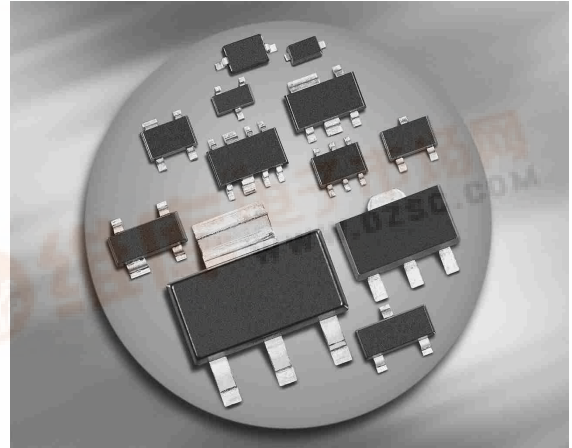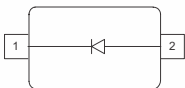**Infineon** technologies

BB639C/BB659C...

Silicon Variable Capacitance Diode

- For tuning of extended frequency band in VHF TV / VTR tuners
- High capacitance ratio
- Low series inductance
- Low series resistance
- Excellent uniformity and matching due to "in-line" matching assembly procedure

BB639C
BB659C/-02V

Type	Package	Configuration	L_S (nH)	Marking
BB639C	SOD323	single	1.8	yellow S
BB659C	SCD80	single	0.6	HH
BB659C-02V	SC79	single	0.6	H

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

Parameter	Symbol	Value	Unit
Diode reverse voltage	V_R	30	V
Peak reverse voltage (R $\geq$ 5kΩ)	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

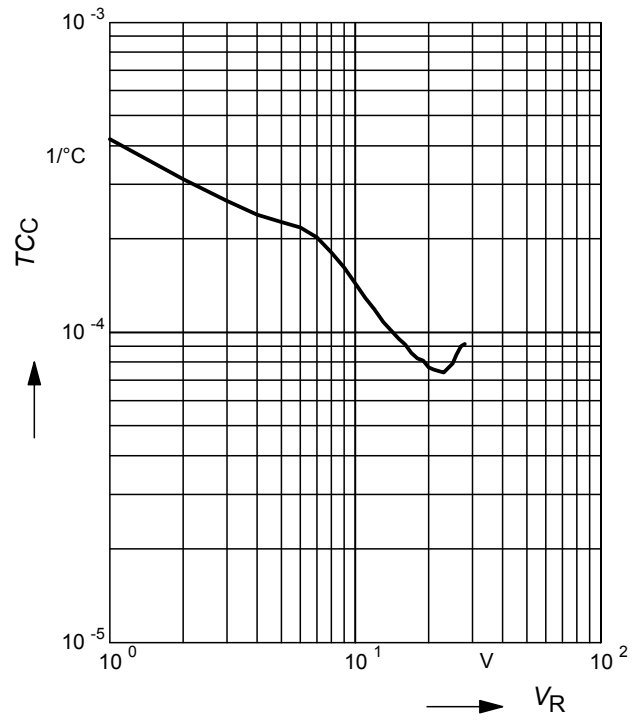| Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Reverse current V_R = 30 V V_R = 30 V, T_A = 85 °C	I_R	 - -	 - -	 10 200	nA
AC Characteristics					
Diode capacitance V_R = 1 V, f = 1 MHz V_R = 2 V, f = 1 MHz V_R = 25 V, f = 1 MHz V_R = 28 V, f = 1 MHz	C_T	 36.5 27 2.5 2.4	 39 30.2 2.72 2.55	 42 33.2 3.05 2.75	pF
Capacitance ratio V_R = 1 V, V_R = 28 V, f = 1 MHz	C_{T1}/C_{T28}	14.2	15.3	-	
Capacitance ratio V_R = 2 V, V_R = 25 V, f = 1 MHz	C_{T2}/C_{T25}	9.5	11.1	-	
Capacitance matching[1] V_R = 1V to 28V, f = 1 MHz, **7** diodes sequence, BB639C V_R = 1V to 28V , f = 1 MHz, **4** diodes sequence, BB659C/-02V V_R = 1V to 28V, f = 1 MHz, **7** diodes sequence , BB659C/-02V	$\Delta C_T/C_T$	 - - -	 - 0.3 0.5	 2.5 1 2	%
Series resistance V_R = 5 V, f = 470 MHz	r_S	-	0.6	0.7	Ω

[1]For details please refer to Application Note 047
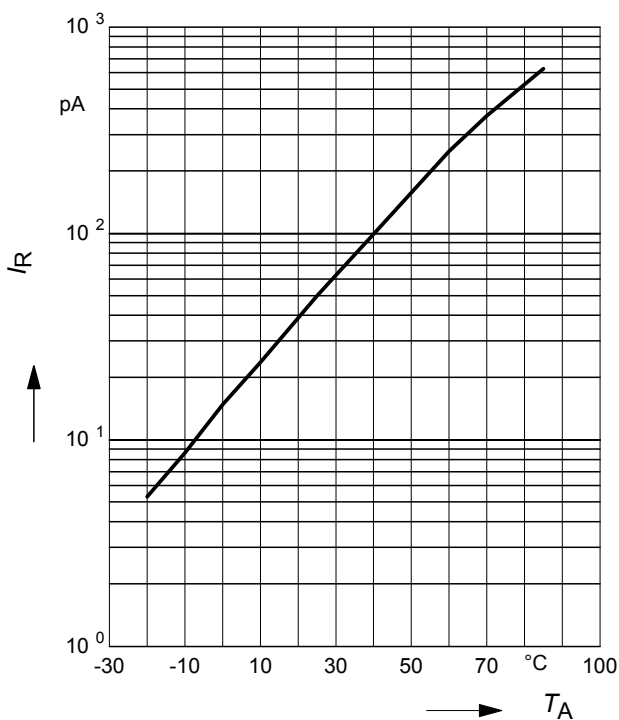
Diode capacitance $C_T = f(V_R)$

f = 1MHz

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

Reverse current $I_R = f(T_A)$

V_R = 28V

Reverse current $I_R = f(V_R)$

T_A = Parameter

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