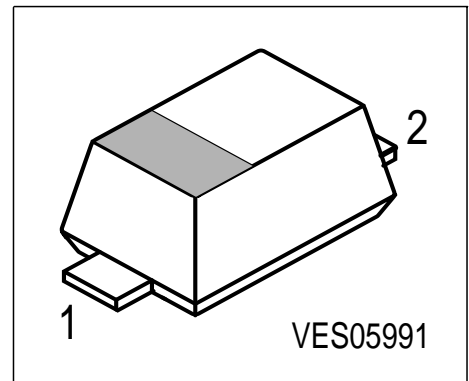


### Silicon Tuning Diode

#### Preliminary data

- Excellent linearity
- High Q hyperabrupt tuning diode
- Low series inductance
- High capacitance ratio
- Designed for low tuning voltage operation for VCO's in mobile communications equipment
- For control elements such as TCXOs and VCXOs



Type	Marking	Ordering Code	Pin Configuration		Package
BBY 57-02W	5	Q62702-B915	1 = C	2 = A	SCD-80

#### Maximum Ratings

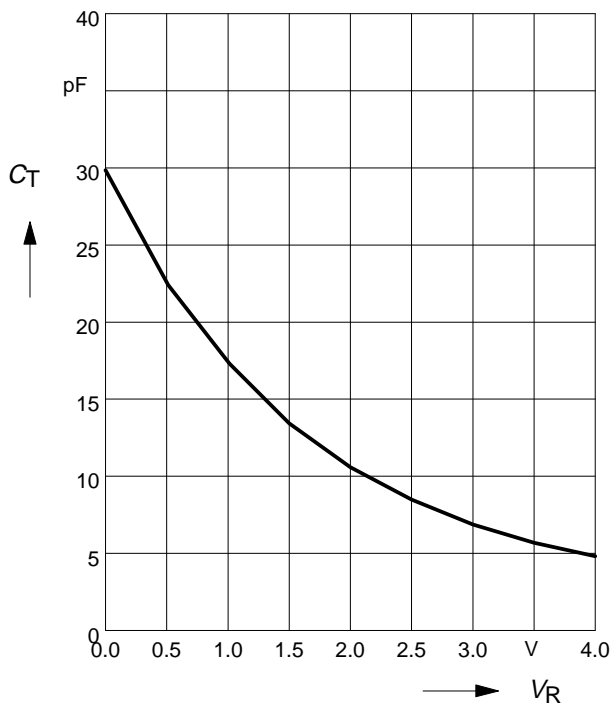
Parameter	Symbol	Value	Unit
Diode reverse voltage	$V_R$	10	V
Forward current	$I_F$	20	mA
Operating temperature range	$T_{op}$	-55 ...+150	°C
Storage temperature	$T_{stg}$	-55 ...+150	

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

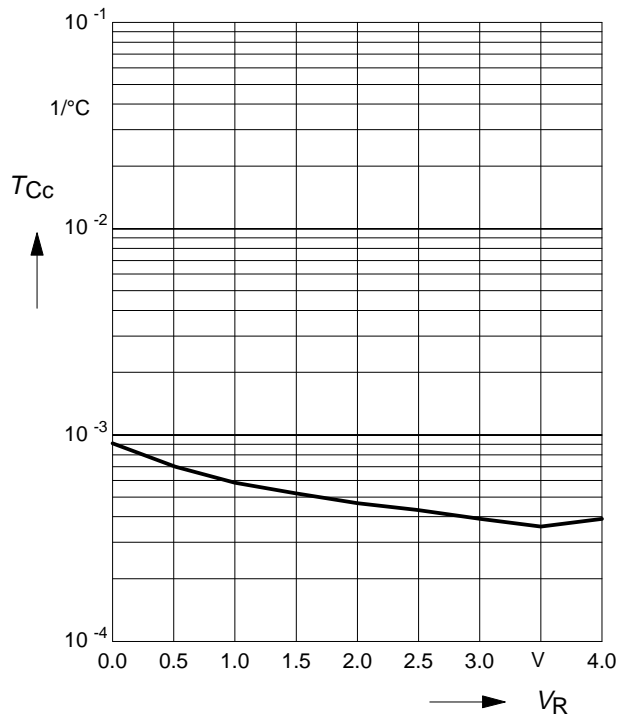
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
<b>DC characteristics</b>					
Reverse current $V_R = 8\text{ V}$	$I_R$	-	-	1	nA
Reverse current $V_R = 8\text{ V}, T_A = 65^\circ\text{C}$	$I_R$	-	-	100	
<b>AC characteristics</b>					
Diode capacitance $V_R = 1\text{ V}, f = 1\text{ MHz}$ $V_R = 2.5\text{ V}, f = 1\text{ MHz}$ $V_R = 3\text{ V}, f = 1\text{ MHz}$ $V_R = 4\text{ V}, f = 1\text{ MHz}$	$C_T$	16.5 - - 4	17.5 8.7 7.1 4.73	18.6 - - 5.5	pF
Capacitance ratio $V_R = 1\text{ V}, V_R = 3\text{ V}, f = 1\text{ MHz}$	$C_{T1}/C_{T3}$	-	2.45	-	-
Capacitance ratio $V_R = 1\text{ V}, V_R = 4\text{ V}, f = 1\text{ MHz}$	$C_{T1}/C_{T4}$	3	3.7	4.5	
Series resistance $V_R = 1\text{ V}, f = 470\text{ MHz}$	$r_s$	-	0.3	-	$\Omega$
Case capacitance $f = 1\text{ MHz}$	$C_C$	-	0.09	-	pF
Series inductance chip to ground	$L_s$	-	0.6	-	nH

### Diode capacitance $C_T = f(V_R)$

$f = 1\text{MHz}$



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



### Normalized diode capacitance

$$C_{(T_A)} / C_{(25^\circ\text{C})} = f(T_A)$$

$f = 1\text{MHz}, V_R = \text{Parameter}$

