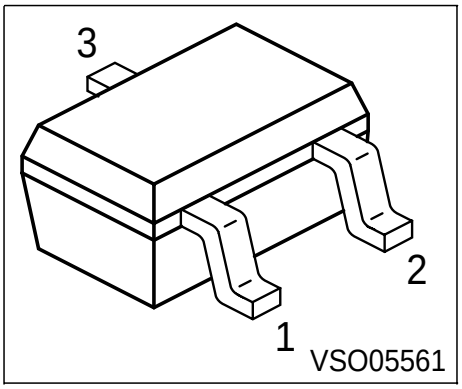
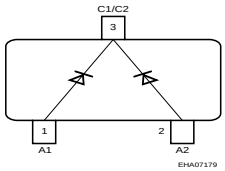
Silicon Tuning Diode

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 57-05W	D6s	Q62702-B933	1=A1	2=A2	3=C1/C2	SOT-323

Maximum Ratings

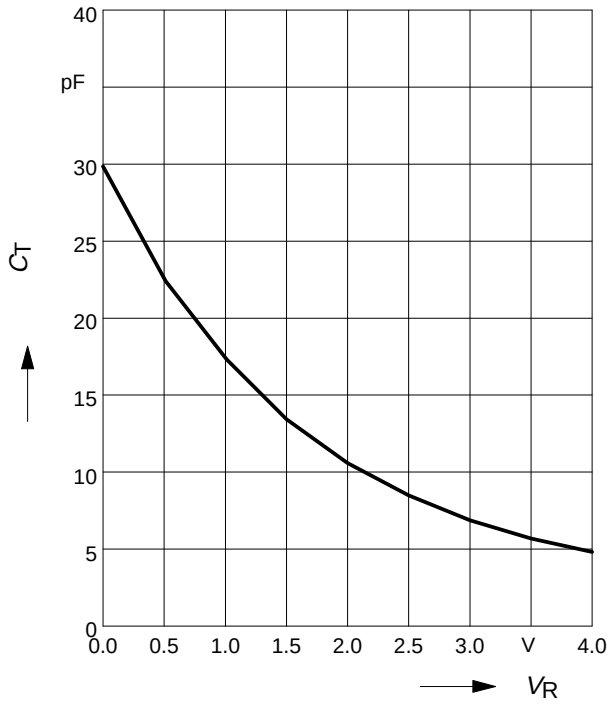
Parameter	Symbol	Value	Unit
Diode reverse voltage	V_R	10	V
Forward current	I_F	20	mA
Operating temperature range	T_{op}	-55 ... 150	°C
Storage temperature	T_{stg}	-55 ... 150	

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

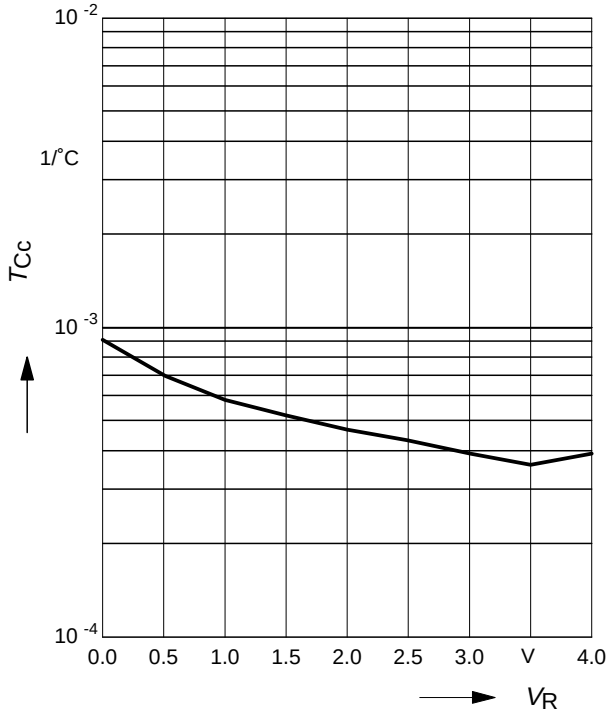
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC characteristics					
Reverse current V_R = 8 V	I_R	-	-	1	nA
Reverse current V_R = 8 V, T_A = 65 °C	I_R	-	-	100	
AC Characteristics					
Diode capacitance V_R = 1 V, f = 1 MHz V_R = 2.5 V, f = 1 MHz V_R = 3 V, f = 1 MHz V_R = 4 V, f = 1 MHz	C_T	 16.5 - - 4	 17.5 8.7 7.1 4.73	 18.6 - - 5.5	pF
Capacitance ratio V_R = 1 V, V_R = 3 V, f = 1 MHz	C_{T1}/C_{T3}	-	2.45	-	-
Capacitance ratio V_R = 1 V, V_R = 4 V, f = 1 MHz	C_{T1}/C_{T4}	3	3.7	4.5	
Series resistance V_R = 1 V, f = 470 MHz	r_s	-	0.3	-	Ω
Case capacitance f = 1 MHz	C_C	-	0.1	-	pF
Series inductance	L_s	-	1.4	-	nH

Diode capacitance $C_T = f(V_R)$

f = 1MHz



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



Normalized diode capacitance

$C_{(TA)} / C_{(25°C)} = f(T_A)$

f = 1MHz, V_R = Parameter