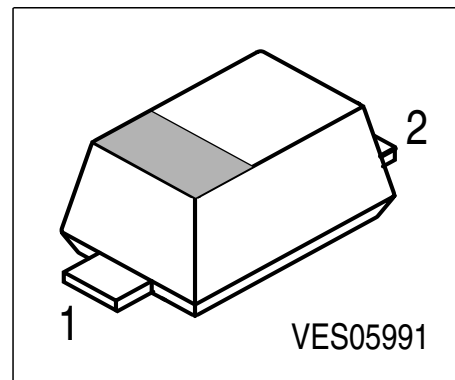


Silicon Tuning Diode

- For VHF 2-Band-hyperband-TV-tuners
- Very 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 689 unmached	E	1=C	2=A	SCD-80
BB 689 in-line matched	E	1 = C	2 = A	SCD-80

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	

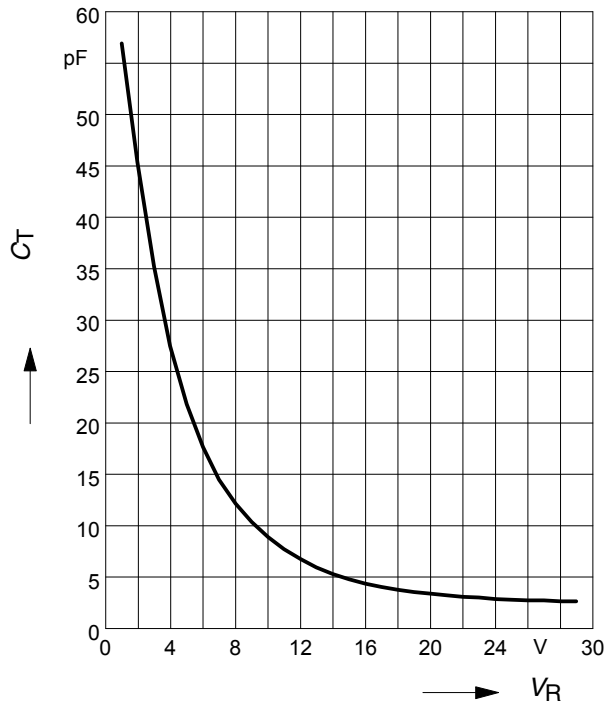
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified.

Parameter	Symbol	Values			Unit	
		min.	typ.	max.		
DC characteristics						
Reverse current $V_R = 30\text{ V}$	I_R	-	-	10	nA	
Reverse current $V_R = 30\text{ V}, T_A = 85\text{ }^{\circ}\text{C}$	I_R	-	-	200		
AC characteristics						
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	51 39.6 2.6 2.5	56.5 43.4 2.8 2.7	61.5 47.2 3 2.9	pF	
Capacitance ratio $V_R = 2\text{ V}, V_R = 25\text{ V}, f = 1\text{ MHz}$	C_{T2}/C_{T25}	14.5	15.5	17		-
Capacitance ratio $V_R = 1\text{ V}, V_R = 28\text{ V}, f = 1\text{ MHz}$	C_{T1}/C_{T28}	18	20.9	23.2		
Capacitance matching ¹⁾ $V_R = 1\text{ V}, V_R = 28\text{ V}, f = 1\text{ MHz}$	$\Delta C_T/C_T$	-	-	2		%
Series resistance $V_R = 8\text{ V}, f = 470\text{ MHz}$	r_s	-	0.85	-	Ω	
Series inductance chip to ground	L_s	-	0.6	-	nH	

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

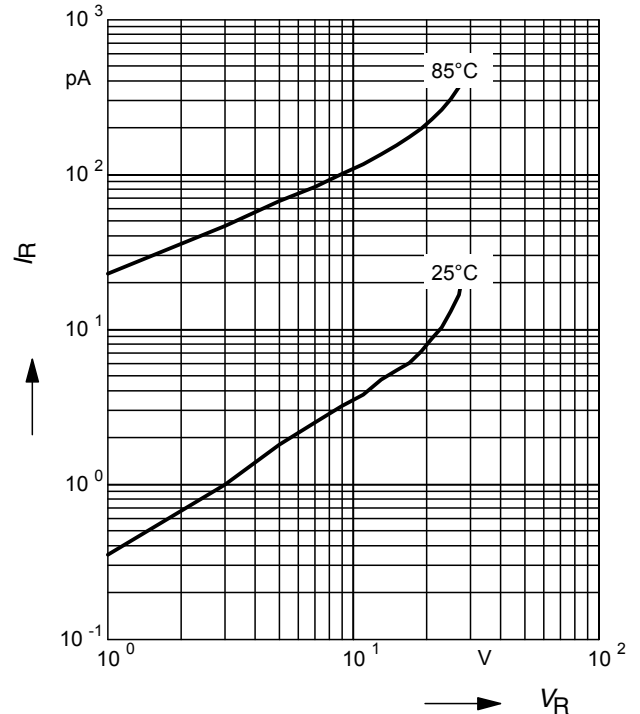
Diode capacitance $C_T = f(V_R)$

$f = 1\text{MHz}$



Reverse current $I_R = f(V_R)$

$T_A = \text{Parameter}$



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

