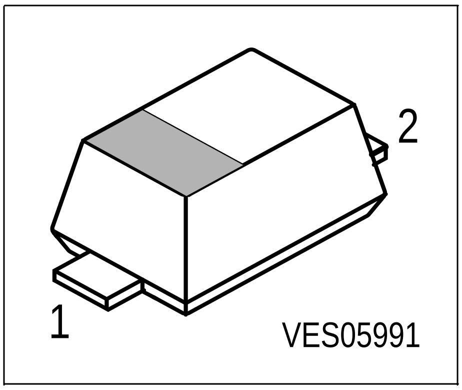
Silicon Tuning Diode

Preliminary data



- 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	Ordering Code		Pin Configuration		Package
BB 689	E	Q62702-B0886	unmached	1 = C	2 = A	SCD-80
BB 689	E	Q62702-B0890	in-line matched			

Maximum Ratings

Parameter	Symbol	Value	Unit
Diode reverse voltage	V_R	30	V
Peak reverse voltage ($R \geq 5\text{k}\Omega$)	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°C, unless otherwise specified.

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