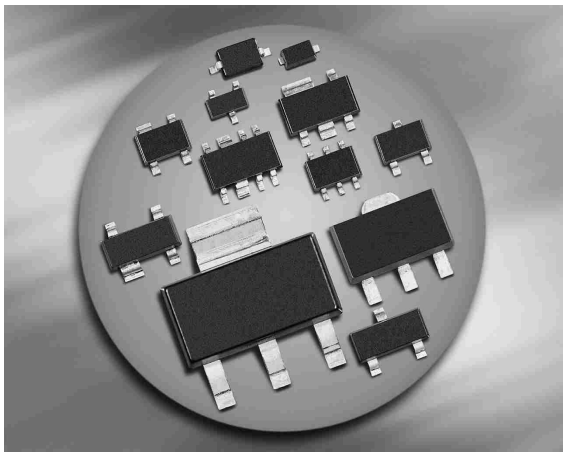
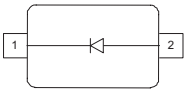
Silicon Variable Capacitance Diode

- Designed for tuning wideband CATV-Tuners
- High capacitance ratio C_{1V}/C_{28V} (typ. 18.3)
- Low series resistance
- Excellent uniformity and matching due to "in-line" matching assembly procedure



BB679-02V



Type	Package	Configuration	L_S (nH)	Marking
BB679-02V*	SC79	single	0.6	K

* Preliminary

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 ≥ 5kΩ)	V_{RM}	35	
Forward current	I_F	20	mA
Operating temperature range	T_{op}	-55 ... 125	°C
Storage temperature	T_{stg}	-55 ... 150	

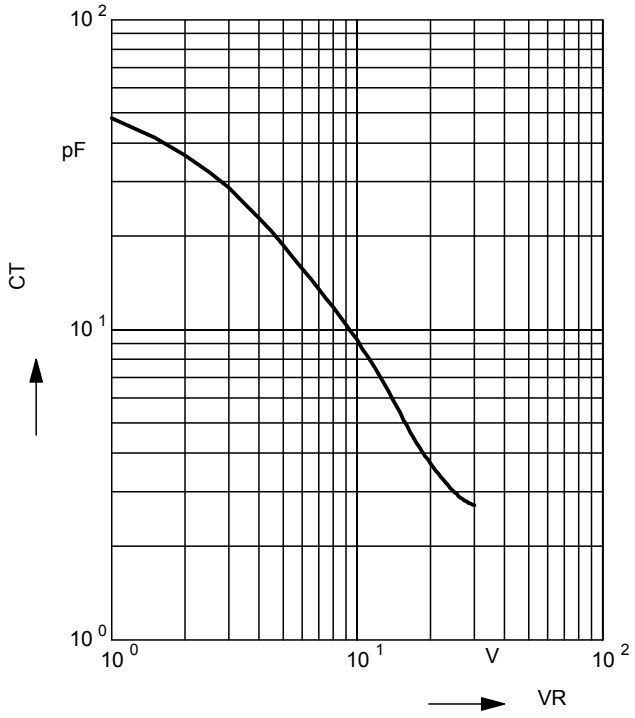
Electrical Characteristics at T_A = 25°C, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Reverse current	I_R				nA
V_R = 30 V		-	-	10	
V_R = 30 V, T_A = 85 °C		-	-	100	
AC Characteristics					
Diode capacitance	C_T				pF
V_R = 1 V, f = 1 MHz		43.5	47.5	51.5	
V_R = 2 V, f = 1 MHz		33	36	38.8	
V_R = 25 V, f = 1 MHz		2.55	2.75	2.95	
V_R = 28 V, f = 1 MHz		2.4	2.6	2.8	
Capacitance ratio	C_{T1}/C_{T28}	16.5	18.3	20	-
V_R = 1 V, V_R = 28 V, f = 1 MHz					
Capacitance ratio	C_{T2}/C_{T25}	12	13.1	14.5	
V_R = 2 V, V_R = 25 V, f = 1 MHz					
Capacitance matching[1)]	$\Delta C_T/C_T$	-	-	2	%
V_R = 1 V, V_R = 28 V, f = 1 MHz					
Series resistance	r_S	-	0.6	0.8	Ω
V_R = 5 V, f = 470 MHz					

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

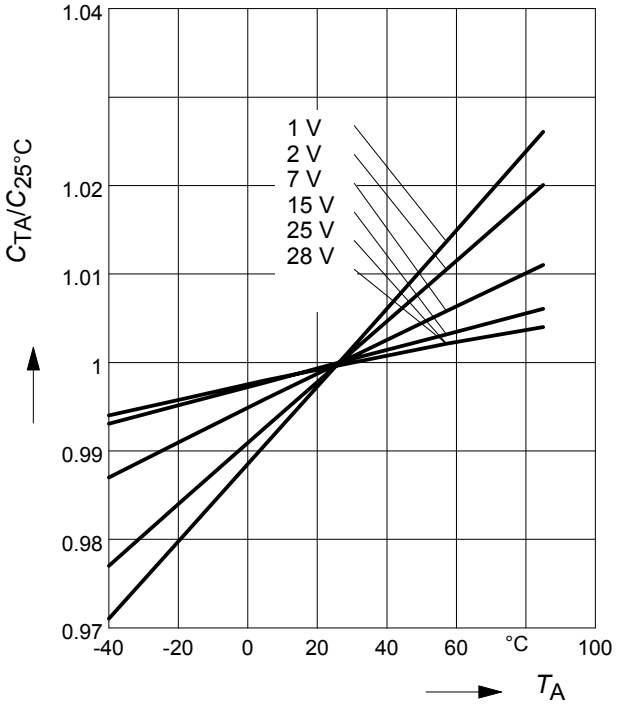
Diode capacitance $C_T = f(V_R)$

f = 1MHz

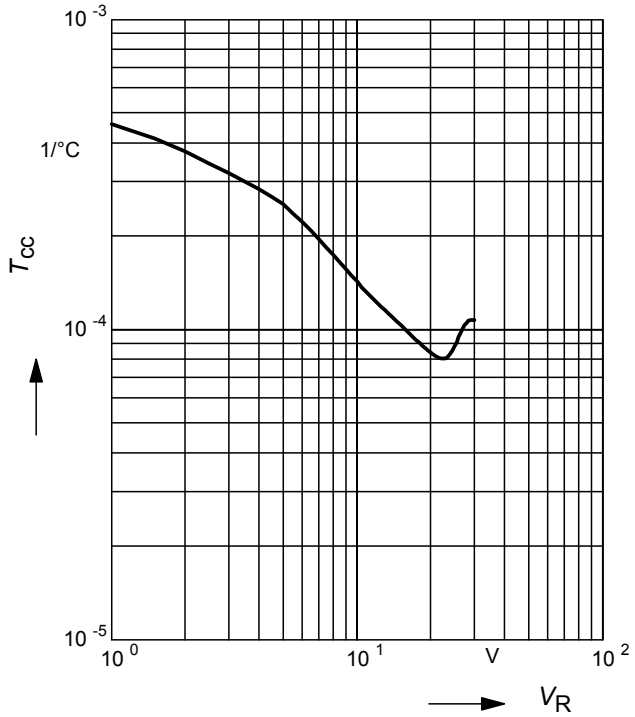


Normalized diode capacitance

$C_{(TA)}/C_{(25°C)} = f(T_A)$; f = 1MHz

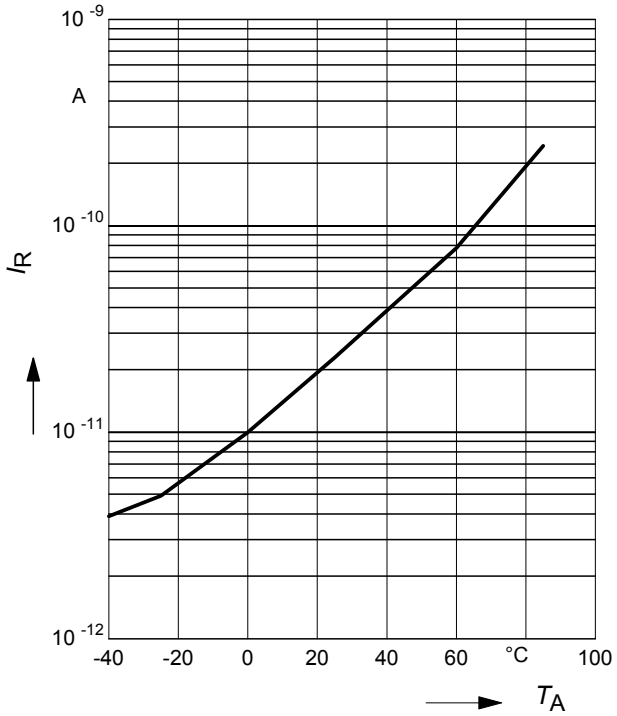


Temperature coefficient of the diode capacitance $T_{Cc} = f(V_R)$



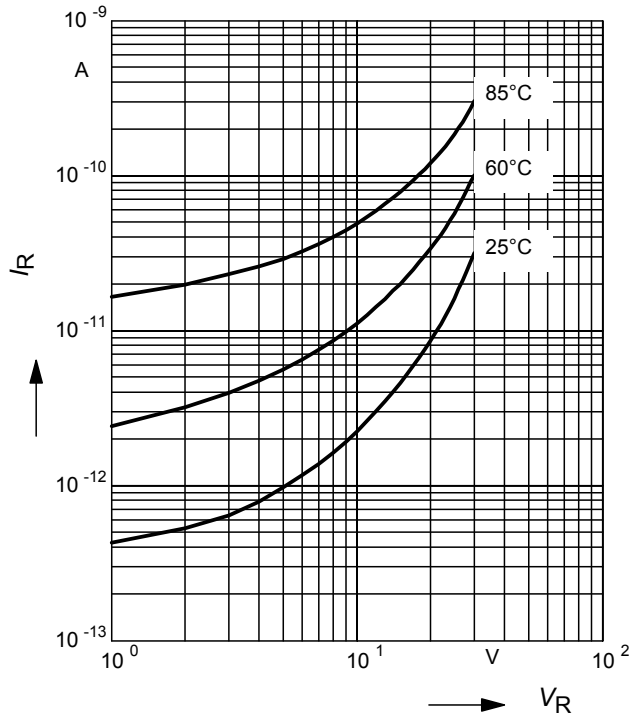
Reverse current $I_R = f(T_A)$

V_R = 28 V



Reverse current $I_R = f(V_R)$

T_A = Parameter



Reverse voltage $V_{BR} = f(T_A)$

I_R = 5µA