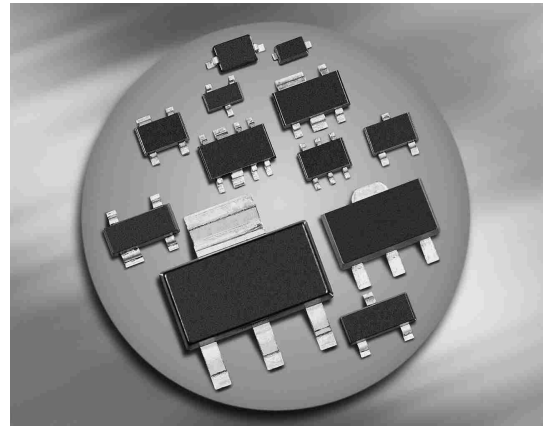
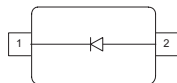


**Silicon PIN Diode**

- Designed for antenna switch modules (ASM) in battery-powered mobile systems
- Low capacitance at zero volts reverse bias at frequencies above 1 GHz (typ. 0.24 pF)
- Low forward resistance (typ. 1.2  $\Omega$  @  $I_F = 5$  mA)
- Fast switching


**BAR95-02LS**


| Type       | Package   | Configuration    | $L_S$ (nH) | Marking |
|------------|-----------|------------------|------------|---------|
| BAR95-02LS | TSSLP-2-1 | single, leadless | 0.2        | C       |

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

| Parameter   | Symbol           | Value       | Unit             |
|---|------------------|-------------|------------------|
| Diode reverse voltage                                   | $V_R$            | 50          | V                |
| Forward current   | $I_F$            | 100         | mA               |
| Total power dissipation<br>$T_S \leq 136^\circ\text{C}$ | $P_{\text{tot}}$ | 150         | mW               |
| Junction temperature                                    | $T_j$            | 150         | $^\circ\text{C}$ |
| Operating temperature range                             | $T_{\text{op}}$  | -55 ... 125 |                  |
| Storage temperature                                     | $T_{\text{stg}}$ | -55 ... 150 |                  |

**Thermal Resistance**

| Parameter                                | Symbol            | Value     | Unit |
|--|-------------------|-----------|------|
| Junction - soldering point <sup>1)</sup> | $R_{\text{thJS}}$ | $\leq 95$ | K/W  |

<sup>1)</sup>For calculation of  $R_{\text{thJA}}$  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.       |      |
| <b>DC Characteristics</b>  |            |        |        |            |      |
| Breakdown voltage<br>$I_{(BR)} = 5 \mu\text{A}$                    | $V_{(BR)}$ | 50     | -      | -          | V    |
| Reverse current<br>$V_R = 35 \text{ V}$                            | $I_R$      | -      | -      | 10         | nA   |
| Forward voltage<br>$I_F = 10 \text{ mA}$<br>$I_F = 100 \text{ mA}$ | $V_F$      | -<br>- | -<br>- | 0.9<br>1.2 | V    |

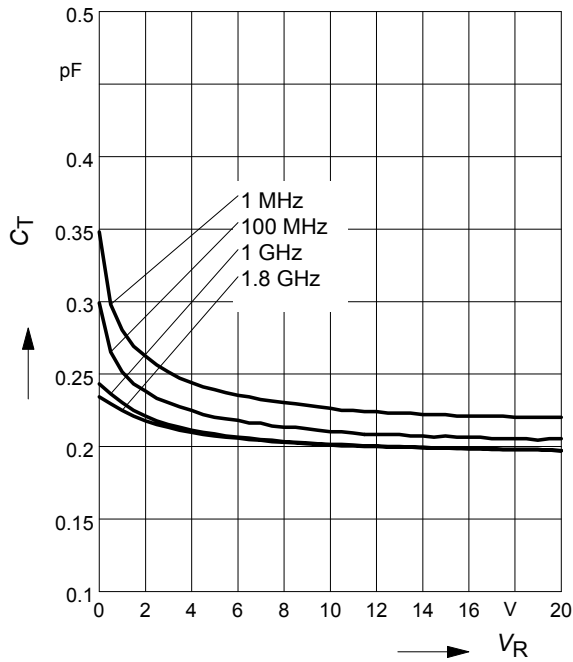
**Electrical Characteristics** at  $T_A = 25^\circ\text{C}$ , unless otherwise specified

| Parameter   | Symbol       | Values |                             |                     | Unit          |
|---|--------------|--------|-----------------------------|---------------------|---------------|
|   |              | min.   | typ.                        | max.                |               |
| <b>AC Characteristics</b>   |              |        |                             |                     |               |
| Diode capacitance<br>$V_R = 1\text{ V}, f = 1\text{ MHz}$<br>$V_R = 0\text{ V}, f = 100\text{ MHz}$<br>$V_R = 0\text{ V}, f = 1\text{ GHz}$<br>$V_R = 0\text{ V}, f = 1.8\text{ GHz}$ | $C_T$        | -      | 0.25<br>0.3<br>0.24<br>0.23 | 0.35<br>-<br>-<br>- | pF            |
| Reverse parallel resistance<br>$V_R = 0\text{ V}, f = 100\text{ MHz}$<br>$V_R = 0\text{ V}, f = 1\text{ GHz}$<br>$V_R = 0\text{ V}, f = 1.8\text{ GHz}$                               | $R_p$        | -      | 30<br>5<br>3                | -<br>-<br>-         | k $\Omega$    |
| Forward resistance<br>$I_F = 1\text{ mA}, f = 100\text{ MHz}$<br>$I_F = 5\text{ mA}, f = 100\text{ MHz}$<br>$I_F = 10\text{ mA}, f = 100\text{ MHz}$                                  | $r_f$        | -      | 3.5<br>1.2<br>0.8           | -<br>-<br>1.5       | $\Omega$      |
| Charge carrier life time<br>$I_F = 10\text{ mA}, I_R = 6\text{ mA}$ , measured at $I_R = 3\text{ mA}$ ,<br>$R_L = 100\ \Omega$  | $\tau_{rr}$  | -      | 500                         | -                   | ns            |
| I-region width  | $W_I$        | -      | 19                          | -                   | $\mu\text{m}$ |
| Insertion loss <sup>1)</sup><br>$I_F = 1\text{ mA}, f = 1.8\text{ GHz}$<br>$I_F = 5\text{ mA}, f = 1.8\text{ GHz}$<br>$I_F = 10\text{ mA}, f = 1.8\text{ GHz}$                        | $ S_{21} ^2$ | -      | -0.3<br>-0.1<br>-0.08       | -<br>-<br>-         | dB            |
| Isolation <sup>1)</sup><br>$V_R = 0\text{ V}, f = 0.9\text{ GHz}$<br>$V_R = 0\text{ V}, f = 1.8\text{ GHz}$<br>$V_R = 0\text{ V}, f = 2.45\text{ GHz}$                                | $ S_{21} ^2$ | -      | -17<br>-12<br>-10           | -<br>-<br>-         |               |

<sup>1</sup>BAR95-02LS in series configuration,  $Z = 50\ \Omega$

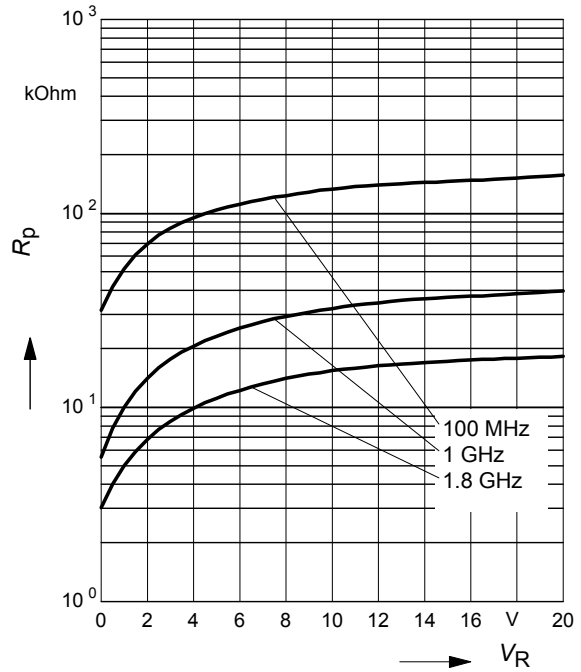
**Diode capacitance  $C_T = f(V_R)$**

$f =$  Parameter



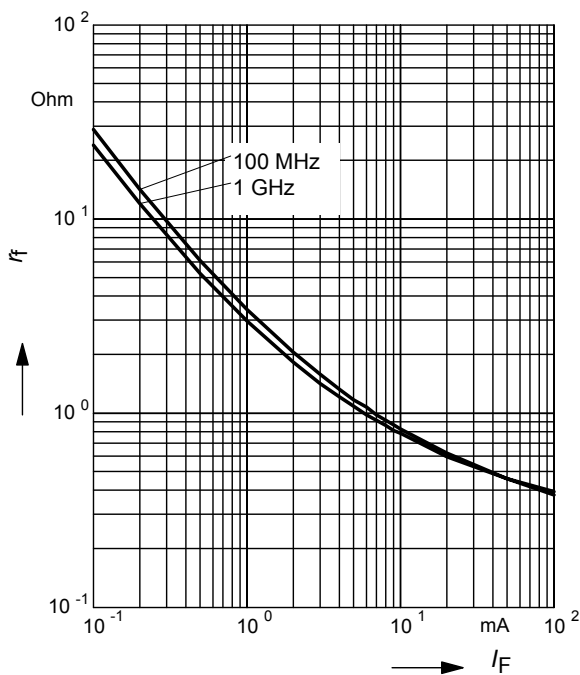
**Reverse parallel resistance  $R_p = f(V_R)$**

$f =$  Parameter



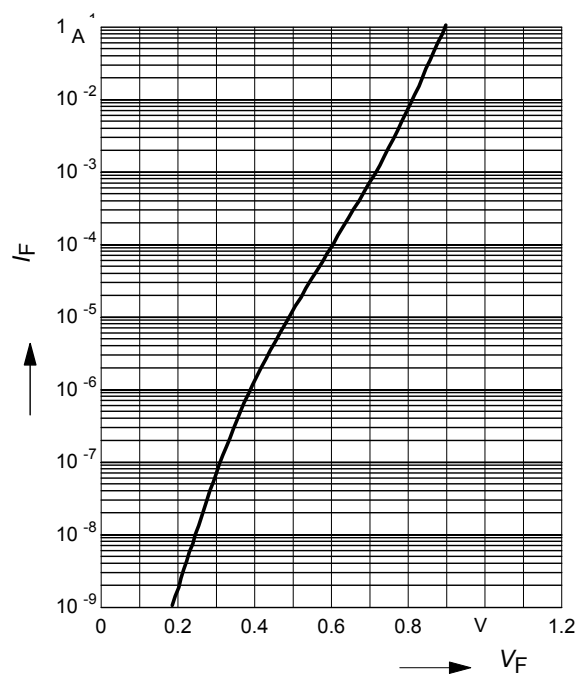
**Forward resistance  $r_f = f(I_F)$**

$f =$  Parameter

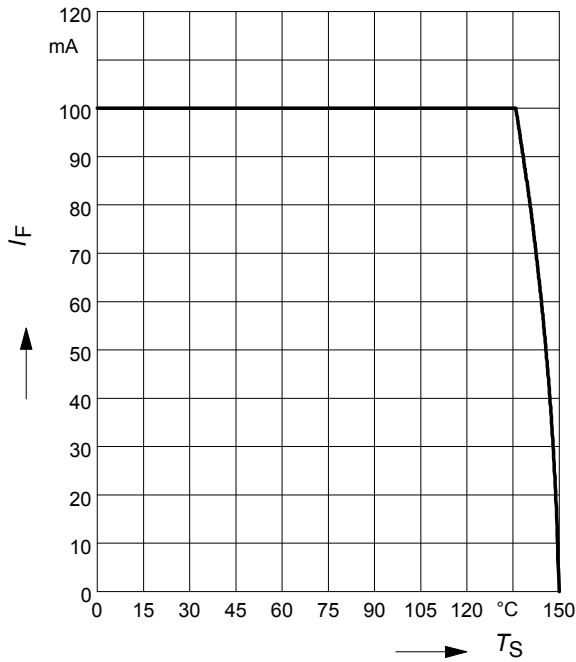


**Forward current  $I_F = f(V_F)$**

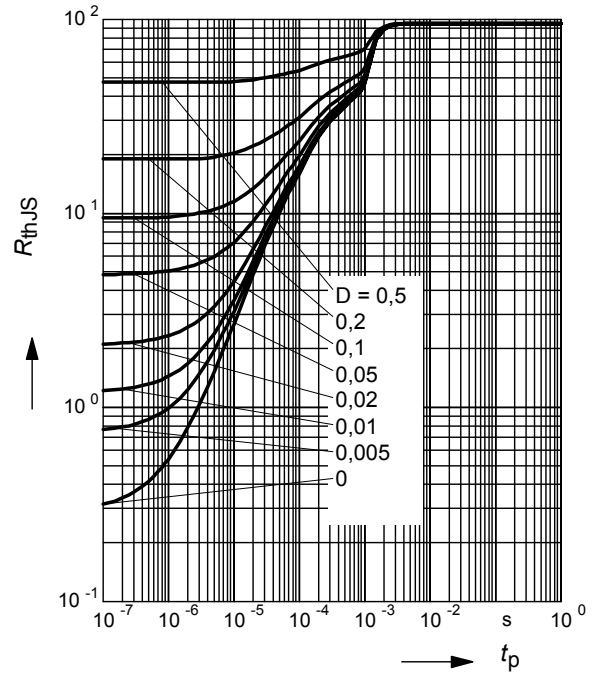
$T_A = 25\text{ }^\circ\text{C}$



Forward current  $I_F = f(T_S)$

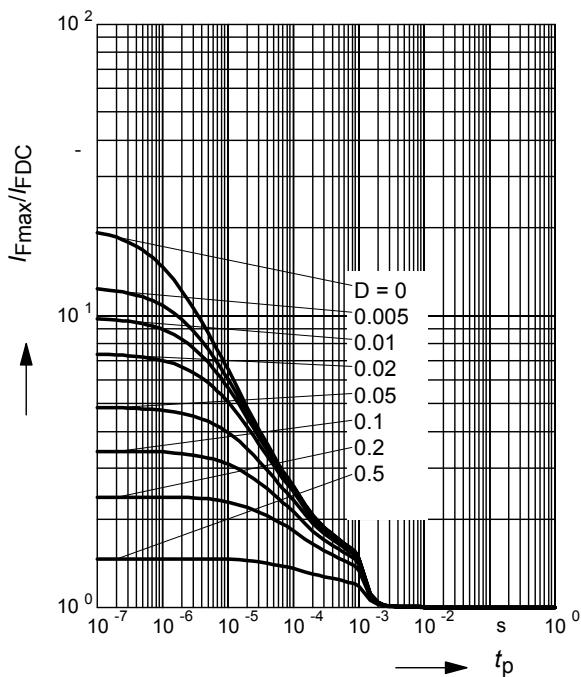


Permissible Puls Load  $R_{thJS} = f(t_p)$

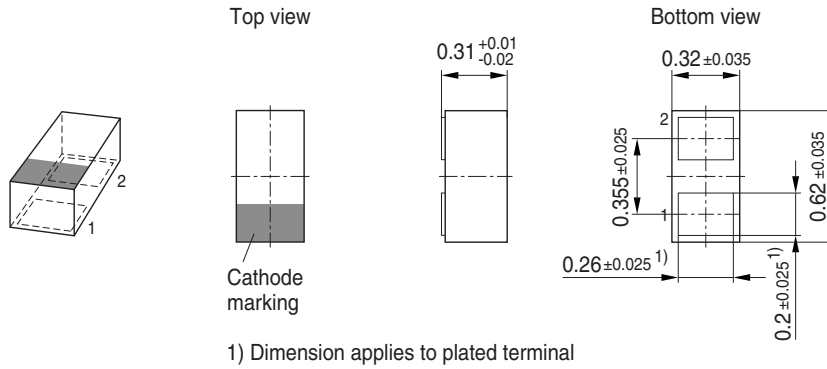


Permissible Pulse Load

$$I_{Fmax} / I_{FDC} = f(t_p)$$

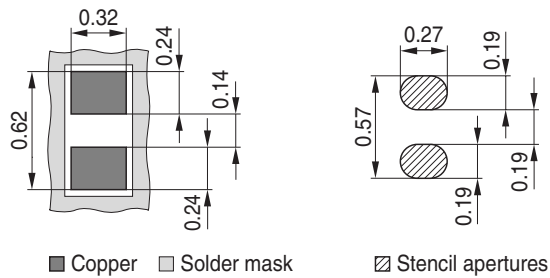


### Package Outline

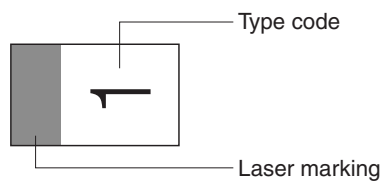


### Foot Print

For board assembly information please refer to Infineon website "Packages"

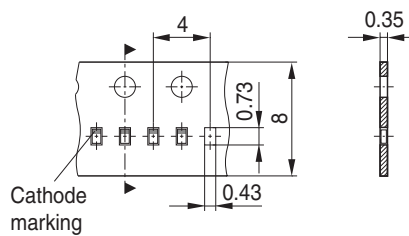


### Marking Layout



### Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel



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