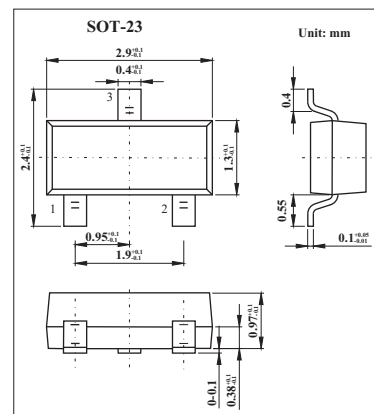
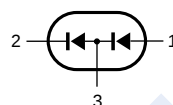


## General Purpose PIN Diode

### BAP50-04

#### ■ Features

- Low diode capacitance.
- Low diode forward resistance.



#### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

| Parameter                                           | Symbol        | Rating      | Unit               |
|-----------------------------------------------------|---------------|-------------|--------------------|
| Continuous reverse voltage                          | $V_R$         | 50          | V                  |
| Continuous forward current                          | $I_F$         | 50          | mA                 |
| Total power dissipation $T_s = 90^\circ\text{C}$    | $P_{tot}$     | 250         | mW                 |
| Storage temperature                                 | $T_{stg}$     | -65 to +150 | $^\circ\text{C}$   |
| Junction temperature                                | $T_j$         | 150         | $^\circ\text{C}$   |
| Thermal resistance from junction to soldering point | $R_{th\ j-s}$ | 220         | $^\circ\text{C/W}$ |

#### ■ Electrical Characteristics $T_a = 25^\circ\text{C}$

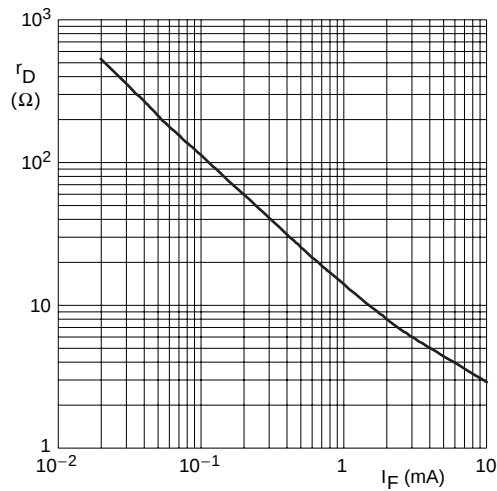
| Parameter                | Symbol | Test conditons                            | Min | Typ  | Max | Unit     |
|--------------------------|--------|-------------------------------------------|-----|------|-----|----------|
| Forward voltage          | $V_F$  | $I_F = 50\text{ mA}$                      |     | 0.95 | 1.1 | V        |
| Reverse voltage          | $V_R$  | $I_R = 10\ \mu\text{A}$                   | 50  |      |     | V        |
| Reverse current          | $I_R$  | $V_R = 50\text{ V}$                       |     |      | 100 | nA       |
| Diode capacitance        | $C_d$  | $V_R = 0; f = 1\text{ MHz}$               |     | 0.45 |     | pF       |
|                          |        | $V_R = 1\text{ V}; f = 1\text{ MHz}$      |     | 0.35 | 0.5 | pF       |
|                          |        | $V_R = 5\text{ V}; f = 1\text{ MHz}$      |     | 0.3  | 0.5 | pF       |
| Diode forward resistance | $r_D$  | $I_F = 0.5\text{ mA}; f = 100\text{ MHz}$ |     | 25   | 40  | $\Omega$ |
|                          |        | $I_F = 1\text{ mA}; f = 100\text{ MHz}$   |     | 14   | 25  | $\Omega$ |
|                          |        | $I_F = 10\text{ mA}; f = 100\text{ MHz}$  |     | 3    | 5   | $\Omega$ |

#### ■ Marking

|         |    |
|---------|----|
| Marking | 4P |
|---------|----|

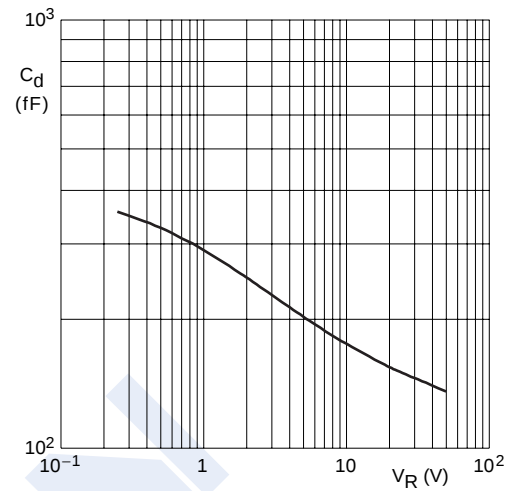
## BAP50-04

## ■ Typical Characteristics



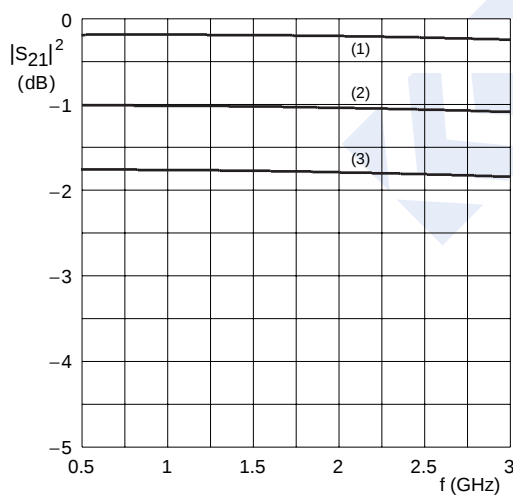
$f = 100 \text{ MHz}$ ;  $T_J = 25 \text{ }^\circ\text{C}$ .

Fig.1 Forward resistance as a function of the forward current; typical values.



$f = 1 \text{ MHz}$ ;  $T_J = 25 \text{ }^\circ\text{C}$ .

Fig.2 Diode capacitance as a function of reverse voltage; typical values.

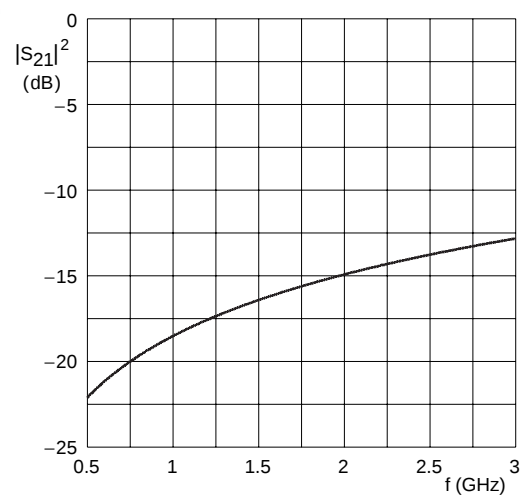


(1)  $I_F = 10 \text{ mA}$ . (2)  $I_F = 1 \text{ mA}$ . (3)  $I_F = 0.5 \text{ mA}$ .

Diode inserted in series with a 50 Ω stripline circuit and biased via the analyzer Tee network.

$T_{\text{amb}} = 25 \text{ }^\circ\text{C}$ .

Fig.3 Insertion loss ( $|S_{21}|^2$ ) of the diode in on-state as a function of frequency; typical values.



Diode zero biased and inserted in series with a 50 Ω stripline circuit.

$T_{\text{amb}} = 25 \text{ }^\circ\text{C}$ .

Fig.4 Isolation ( $|S_{21}|^2$ ) of the diode in off-state as a function of frequency; typical values.