



BAP70AM

Silicon PIN diode array

Rev. 4 — 7 March 2014

Product data sheet

1. Product profile

1.1 General description

Four planar PIN diode array in SOT363 small SMD plastic package.

1.2 Features and benefits

- High voltage current controlled RF resistor for RF attenuators
- Low diode capacitance
- Very low series inductance
- Low distortion

1.3 Applications

- RF attenuators
- (SAT) TV applications
- Car radio applications

2. Pinning information

Table 1. Discrete pinning

| Pin | Description | Simplified outline | Graphic symbol |
|-----|---------------------------------|---|--|
| 1 | anode diode 1 |  |  <i>sym118</i> |
| 2 | cathode diode 2 | | |
| 3 | anode diode 3 / cathode diode 4 | | |
| 4 | anode diode 4 | | |
| 5 | cathode diode 3 | | |
| 6 | anode diode 2 / cathode diode 1 | | |

3. Ordering information

Table 2. Ordering information

| Type number | Package | | Version |
|-------------|---------|--|---------|
| | Name | Description | |
| BAP70AM | - | plastic surface-mounted package; 6 leads | SOT363 |



4. Marking

Table 3. Marking

| Type number | Marking code | Description |
|-------------|--------------|---------------------------|
| BAP70AM | N9* | * = - : made in Hong Kong |
| | | * = p : made in Hong Kong |
| | | * = t : made in Malaysia |

5. Limiting values

Table 4. Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

| Symbol | Parameter | Conditions | Min | Max | Unit |
|-----------|-------------------------|-------------------------|-----|------|------|
| V_R | reverse voltage | | - | 50 | V |
| I_F | forward current | | - | 100 | mA |
| P_{tot} | total power dissipation | $T_{sp} = 90\text{ °C}$ | - | 300 | mW |
| T_{stg} | storage temperature | | -65 | +150 | °C |
| T_j | junction temperature | | -65 | +150 | °C |

6. Thermal characteristics

Table 5. Thermal characteristics

| Symbol | Parameter | Conditions | Typ | Unit |
|----------------|--|------------|-----|------|
| $R_{th(j-sp)}$ | thermal resistance from junction to solder point | | 260 | K/W |

7. Characteristics

Table 6. Characteristics

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

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|----------|--------------------------|---|-----|------|-------|---------------|
| V_F | forward voltage | $I_F = 50\text{ mA}$ | - | 0.9 | 1.1 | V |
| I_R | reverse current | $V_R = 50\text{ V}$ | - | - | < 100 | nA |
| C_d | diode capacitance | see Figure 1 ; $f = 1\text{ MHz}$; | | | | |
| | | $V_R = 0\text{ V}$ | - | 570 | - | fF |
| | | $V_R = 1\text{ V}$ | - | 400 | - | fF |
| | | $V_R = 5\text{ V}$ | - | 270 | - | fF |
| r_D | diode forward resistance | see Figure 2 ; $f = 100\text{ MHz}$; | | | | |
| | | $I_F = 0.5\text{ mA}$ | - | 77 | 100 | Ω |
| | | $I_F = 1\text{ mA}$ | - | 40 | 50 | Ω |
| | | $I_F = 10\text{ mA}$ | - | 5.4 | 7 | Ω |
| τ_L | charge carrier life time | $I_F = 10\text{ mA}$ to | - | 1.25 | - | μs |
| | | $I_R = 6\text{ mA}$; $R_L = 100\ \Omega$; measured at $I_R = 3\text{ mA}$ | | | | |
| L_S | series inductance | $I_F = 100\text{ mA}$; $f = 100\text{ MHz}$ | - | 0.6 | - | nH |



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

Fig 1. Diode capacitance as a function of reverse voltage; typical values



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

Fig 2. Diode forward resistance as a function of forward current; typical values

8. Package outline

Plastic surface-mounted package; 6 leads

SOT363



Fig 3. Package outline SOT363

9. Abbreviations

Table 7. Abbreviations

| Acronym | Description |
|---------|---------------------------|
| PIN | P-type, Intrinsic, N-type |
| SMD | Surface Mounted Device |
| RF | Radio Frequency |
| SAT | SATellite |

10. Revision history

Table 8. Revision history

| Document ID | Release date | Data sheet status | Change notice | Supersedes |
|----------------|--------------------------------|--------------------|---------------|-------------|
| BAP70AM v.4 | 20140307 | Product data sheet | - | BAP70AM v.3 |
| Modifications: | • Rollback to previous version | | | |
| BAP70AM v.3 | 20140127 | Product data sheet | - | BAP70AM v.2 |
| BAP70AM v.2 | 20100907 | Product data sheet | - | BAP70AM v.1 |
| BAP70AM v.1 | 20061120 | Product data sheet | - | - |

11. Legal information

11.1 Data sheet status

| Document status ^{[1][2]} | Product status ^[3] | Definition |
|-----------------------------------|-------------------------------|---|
| Objective [short] data sheet | Development | This document contains data from the objective specification for product development. |
| Preliminary [short] data sheet | Qualification | This document contains data from the preliminary specification. |
| Product [short] data sheet | Production | This document contains the product specification. |

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Date of release: 7 March 2014

Document identifier: BAP70AM

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