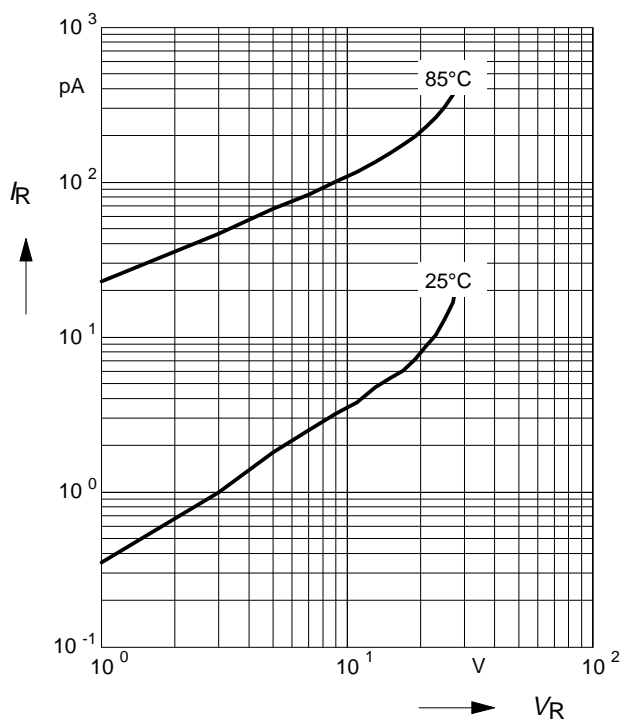


Temperature coefficient of the diode capacitance  $T_{Cc} = f(V_R)$



Reverse current  $I_R = f(V_R)$

$T_A = \text{Parameter}$



Reverse current  $I_R = f(T_A)$

$V_R = 28\text{V}$

