

## BAP64-05

### General Purpose Pin Diodes 250mW

### Features

- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Low diode capacitance
- Low diode forward resistance
- MARKING: 5K

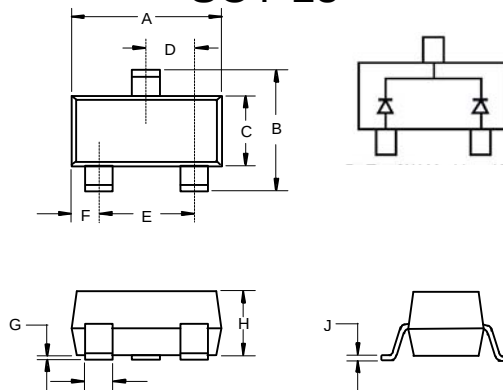
Maximum Ratings @ 25°C Unless Otherwise Specified

| Parameter                                   | Symbol         | Limits   | Unit               |
|---------------------------------------------|----------------|----------|--------------------|
| Continuous Reverse Voltage                  | $V_R$          | 175      | V                  |
| Forward Current                             | $I_F$          | 100      | mA                 |
| Power Dissipation( $T_A=90^\circ\text{C}$ ) | $P_D$          | 250      | mW                 |
| Junction and Storage temperature            | $T_j, P_{stg}$ | -65~+150 | $^\circ\text{C}$   |
| Thermal Resistance Junction to Ambient      | $R_{thJA}$     | 500      | $^\circ\text{C/W}$ |

### Electrical Characteristics @ 25°C Unless Otherwise Specified

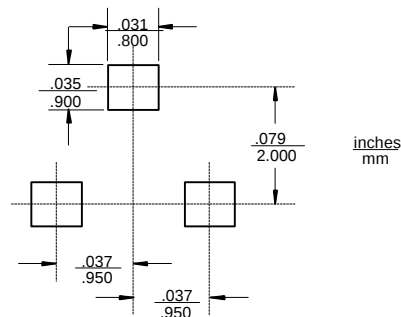
| Parameter                       | Symbol   | Min. | TYP  | Max.      | Unit          | Conditions                                                                                                |
|---------------------------------|----------|------|------|-----------|---------------|-----------------------------------------------------------------------------------------------------------|
| Reverse Voltage Leakage Current | $I_R$    |      |      | 10<br>1.0 | $\mu\text{A}$ | $V_R=175\text{V}$<br>$V_R=20\text{V}$                                                                     |
| Forward voltage                 | $V_F$    |      |      | 1.1       | V             | $I_F=50\text{mA}$                                                                                         |
| Diode capacitance               | $C_{d1}$ |      | 0.52 |           | pF            | $V_R=0\text{V}, f=1\text{MHz}$                                                                            |
|                                 | $C_{d2}$ |      | 0.37 |           | pF            | $V_R=1\text{V}, f=1\text{MHz}$                                                                            |
|                                 | $C_{d3}$ |      | 0.23 | 0.35      | pF            | $V_R=20\text{V}, f=1\text{MHz}$                                                                           |
| Diode forward resistance        | $r_D$    |      | 20   | 40        | $\Omega$      | $I_F=0.5\text{mA}, f=100\text{MHz}$                                                                       |
|                                 | $r_D$    |      | 10   | 20        | $\Omega$      | $I_F=1\text{mA}, f=100\text{MHz}$                                                                         |
|                                 | $r_D$    |      | 2    | 3.8       | $\Omega$      | $I_F=10\text{mA}, f=100\text{MHz}$                                                                        |
|                                 | $r_D$    |      | 0.7  | 1.35      | $\Omega$      | $I_F=100\text{mA}, f=100\text{MHz}$                                                                       |
| Charge carrier life time        | $\tau_L$ |      | 1.55 |           | $\mu\text{S}$ | when switched from $I_F=10\text{mA}$ to $I_R=6\text{mA}$ ; $R_L=100\Omega$ ; measured at $I_R=3\text{mA}$ |
| Series inductance               | $L_S$    |      | 1.4  |           | nH            | $I_F=100\text{mA}, f=100\text{MHz}$                                                                       |

### SOT-23

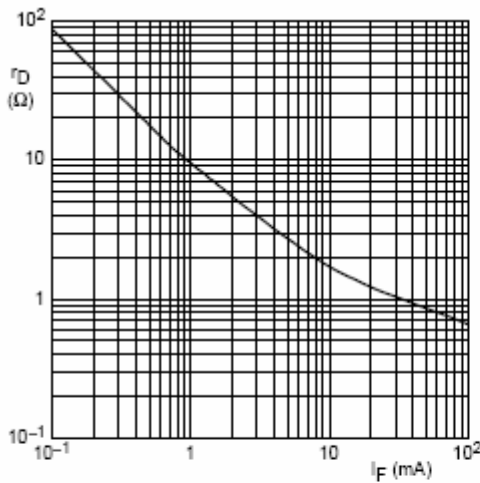


| DIM | INCHES |       | MM   |      | NOTE |
|-----|--------|-------|------|------|------|
|     | MIN    | MAX   | MIN  | MAX  |      |
| A   | .110   | .120  | 2.80 | 3.04 |      |
| B   | .083   | .104  | 2.10 | 2.64 |      |
| C   | .047   | .055  | 1.20 | 1.40 |      |
| D   | .035   | .041  | .89  | 1.03 |      |
| E   | .070   | .081  | 1.78 | 2.05 |      |
| F   | .018   | .024  | .45  | .60  |      |
| G   | .0005  | .0039 | .013 | .100 |      |
| H   | .035   | .044  | .89  | 1.12 |      |
| J   | .003   | .007  | .085 | .180 |      |
| K   | .015   | .020  | .37  | .51  |      |

### Suggested Solder Pad Layout

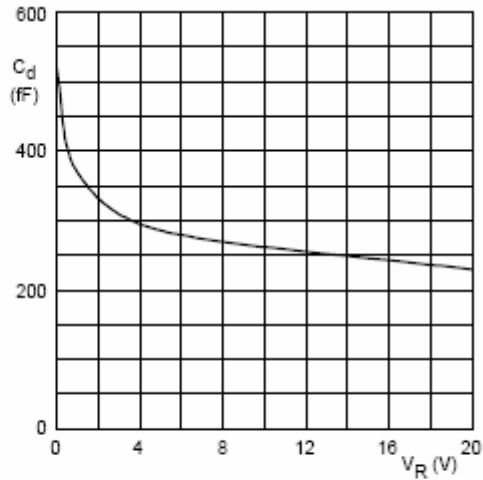


## Typical Characteristics



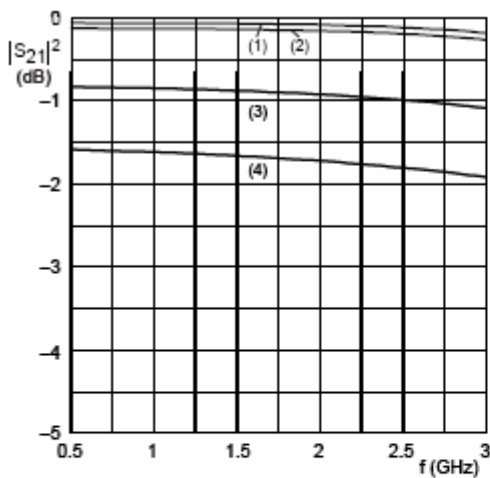
$f = 100 \text{ MHz}; T_J = 25^\circ\text{C}.$

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



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

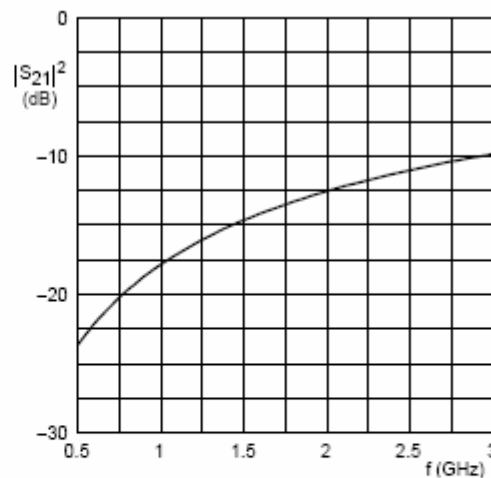
Diode capacitance as a function of reverse voltage; typical values.



(1)  $I_F = 100 \text{ mA}.$  (3)  $I_F = 1 \text{ mA}.$   
(2)  $I_F = 10 \text{ mA}.$  (4)  $I_F = 0.5 \text{ mA}.$

Diode inserted in series with a  $50 \Omega$  stripline circuit and biased via the analyzer Tee network.  
 $T_{\text{amb}} = 25^\circ\text{C}.$

Insertion loss ( $|S_{21}|^2$ ) of the diode as a function of frequency; typical values.



Diode zero biased and inserted in series with a  $50 \Omega$  stripline circuit.  
 $T_{\text{amb}} = 25^\circ\text{C}.$

Isolation ( $|S_{21}|^2$ ) of the diode as a function of frequency; typical values.

## Ordering Information

| Device           | Packing              |
|------------------|----------------------|
| (Part Number)-TP | Tape&Reel;3Kpcs/Reel |

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