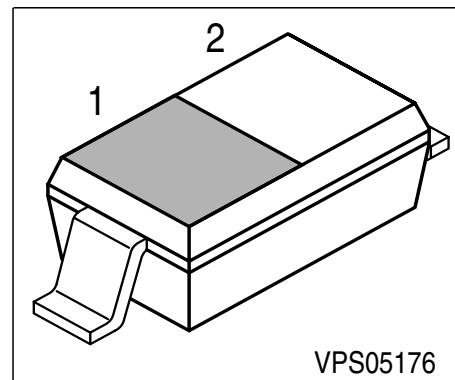


## Silicon Tuning Diode

- Extended frequency range up to 2.8 GHz  
special design for use in TV-sat indoor units
- High capacitance ratio



VPS05176

| Type   | Marking  | Pin Configuration |       | Package |
|--------|----------|-------------------|-------|---------|
| BB 835 | yellow X | 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 |      |

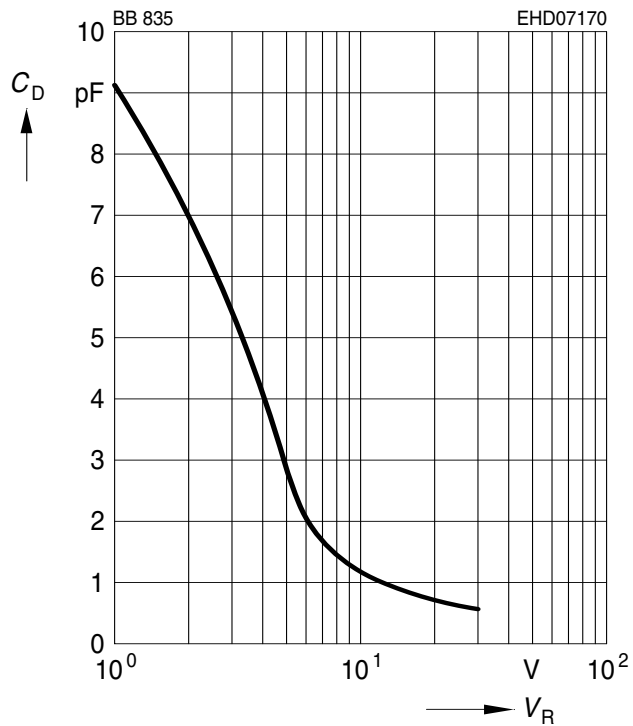
**Electrical Characteristics** at  $T_A = 25^\circ\text{C}$ , unless otherwise specified.

| Parameter                                                                                          | Symbol           | Values     |             |            | Unit     |
|----------------------------------------------------------------------------------------------------|------------------|------------|-------------|------------|----------|
|                                                                                                    |                  | min.       | typ.        | max.       |          |
| DC characteristics                                                                                 |                  |            |             |            |          |
| Reverse current<br>$V_R = 30\text{ V}$                                                             | $I_R$            | -          | -           | 10         | nA       |
| Reverse current<br>$V_R = 30\text{ V}, T_A = 85\text{ }^{\circ}\text{C}$                           | $I_R$            | -          | -           | 200        |          |
| AC characteristics                                                                                 |                  |            |             |            |          |
| Diode capacitance<br>$V_R = 1\text{ V}, f = 1\text{ MHz}$<br>$V_R = 28\text{ V}, f = 1\text{ MHz}$ | $C_T$            | 8.5<br>0.5 | 9.1<br>0.62 | 10<br>0.75 | pF       |
| Capacitance ratio<br>$V_R = 1\text{ V}, V_R = 28\text{ V}, f = 1\text{ MHz}$                       | $C_{T1}/C_{T28}$ | 13.5       | 14.7        | -          |          |
| Capacitance matching<br>$V_R = 1\text{ V}, V_R = 28\text{ V}, f = 1\text{ MHz}$                    | $\Delta C_T/C_T$ | -          | -           | 3          | %        |
| Series resistance<br>$V_R = 1\text{ V}, f = 470\text{ MHz}$                                        | $r_s$            | -          | 2.4         | -          | $\Omega$ |
| Series inductance                                                                                  | $L_s$            | -          | 1.8         | -          | nH       |

1) In-line matching. 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  $T_{Cc} = f(V_R)$**

