TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

# TA4001F

## VHF UHF WIDE BAND AMPLIFIER

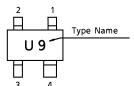
#### **FEATURES**

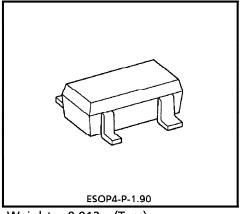
- Band Width 2.4GHz (Typ.) (3dB down)
- High Gain:  $|S_{21}|^2 = 12.5$ dB (Typ.) (f = 500MHz)
- 50 $\Omega$  Input and Output Impedance
- Small Package

#### PIN ASSIGNMENT (TOP VIEW)









Weight: 0.013g (Typ.)

## MAXIMUM RATINGS (Ta = 25°C)

| CHARACTERISTIC          | SYMBOL           | RATING          | UNIT |
|-------------------------|------------------|-----------------|------|
| Supply Voltage          | Vcc              | 6               | V    |
| Total Power Dissipation | P <sub>D</sub> * | 300             | mW   |
| Operating Temperature   | T <sub>opr</sub> | <b>- 40∼8</b> 5 | °C   |
| Storage Temperature     | T <sub>stg</sub> | <b>-</b> 55∼125 | °C   |

When mounted glass epoxy of 2.5cm<sup>2</sup> x 1.6t

#### **ELECTRICAL CHARACTERISTICS** (Ta = 25°C)

| CHARACTERISTIC       | SYMBOL                         | TEST<br>CIR-<br>CUIT | TEST CONDITION                               | MIN. | TYP. | MAX. | UNIT |  |  |
|----------------------|--------------------------------|----------------------|--|------|------|------|------|--|--|
| Circuit Current      | lcc                            | _                    | $V_{CC} = 5V$ , Non carrier                  | 14   | 18   | 24   | mA   |  |  |
| Insertion Gain       | S <sub>21</sub>   <sup>2</sup> | 1                    | $V_{CC} = 5V$ , $f = 500MHz$                 | 9    | 12.5 | 16   | dB   |  |  |
| Band Width           | BW                             | 1                    | V <sub>CC</sub> = 5V (Note 1)                | 1.9  | 2.4  | _    | GHz  |  |  |
| Noise Figure         | NF                             | 1                    | $V_{CC} = 5V$ , $f = 500MHz$                 | _    | 5.2  | 7    | dB   |  |  |
| Input Return Loss    | S <sub>11</sub>   <sup>2</sup> | 1                    | $V_{CC} = 5V$ , $f = 500MHz$                 | _    | - 18 | _    | dB   |  |  |
| Output Return Loss   | S <sub>22</sub>   <sup>2</sup> | 1                    | V <sub>CC</sub> = 5V, f = 500MHz             | _    | - 21 | _    | dB   |  |  |
| Isolation            | S <sub>12</sub>   <sup>2</sup> | 1                    | V <sub>CC</sub> = 5V, f = 500MHz             | _    | - 22 | _    | dB   |  |  |
| Maximum Output Level | Po                             | 1                    | $V_{CC} = 5V$ , $f = 500MHz$ , $Pin = 0dBmW$ | _    | 2    | _    | dBmW |  |  |

Note 1:BW is frequency of 3dB down from  $|S_{21}|^2$  at 500MHz.

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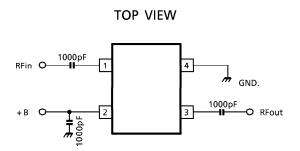
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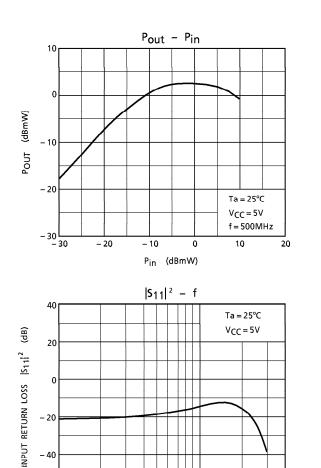
## **TEST CIRCUIT 1**

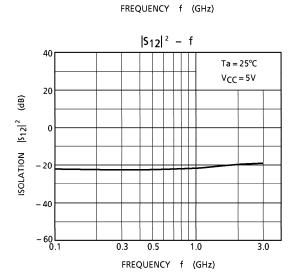


- 20

- 40

- 60 L 0.1

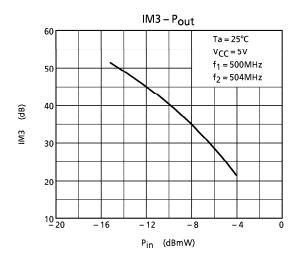


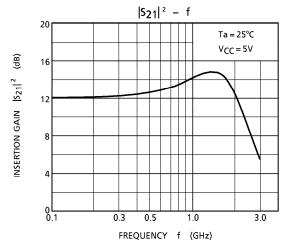


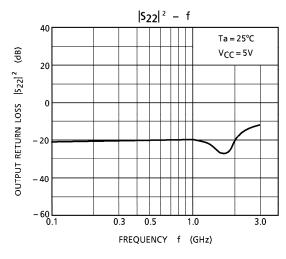
0.5

1.0

3.0



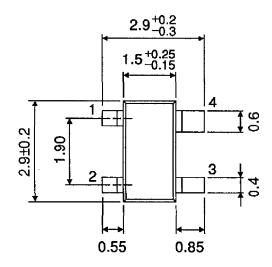




# **OUTLINE DRAWING**

ESOP4-P-1.90

Unit: mm



0.16 +0.1

Weight: 0.013g (Typ.)