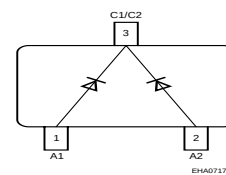
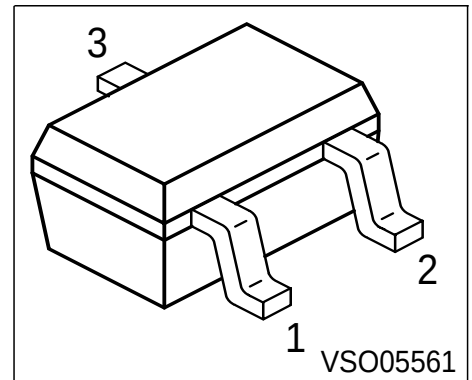


## Silicon Tuning Diode

- Excellent linearity
- High Q hyperabrupt tuning diode
- Low series inductance
- Designed for low tuning voltage operation for VCO's in mobile communications equipment
- Very low capacitance spread



| Type      | Marking | Pin Configuration |      |         | Package |
|-----------|---------|-------------------|------|---------|---------|
| BBY55-05W | C5s     | 1=A1              | 2=A2 | 3=C1/C2 | SOT323  |

### Maximum Ratings

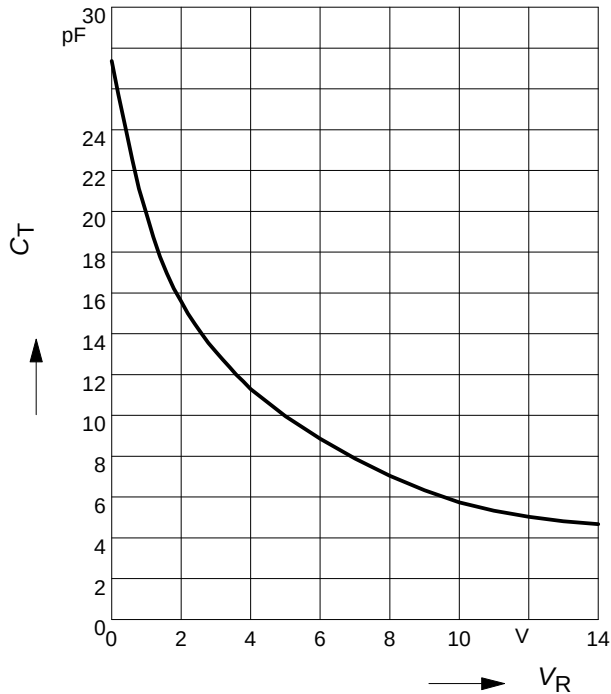
| Parameter                   | Symbol    | Value       | Unit |
|-----------------------------|-----------|-------------|------|
| Diode reverse voltage       | $V_R$     | 16          | V    |
| Forward current             | $I_F$     | 20          | mA   |
| Operating temperature range | $T_{op}$  | -55 ... 150 | °C   |
| Storage temperature         | $T_{stg}$ | -55 ... 150 |      |

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

| Parameter                                                                                                                                  | Symbol           | Values          |               |                 | Unit |          |
|--------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------------|---------------|-----------------|------|----------|
|                                                                                                                                            |                  | min.            | typ.          | max.            |      |          |
| DC characteristics                                                                                                                         |                  |                 |               |                 |      |          |
| Reverse current<br>$V_R = 15\text{ V}$                                                                                                     | $I_R$            | -               | -             | 3               | nA   |          |
| Reverse current<br>$V_R = 15\text{ V}, T_A = 65\text{ }^{\circ}\text{C}$                                                                   | $I_R$            | -               | -             | 100             |      |          |
| AC Characteristics                                                                                                                         |                  |                 |               |                 |      |          |
| Diode capacitance<br>$V_R = 2\text{ V}, f = 1\text{ MHz}$<br>$V_R = 4\text{ V}, f = 1\text{ MHz}$<br>$V_R = 10\text{ V}, f = 1\text{ MHz}$ | $C_T$            | 14<br>10<br>5.5 | 15<br>11<br>6 | 16<br>12<br>6.5 | pF   |          |
| Capacitance ratio<br>$V_R = 2\text{ V}, V_R = 10\text{ V}, f = 1\text{ MHz}$                                                               | $C_{T2}/C_{T10}$ | 2               | 2.5           | 3               |      |          |
| Series resistance<br>$V_R = 5\text{ V}, f = 470\text{ MHz}$                                                                                | $r_s$            | -               | 0.15          | 0.4             |      | $\Omega$ |
| Case capacitance<br>$f = 1\text{ MHz}$                                                                                                     | $C_C$            | -               | 0.1           | -               |      | pF       |
| Series inductance                                                                                                                          | $L_s$            | -               | 1.4           | -               | nH   |          |

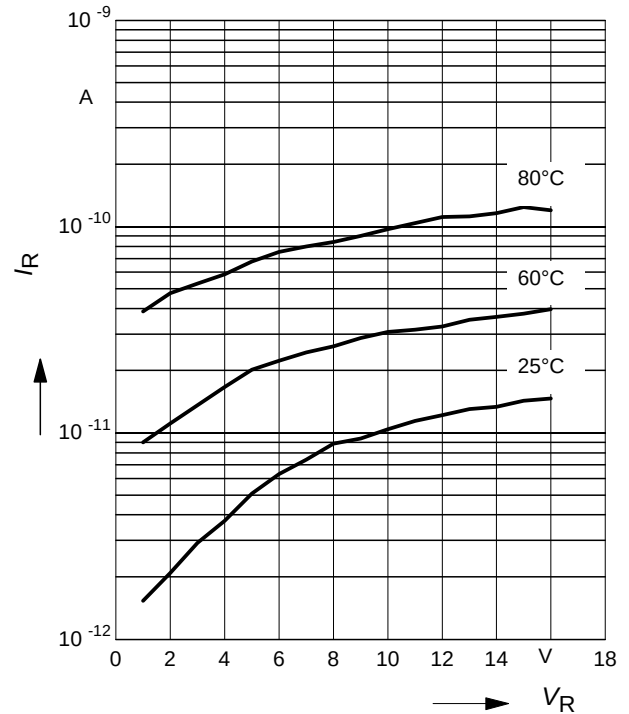
**Diode capacitance  $C_T = f(V_R)$**

$f = 1\text{ MHz}$



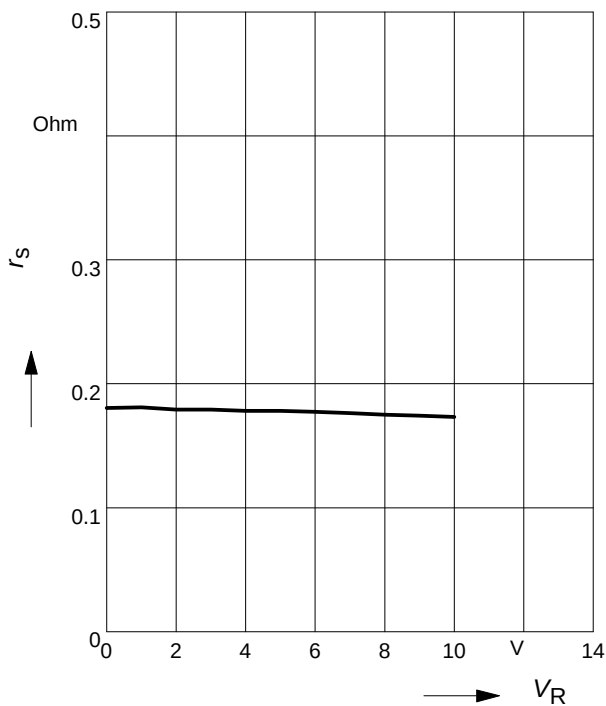
**Reverse current  $I_R = f(V_R)$**

$T_A = \text{Parameter}$



**Series resistance  $r_s = f(V_R)$**

$f = 470\text{ MHz}$



**Capacitance change  $\Delta C = f(T_A)$**

$f = 1\text{ MHz}$

