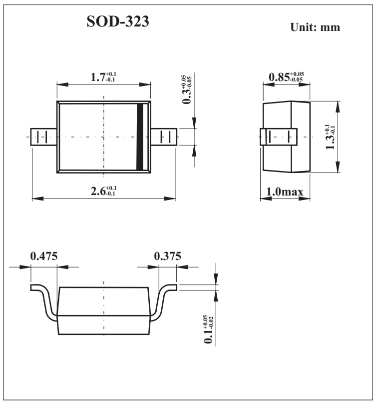
# Silicon PIN diode

# BAP65-03



## ■ Features

- ● High voltage, current controlled
- ● RF resistor for RF switches
- ● Low diode capacitance
- ● Low diode forward resistance (low loss)
- ● Very low series inductance.

## ■ Absolute Maximum Ratings Ta = 25℃

| Parameter | Symbol | Min | Max | Unit |
|---|---|---|---|---|
| continuous reverse voltage | $V_R$ | | 30 | V |
| continuous forward current | $I_F$ | | 100 | mA |
| total power dissipation Ts ≤ 90 ℃ | $P_{tot}$ | | 500 | mW |
| storage temperature | $T_{stg}$ | -65 | +150 | ℃ |
| junction temperature | $T_j$ | -65 | +150 | ℃ |
| thermal resistance from junction to soldering point | $R_{th\ j\text{-}s}$ | | 120 | K/W |

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## Electrical Characteristics Ta = 25℃

| Parameter | Symbol | Conditions | Typ | Max | Unit |
|---|---|---|---|---|---|
| forward voltage | $V_F$ | $I_F$ = 50 mA | 0.95 | 1.1 | V |
| reverse leakage current | $I_R$ | $V_R$ = 20 V |  | 20 | nA |
| diode capacitance | $C_d$ | $V_R$ = 0; f = 1 MHz | 0.65 |  | pF |
|  |  | $V_R$ = 1 V; f = 1 MHz | 0.55 | 0.9 |  |
|  |  | $V_R$ = 3 V; f = 1 MHz | 0.5 | 0.8 |  |
|  |  | $V_R$ = 20V; f = 1 MHz | 0.375 |  |  |
| diode forward resistance | $r_D$ | $I_F$ = 1 mA; f = 100 MHz; note 1 | 1 |  | Ω |
|  |  | $I_F$ = 5 mA; f = 100 MHz; note 1 | 0.65 | 0.95 |  |
|  |  | $I_F$ = 10 mA; f = 100 MHz; note 1 | 0.56 | 0.9 |  |
|  |  | $I_F$ = 100 mA; f = 100 MHz | 0.35 |  |  |
| isolation | $\|s_{21}\|^2$ | $V_R$ = 0; f = 900 MHz | 10.2 |  | dB |
|  |  | $V_R$ = 0; f = 1800 MHz | 5.8 |  |  |
|  |  | $V_R$ = 0; f = 2450 MHz | 4.1 |  |  |
| insertion loss | $\|s_{21}\|^2$ | $V_R$ = 1; f = 900 MHz | 0.1 |  | dB |
|  |  | $V_R$ = 1; f = 1800 MHz | 0.14 |  |  |
|  |  | $V_R$ = 1; f = 2450 MHz | 0.18 |  |  |
| insertion loss | $\|s_{21}\|^2$ | $V_R$ = 5; f = 900 MHz | 0.06 |  | dB |
|  |  | $V_R$ = 5; f = 1800 MHz | 0.1 |  |  |
|  |  | $V_R$ = 5; f = 2450 MHz | 0.14 |  |  |
| insertion loss | $\|s_{21}\|^2$ | $V_R$ = 10; f = 900 MHz | 0.06 |  | dB |
|  |  | $V_R$ = 10; f = 1800 MHz | 0.1 |  |  |
|  |  | $V_R$ = 10; f = 2450 MHz | 0.13 |  |  |
| insertion loss | $\|s_{21}\|^2$ | $V_R$ = 100; f = 900 MHz | 0.05 |  | dB |
|  |  | $V_R$ = 100; f = 1800 MHz | 0.1 |  |  |
|  |  | $V_R$ = 100; f = 2450 MHz | 0.14 |  |  |
| charge carrier life time | $\tau_L$ | when switched from $I_F$ = 10 mA to $I_R$ = 6 mA;<br>$R_L$ = 100 Ω ;measured at $I_R$ = 3 mA | 0.17 |  | μs |
| series inductance | $L_s$ | $I_F$ = 100 mA; f = 100 MHz | 1.5 |  | nH |

Note

1. Guaranteed on AQL basis: inspection level S4, AQL 1.0.

## Marking

|  |  |
|---|---|
| Marking | D3 |