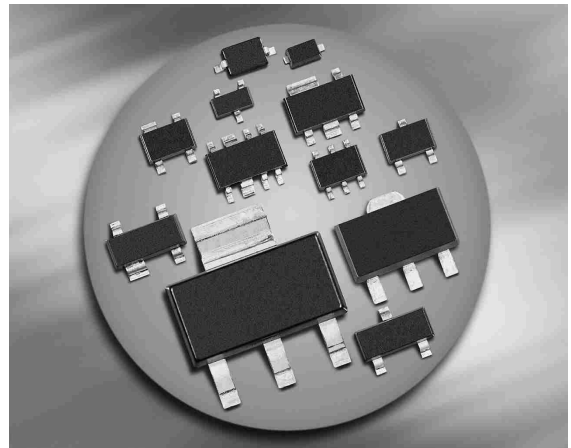
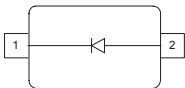


**Silicon Variable Capacitance Diode**

- For Hyperband TV / VTR tuners, Bd I


**BB640**


Type	Package	Configuration	$L_S$ (nH)	Marking
BB640	SOD323	single	1.8	red S

**Maximum Ratings** at  $T_A = 25^\circ\text{C}$ , unless otherwise specified

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	

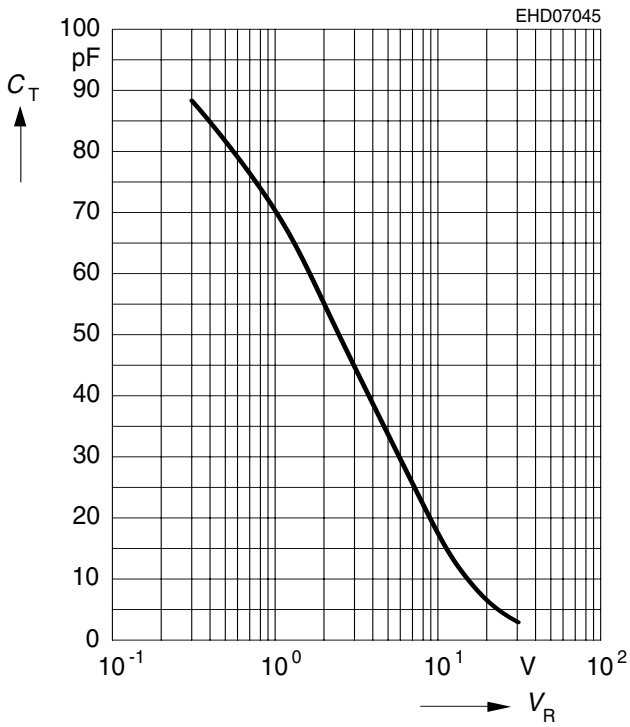
**Electrical Characteristics at  $T_A = 25^\circ\text{C}$ , unless otherwise specified**

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
<b>DC Characteristics</b>					
Reverse current $V_R = 30\text{ V}$ $V_R = 30\text{ V}, T_A = 85^\circ\text{C}$	$I_R$	- -	- -	10 200	nA
<b>AC Characteristics</b>					
Diode capacitance $V_R = 1\text{ V}, f = 1\text{ MHz}$ $V_R = 2\text{ V}, f = 1\text{ MHz}$ $V_R = 25\text{ V}, f = 1\text{ MHz}$ $V_R = 28\text{ V}, f = 1\text{ MHz}$	$C_T$	62 47.5 2.85 2.8	69 54.5 3.28 3.05	76 61.5 3.7 3.3	pF
Capacitance ratio $V_R = 1\text{ V}, V_R = 28\text{ V}, f = 1\text{ MHz}$	$C_{T1}/C_{T28}$	19.5	-	25	
Capacitance ratio $V_R = 2\text{ V}, V_R = 25\text{ V}, f = 1\text{ MHz}$	$C_{T2}/C_{T25}$	15	16.6	-	
Capacitance matching <sup>1)</sup> $V_R = 1\text{ V}, V_R = 28\text{ V}, f = 1\text{ MHz}$	$\Delta C_T/C_T$	-	-	2.5	%
Series resistance $C_T = 12\text{ pF}, f = 100\text{ MHz}$	$r_S$	-	1.15	-	$\Omega$

<sup>1</sup>For details please refer to Application Note 047.

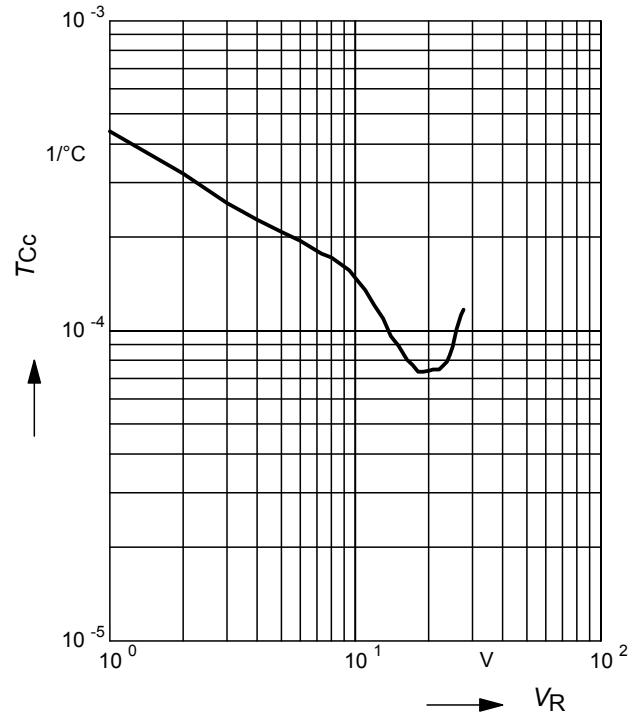
**Diode capacitance  $C_T = f(V_R)$**

$f = 1\text{MHz}$



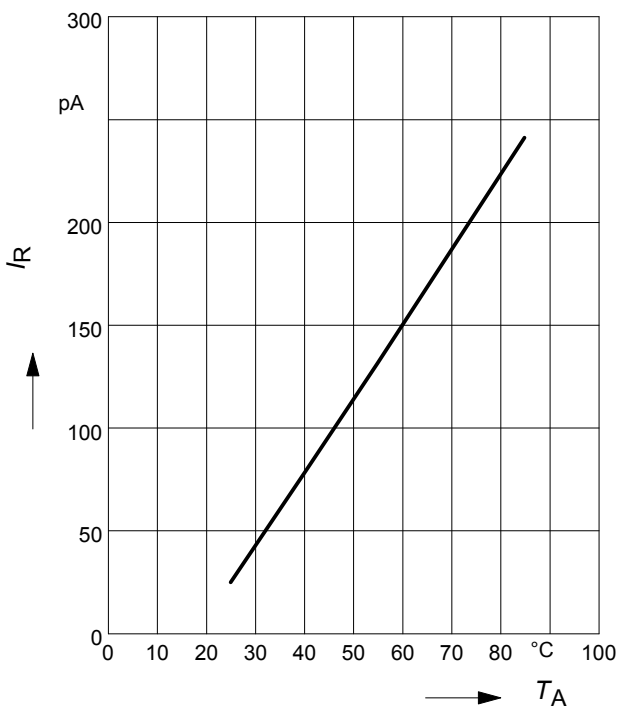
**Temperature coefficient of the diode capacitance  $T_{Cc} = f(V_R)$**

$T_{Cc} = f(V_R)$



**Reverse current  $I_R = f(T_A)$**

$V_R = 28\text{V}$



**Reverse current  $I_R = f(V_R)$**

$T_A = \text{Parameter}$

