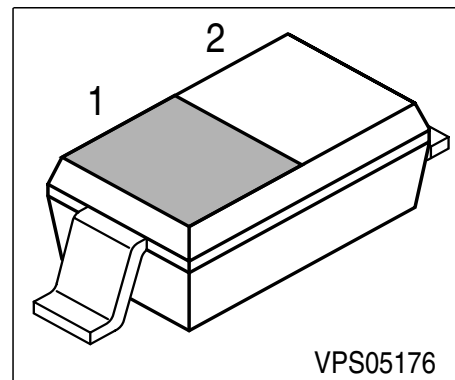


## Silicon Variable Capacitance Diode

- For VHF TV-tuners
- High capacitance ratio
- Low series inductance
- Low series resistance
- Extremely small plastic SMD package
- Excellent uniformity and matching due to "in-line" matching assembly procedure



| Type                 | Marking  | Pin Configuration |       | Package |
|----------------------|----------|-------------------|-------|---------|
| BB 644 group matched | yellow 4 | 1 = C             | 2 = A | SOD-323 |
| BB 644 unmatched     | yellow 4 | 1 = C             | 2 = A | SOD-323 |

### Maximum Ratings

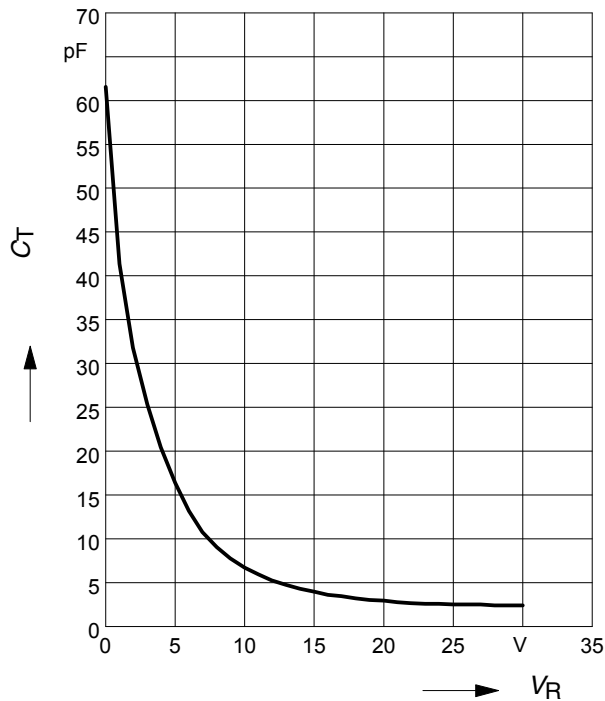
| Parameter                                  | Symbol    | Value       | Unit |
|--------------------------------------------|-----------|-------------|------|
| Diode reverse voltage                      | $V_R$     | 30          | V    |
| Peak reverse voltage ( $R \geq 5k\Omega$ ) | $V_{RM}$  | 35          |      |
| 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<br>$V_R = 30\text{ V}$                                                                                                                                                          | $I_R$            | -                        | -                            | 10                           | nA       |   |
| Reverse current<br>$V_R = 30\text{ V}$ , $T_A = 85\text{ }^{\circ}\text{C}$                                                                                                                     | $I_R$            | -                        | -                            | 100                          |          |   |
| AC characteristics                                                                                                                                                                              |                  |                          |                              |                              |          |   |
| Diode capacitance<br>$V_R = 1\text{ V}$ , $f = 1\text{ MHz}$<br>$V_R = 2\text{ V}$ , $f = 1\text{ MHz}$<br>$V_R = 25\text{ V}$ , $f = 1\text{ MHz}$<br>$V_R = 28\text{ V}$ , $f = 1\text{ MHz}$ | $C_T$            | 39<br>29.4<br>2.5<br>2.4 | 41.8<br>31.85<br>2.7<br>2.55 | 44.5<br>34.2<br>2.85<br>2.75 | pF       |   |
| Capacitance ratio<br>$V_R = 2\text{ V}$ , $V_R = 25\text{ V}$ , $f = 1\text{ MHz}$                                                                                                              | $C_{T2}/C_{T25}$ | 11                       | 11.8                         | 12.6                         |          | - |
| Capacitance ratio<br>$V_R = 1\text{ V}$ , $V_R = 28\text{ V}$ , $f = 1\text{ MHz}$                                                                                                              | $C_{T1}/C_{T28}$ | 15                       | 16.4                         | 17.8                         |          |   |
| Capacitance matching<br>$V_R = 1\text{ V}$ , $V_R = 28\text{ V}$ , $f = 1\text{ MHz}$                                                                                                           | $\Delta C_T/C_T$ | -                        | -                            | 2                            |          | % |
| Series resistance<br>$V_R = 5\text{ V}$ , $f = 470\text{ MHz}$                                                                                                                                  | $r_s$            | -                        | 0.6                          | 0.75                         | $\Omega$ |   |
| Series inductance                                                                                                                                                                               | $L_s$            | -                        | 1.8                          | -                            | nH       |   |

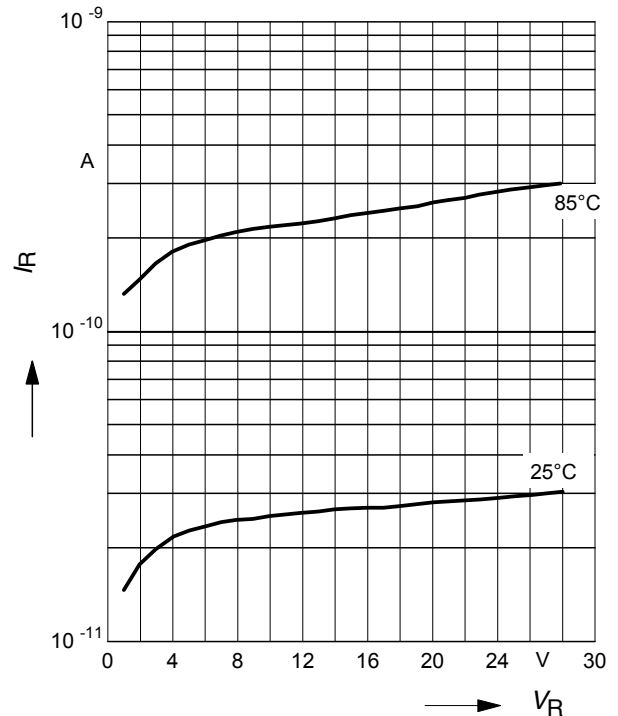
**Diode capacitance**  $C_T = f(V_R)$

$f = 1\text{MHz}$



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

$T_A = \text{Parameter}$



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

