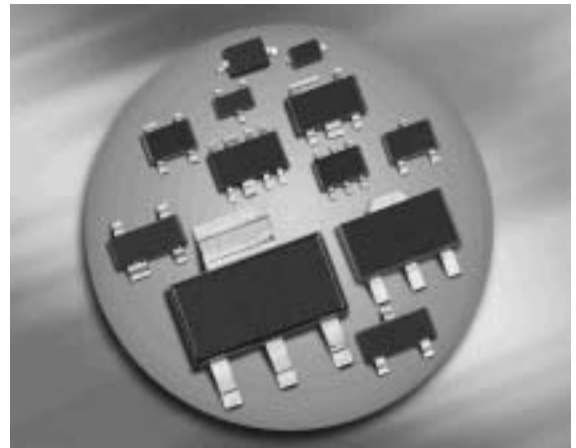
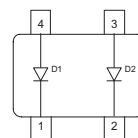
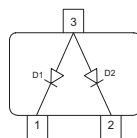
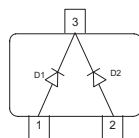
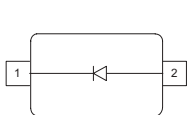


## Silicon Tuning Diodes

- Excellent linearity
- High Q hyperabrupt tuning diode
- Low series resistance
- 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


**BBY58-02L/V**
**BBY58-05W**
**BBY58-06W**
**BBY58-07L4**
**BBY58-02W**
**BBY58-03W**


| Type        | Package  | Configuration           | $L_S$ (nH) | Marking |
|-------------|----------|-------------------------|------------|---------|
| BBY58-02L*  | TSLP-2-1 | single, leadless        | 0.4        | 88      |
| BBY58-02V   | SC79     | single                  | 0.6        | 8       |
| BBY58-02W   | SCD80    | single                  | 0.6        | 88      |
| BBY58-03W   | SOD323   | single                  | 0.6        | 8 yel.  |
| BBY58-05W   | SOT323   | common cathode          | 1.4        | B5s     |
| BBY58-06W   | SOT323   | common anode            | 1.4        | B6s     |
| BBY58-07L4* | TSLP-4-4 | parallel pair, leadless | 0.4        | B8      |

\*Preliminary

**Maximum Ratings** at  $T_A = 25^\circ\text{C}$ , unless otherwise specified

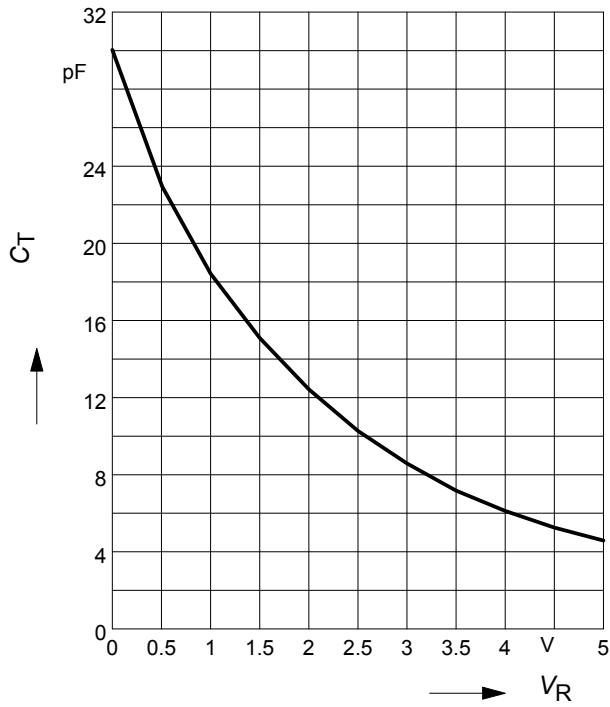
| Parameter                   | Symbol    | Value       | Unit             |
|-----------------------------|-----------|-------------|------------------|
| Diode reverse voltage       | $V_R$     | 10          | V                |
| Forward current             | $I_F$     | 20          | mA               |
| Operating temperature range | $T_{op}$  | -55 ... 150 | $^\circ\text{C}$ |
| 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                                                 | $I_R$           |        |       |      | nA       |
| $V_R = 8\text{ V}$                                              |                 | -      | -     | 10   |          |
| $V_R = 8\text{ V}, T_A = 85\text{ }^{\circ}\text{C}$            |                 | -      | -     | 100  |          |
| AC Characteristics                                              |                 |        |       |      |          |
| Diode capacitance                                               | $C_T$           |        |       |      | pF       |
| $V_R = 1\text{ V}, f = 1\text{ MHz}$                            |                 | 17.5   | 18.3  | 19.3 |          |
| $V_R = 2\text{ V}, f = 1\text{ MHz}$                            |                 | 11.4   | 12.35 | 13.3 |          |
| $V_R = 3\text{ V}, f = 1\text{ MHz}$                            |                 | 7.8    | 8.6   | 9.3  |          |
| $V_R = 4\text{ V}, f = 1\text{ MHz}$                            |                 | 5.5    | 6     | 6.6  |          |
| $V_R = 6\text{ V}, f = 1\text{ MHz}$                            |                 | 3.8    | 4.7   | 5.5  |          |
| Capacitance ratio                                               | $C_{T1}/C_{T3}$ | 1.9    | 2.15  | 2.4  | -        |
| $V_R = 1\text{ V}, V_R = 3\text{ V}, f = 1\text{ MHz}$          |                 |        |       |      |          |
| Capacitance ratio                                               | $C_{T1}/C_{T4}$ | 2.7    | 3.05  | 3.5  |          |
| $V_R = 1\text{ V}, V_R = 4\text{ V}, f = 1\text{ MHz}$          |                 |        |       |      |          |
| Capacitance ratio                                               | $C_{T4}/C_{T6}$ | 1.15   | 1.3   | 1.45 |          |
| $V_R = 4\text{ V}, V_R = 6\text{ V}, f = 1\text{ MHz}$          |                 |        |       |      |          |
| Series resistance                                               | $r_S$           |        |       |      | $\Omega$ |
| $V_R = 1\text{ V}, f = 470\text{ MHz}, \text{BBY58-02L, -07L4}$ |                 | -      | 0.3   | -    |          |
| $V_R = 1\text{ V}, f = 470\text{ MHz}, \text{all other}$        |                 | -      | 0.25  | -    |          |

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

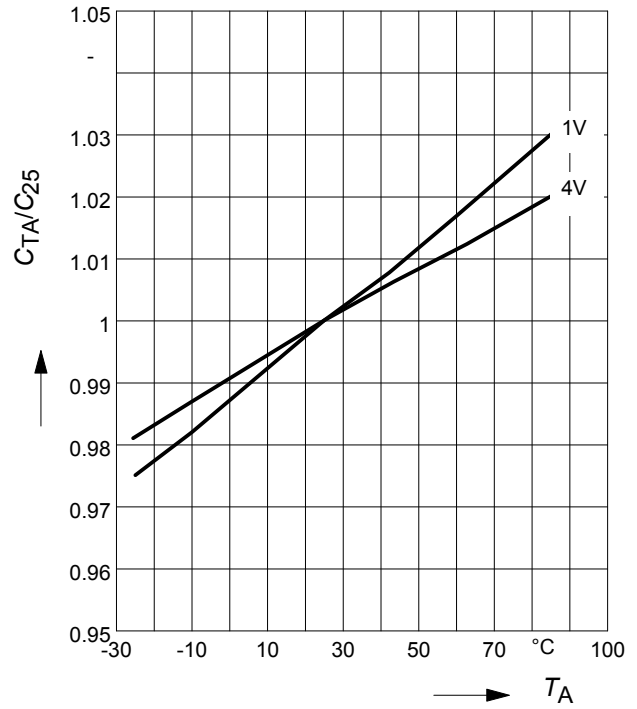
$f = 1\text{MHz}$



### Normalized diode capacitance

$$C_{(T_A)}/C_{(25^\circ\text{C})} = f(T_A)$$

$f = 1\text{MHz}, V_R = \text{Parameter}$



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

