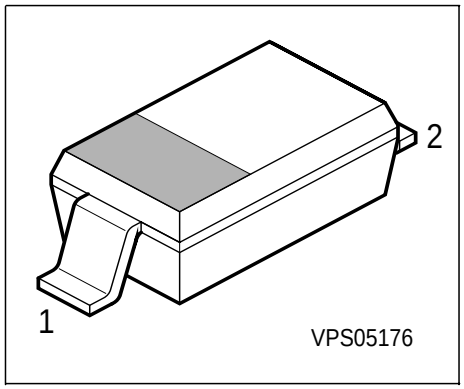
**Silicon Tuning Diode**

**Preliminary data**




- Excellent linearity
- High Q hyperabrupt tuning diode
- Low series inductance
- Designed for low tuning voltage operation for VCO's in mobile communications equipment
- For low frequency control elements such as TCXOs and VCXOs
- Very low capacitance spread

| Type | Marking | Ordering Code | Pin Configuration | | Package |
|---|---|---|---|---|---|
| BBY 58-03W | 8 cathd.yellow | Q62702-B912 | 1 = C | 2 = A | SOD-323 |

**Maximum Ratings**

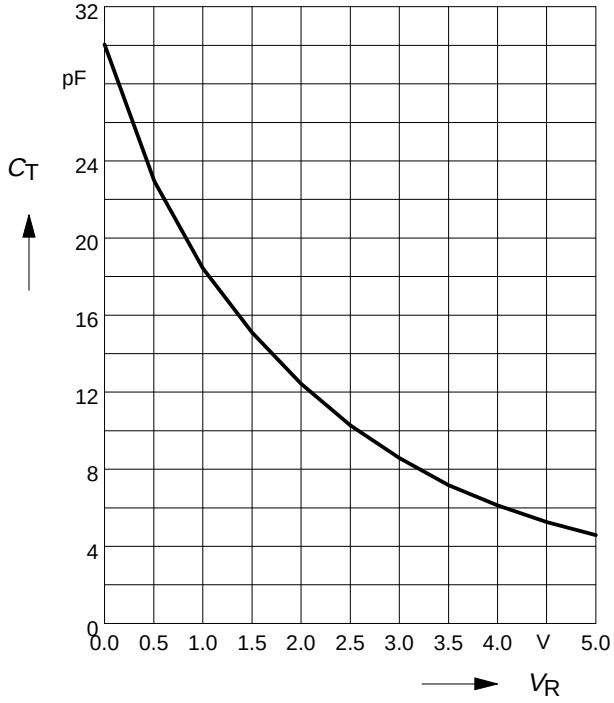
| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Diode reverse voltage | $V_R$ | 10 | V |
| Forward current | $I_F$ | 20 | mA |
| Operating temperature range | $T_{op}$ | -55 ...+150 | °C |
| Storage temperature | $T_{stg}$ | -55 ...+150 | |

**Electrical Characteristics** at $T_A$ = 25°C, unless otherwise specified.

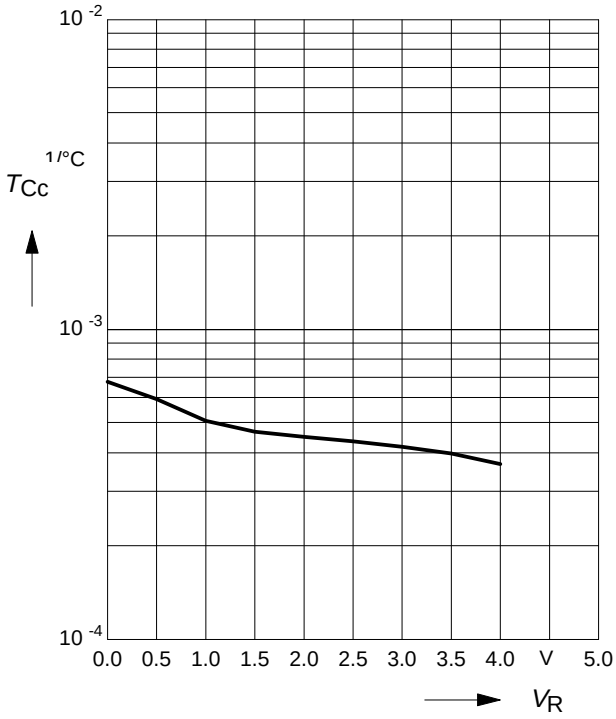
| Parameter | Symbol | Values | | | Unit |
|---|---|---|---|---|---|
| | | min. | typ. | max. | |
| **DC characteristics** | | | | | |
| Reverse current<br>$V_R$ = 8 V | $I_R$ | - | - | 1 | nA |
| Reverse current<br>$V_R$ = 8 V, $T_A$ = 65 °C | $I_R$ | - | - | 100 | |
| **AC characteristics** | | | | | |
| Diode capacitance | $C_T$ | | | | pF |
| $V_R$ = 1 V, $f$ = 1 MHz | | 17.5 | 18.3 | 19.3 | |
| $V_R$ = 2 V, $f$ = 1 MHz | | - | 12.35 | - | |
| $V_R$ = 3 V, $f$ = 1 MHz | | - | 8.6 | - | |
| $V_R$ = 4 V, $f$ = 1 MHz | | 5.5 | 6 | 6.6 | |
| Capacitance ratio<br>$V_R$ = 1 V, $V_R$ = 3 V, $f$ = 1 MHz | $C_{T1}/C_{T3}$ | - | 2.15 | - | - |
| Capacitance ratio<br>$V_R$ = 1 V, $V_R$ = 4 V, $f$ = 1 MHz | $C_{T1}/C_{T4}$ | 2.8 | 3.05 | 3.3 | |
| Series resistance<br>$V_R$ = 1 V, $f$ = 470 MHz | $r_s$ | - | 0.25 | - | Ω |
| Case capacitance<br>$f$ = 1 MHz | $C_C$ | - | 0.09 | - | pF |
| Series inductance chip to ground | $L_s$ | - | 0.6 | - | nH |

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

$f$ = 1MHz




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




**Normalized diode capacitance**

$C_{(TA)} / C_{(25°C)} = f(T_A)$

$f$ = 1MHz, $V_R$ = Parameter

