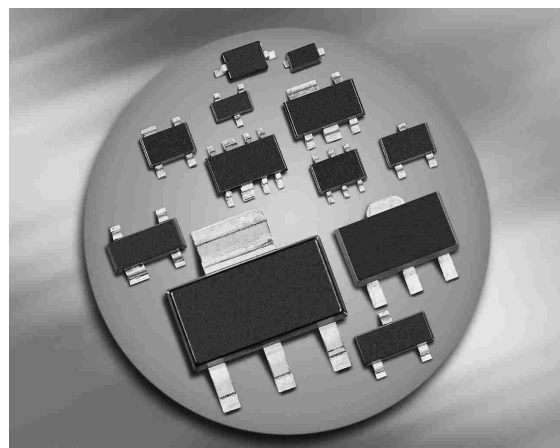
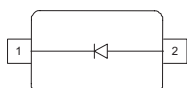


## Silicon RF Switching Diode

- For band switching in TV/VTR tuners and mobile applications
- Very low forward resistance (typ.  $0.45 \Omega$  @ 3 mA)
- small capacitance



**BA592**  
**BA892/-02L**  
**BA892-02V**



| Type      | Package  | Configuration    | $L_S$ (nH) | Marking |
|-----------|----------|------------------|------------|---------|
| BA592     | SOD323   | single           | 1.8        | blue S  |
| BA892     | SCD80    | single           | 0.6        | AA      |
| BA892-02L | TSLP-2-1 | single, leadless | 0.4        | AA      |
| BA892-02V | SC79     | single           | 0.6        | A       |

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

| Parameter                   | Symbol    | Value       | Unit             |
|-----------------------------|-----------|-------------|------------------|
| Diode reverse voltage       | $V_R$     | 35          | V                |
| Forward current             | $I_F$     | 100         | mA               |
| Junction temperature        | $T_j$     | 150         | $^\circ\text{C}$ |
| Operating temperature range | $T_{op}$  | -55 ... 125 |                  |
| Storage temperature         | $T_{stg}$ | -55 ... 150 |                  |

## Thermal Resistance

| Parameter                                | Symbol     | Value      | Unit |
|------------------------------------------|------------|------------|------|
| Junction - soldering point <sup>1)</sup> | $R_{thJS}$ |            | K/W  |
| BA592                                    |            | $\leq 135$ |      |
| BA892, BA892-02V                         |            | $\leq 120$ |      |
| BA892-02L                                |            | $\leq 70$  |      |

<sup>1)</sup>For calculation of  $R_{thJA}$  please refer to Application Note Thermal Resistance

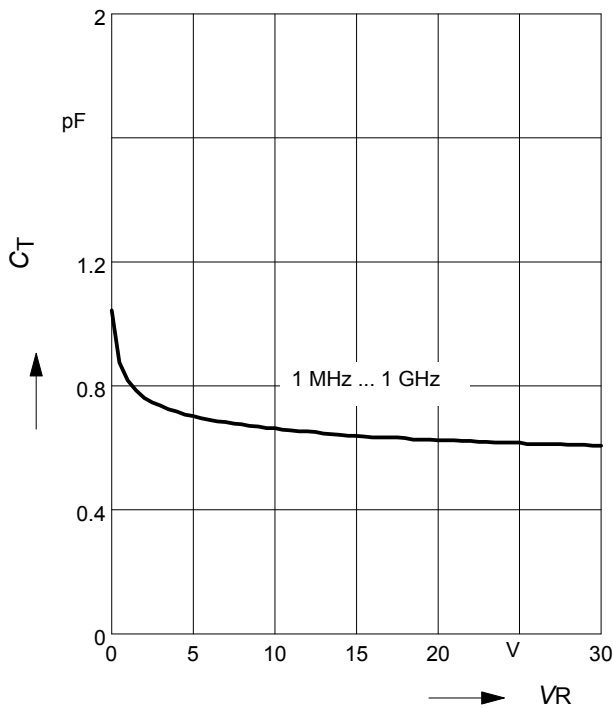
**Electrical Characteristics at  $T_A = 25^\circ\text{C}$ , unless otherwise specified**

| Parameter                                                                                                                                                  | Symbol       | Values           |                        |                 | Unit |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------------|------------------------|-----------------|------|
|                                                                                                                                                            |              | min.             | typ.                   | max.            |      |
| DC Characteristics                                                                                                                                         |              |                  |                        |                 |      |
| Reverse current<br>$V_R = 20\text{ V}$                                                                                                                     | $I_R$        | -                | -                      | 20              | nA   |
| Forward voltage<br>$I_F = 100\text{ mA}$                                                                                                                   | $V_F$        | -                | -                      | 1               | V    |
| AC Characteristics                                                                                                                                         |              |                  |                        |                 |      |
| Diode capacitance<br>$V_R = 1\text{ V}, f = 1\text{ MHz}$<br>$V_R = 3\text{ V}, f = 1\text{ MHz}$<br>$V_R = 0\text{ V}, f = 100\text{ MHz}$                | $C_T$        | 0.65<br>0.6<br>- | 0.92<br>0.85<br>1      | 1.4<br>1.1<br>- | pF   |
| Reverse parallel resistance<br>$V_R = 0\text{ V}, f = 100\text{ MHz}$                                                                                      | $R_P$        | -                | 100                    | -               | kΩ   |
| Forward resistance<br>$I_F = 3\text{ mA}, f = 100\text{ MHz}$<br>$I_F = 10\text{ mA}, f = 100\text{ MHz}$                                                  | $r_f$        | -<br>-           | 0.45<br>0.36           | 0.7<br>0.5      | Ω    |
| Charge carrier life time<br>$I_F = 10\text{ mA}, I_R = 6\text{ mA}$ , measured at $I_R = 3\text{ mA}$ ,<br>$R_L = 100\text{ Ω}$                            | $\tau_{rr}$  | -                | 120                    | -               | ns   |
| I-region width                                                                                                                                             | $W_I$        | -                | 3                      | -               | μm   |
| Insertion loss <sup>1)</sup><br>$I_F = 0.1\text{ mA}, f = 1\text{ GHz}$<br>$I_F = 3\text{ mA}, f = 1\text{ GHz}$<br>$I_F = 10\text{ mA}, f = 1\text{ GHz}$ | $ S_{21} ^2$ | -<br>-<br>-      | -0.1<br>-0.05<br>-0.04 | -<br>-<br>-     | dB   |
| Isolation <sup>1)</sup><br>$V_R = 0\text{ V}, f = 100\text{ MHz}$<br>$V_R = 0\text{ V}, f = 470\text{ MHz}$<br>$V_R = 0\text{ V}, f = 1\text{ GHz}$        | $ S_{21} ^2$ | -<br>-<br>-      | -23.5<br>-10.5<br>-5.5 | -<br>-<br>-     |      |

<sup>1</sup>BA892-02L in series configuration,  $Z = 50\Omega$

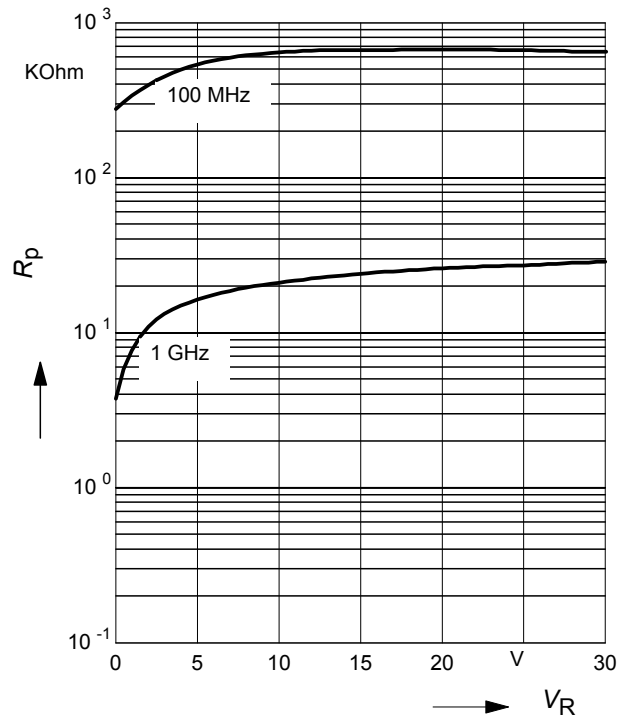
**Diode capacitance  $C_T = f(V_R)$**

$f$  = Parameter



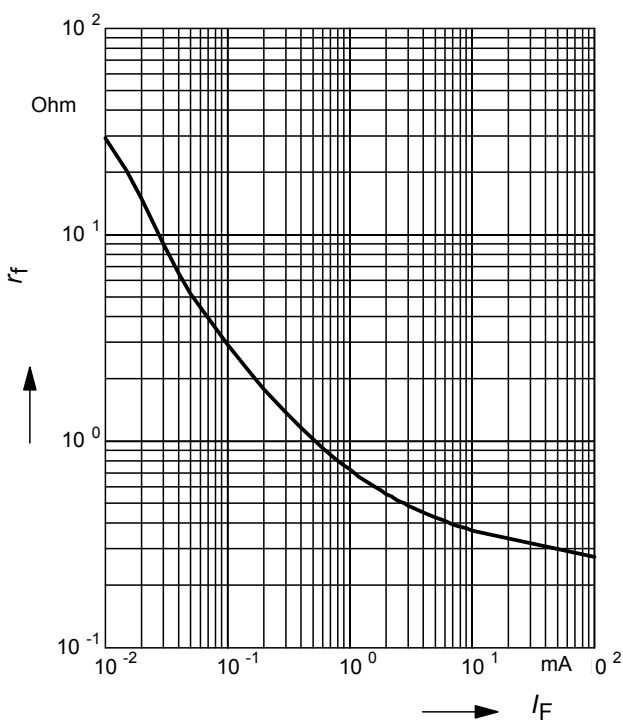
**Reverse parallel resistance  $R_P = f(V_R)$**

$f$  = Parameter



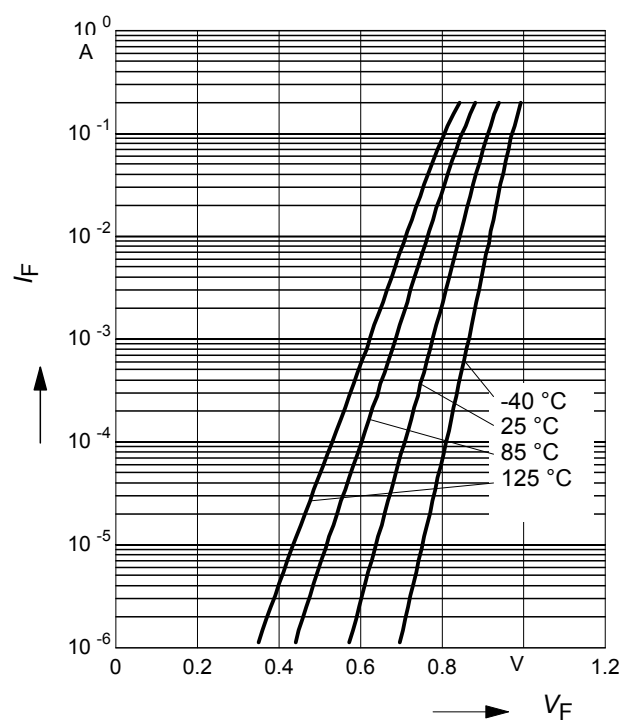
**Forward resistance  $r_f = f(I_F)$**

$f$  = 100MHz

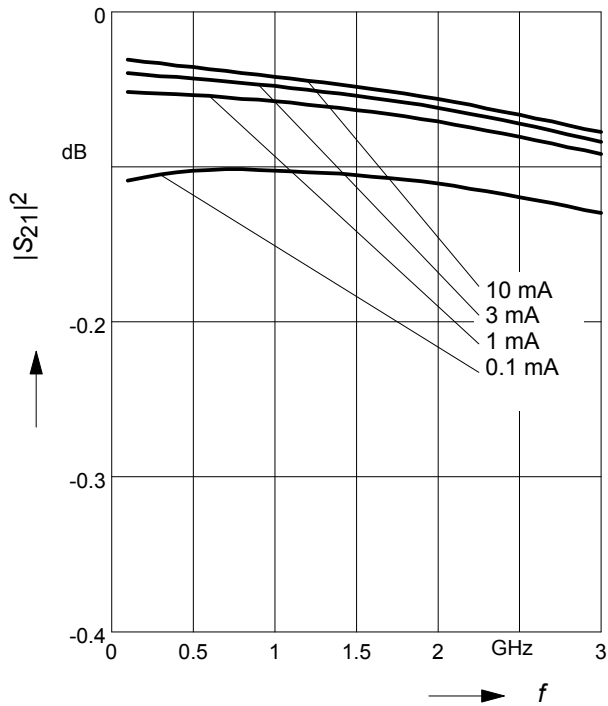


**Forward current  $I_F = f(V_F)$**

$T_A$  = Parameter



**Insertion loss  $|S_{21}|^2 = f(f)$** 
 $I_F$  = Parameter

BA892-02L in series configuration,  $Z = 50\Omega$ 

**Isolation  $|S_{21}|^2 = f(f)$** 
 $V_R$  = Parameter

BA892-02L in series configuration,  $Z = 50\Omega$ 
