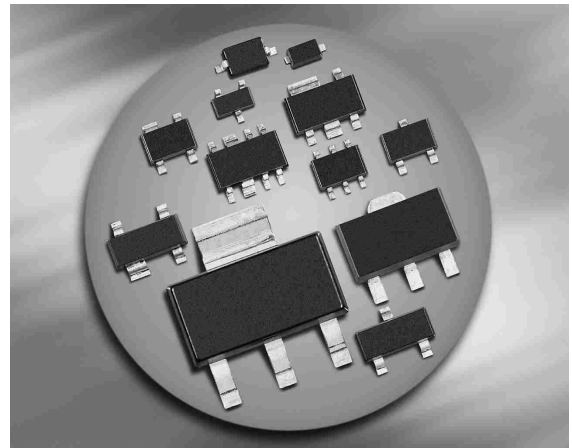
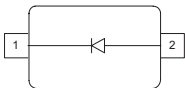


Silicon Variable Capacitance Diode

- 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 | |

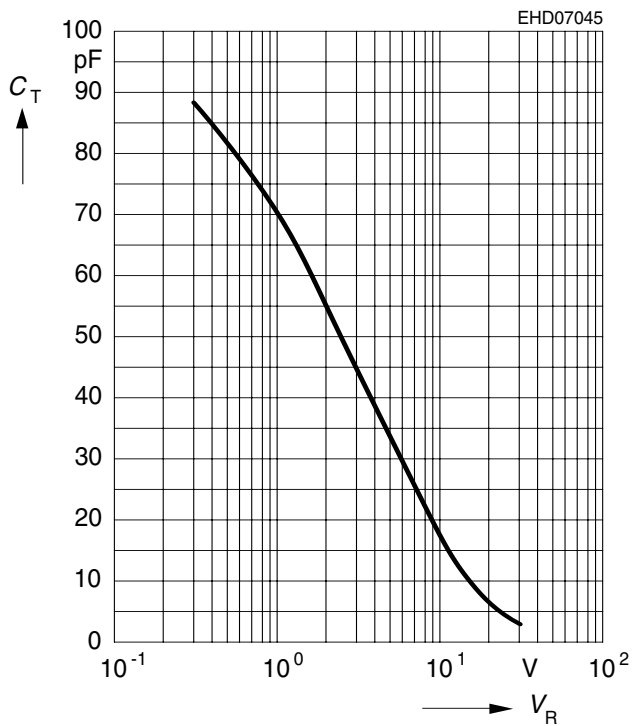
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

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

¹For details please refer to Application Note 047.

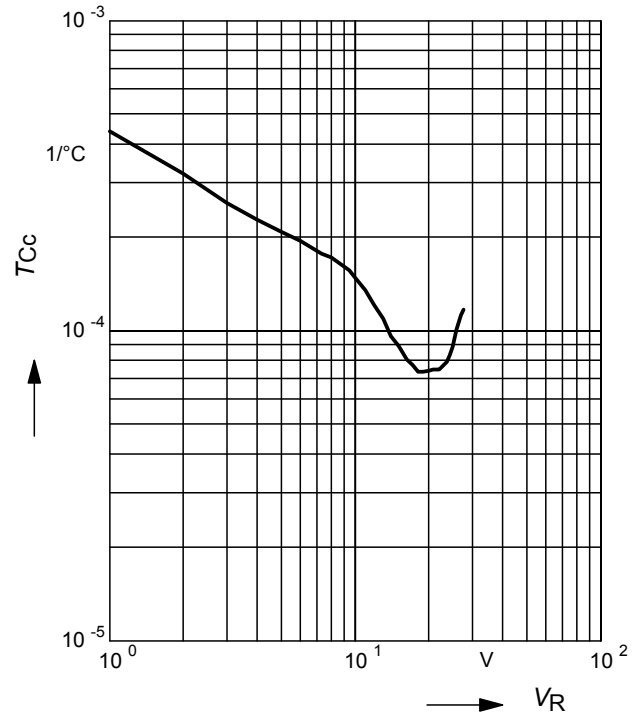
Diode capacitance $C_T = f(V_R)$

$f = 1\text{MHz}$



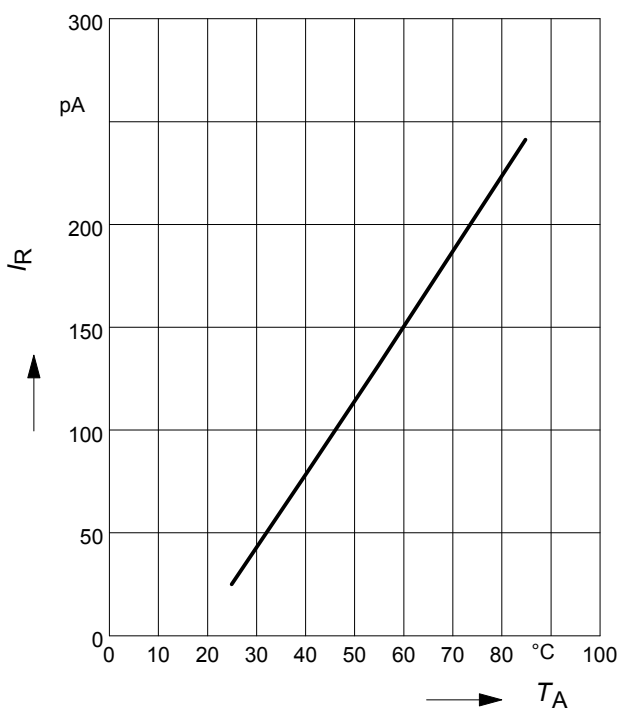
Temperature coefficient of the diode capacitance $T_{Cc} = f(V_R)$

$T_{Cc} = f(V_R)$



Reverse current $I_R = f(T_A)$

$V_R = 28\text{V}$



Reverse current $I_R = f(V_R)$

$T_A = \text{Parameter}$

