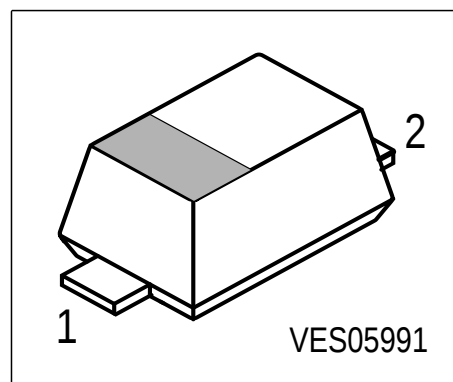


### Silicon Variable Capacitance Diode

#### Preliminary data

- 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 | Ordering Code                    | Pin Configuration |     | Package |
|--------|---------|----------------------------------|-------------------|-----|---------|
| BB 664 | 4       | Q62702- B0909 (unmatched)        | 1=C               | 2=A | SCD-80  |
| BB 664 | 4       | Q62702- B0908 (in-lined matched) |                   |     |         |

#### 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... ...+125 | °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                         | 12.5                         |          |
| Capacitance ratio<br>$V_R = 1\text{ V}, V_R = 28\text{ V}, f = 1\text{ MHz}$                                                                                                        | $C_{T1}/C_{T28}$ | 15.2                     | 16.4                         | 17.5                         | -        |
| Capacitance ratio <sup>1)</sup><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                                                                                                                                                                   | $L_s$            | -                        | 0.6                          | -                            | nH       |

1) In-line matching. For details please refer to Application Note 047

Diode capacitance  $C_T = f(V_R)$

$f = 1\text{MHz}$

