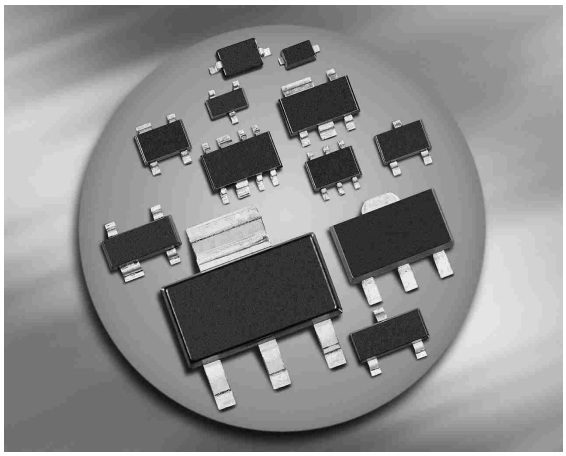
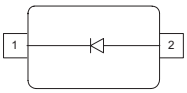
Silicon Variable Capacitance Diode

- For VHF tuned circuit applications
- High figure of merit



BB439



Type	Package	Configuration	L_S(nH)	Marking
BB439	SOD323	single	1.8	white 2

Maximum Ratings at T_A = 25°C, unless otherwise specified

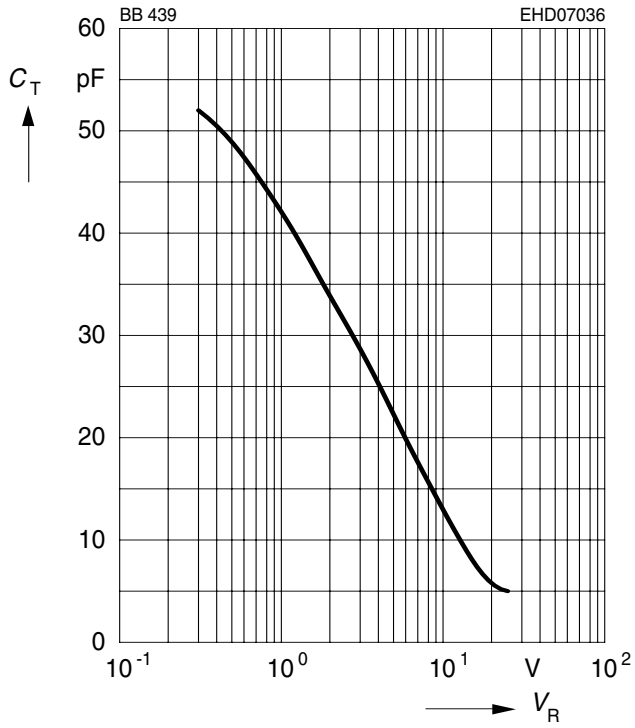
Parameter	Symbol	Value	Unit
Diode reverse voltage	V_R	28	V
Peak reverse voltage ($R \geq 5k\Omega$)	V_{RM}	30	
Forward current	I_F	20	mA
Operating temperature range	T_{op}	-55 ... 125	°C
Storage temperature	T_{stg}	-55 ... 150	

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Reverse current	I_R				nA
V_R = 28 V		-	-	20	
V_R = 28 V, T_A = 85 °C		-	-	200	
AC Characteristics					
Diode capacitance	C_T				pF
V_R = 1 V, f = 1 MHz		-	43	-	
V_R = 2 V, f = 1 MHz		31.5	34.5	37.5	
V_R = 3 V, f = 1 MHz		26.5	29	31.5	
V_R = 25 V, f = 1 MHz		4.3	5.1	6	
Capacitance ratio	C_{T2}/C_{T25}	6	6.9	8	
V_R = 2 V, V_R = 25 V, f = 1 MHz					
Capacitance ratio	C_{T3}/C_{T25}	5	5.8	6.5	
V_R = 3 V, V_R = 25 V, f = 1 MHz					
Capacitance matching[1)]	$\Delta C_T/C_T$	-	-	3	%
V_R = 3 V, V_R = 25 V, f = 1 MHz					
Series resistance	r_S	-	0.35	0.5	Ω
V_R = 10 V, f = 100 MHz					
Figure of merit	Q				
V_R = 3 V, f = 50 MHz		-	280	-	
V_R = 25 V, f = 200 MHz		-	600	-	

[1]For details please refer to Application Note 047.

Diode capacitance $C_T = f(V_R)$
f = 1MHz



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