

TOSHIBA Bipolar Linear Integrated Circuit Silicon Monolithic

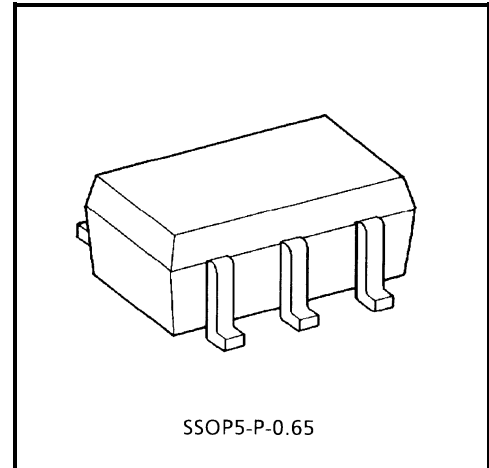
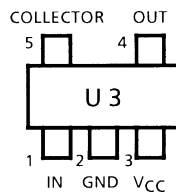
# TA4011FU

## UHF Wide Band Amplifier Applications

### Features

- Low current:  $I_{CC} = 3.5 \text{ mA}$
- Wide band:  $f = 2.4 \text{ GHz}$  (3dB down)
- Operatin supply voltage:  $V_{CC} = 1.5\sim 3 \text{ V}$

### Pin Assignment



### Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Weight: 0.006 g (typ.)

| Characteristic          | Symbol            | Rating        | Unit             |
|-------------------------|-------------------|---------------|------------------|
| Supply voltage 1        | $V_{CC1}$         | 3.2           | V                |
| Supply voltage 2        | $V_{CC2}$ (Note1) | 4             | V                |
| Total power dissipation | $P_D$ (Nore2)     | 300           | mW               |
| Operating temperature   | $T_{opr}$         | $-40\sim 85$  | $^\circ\text{C}$ |
| Storage temperature     | $T_{stg}$         | $-55\sim 150$ | $^\circ\text{C}$ |

Note 1: When  $V_{CC}$  is operated at less than 1/4 duty cycle.

Note 2: When mounted on the glass epoxy of  $2.5 \text{ cm}^2 \times 1.6 \text{ t}$

### Caution

This device electrostatic sensitivity. Please handle with caution.

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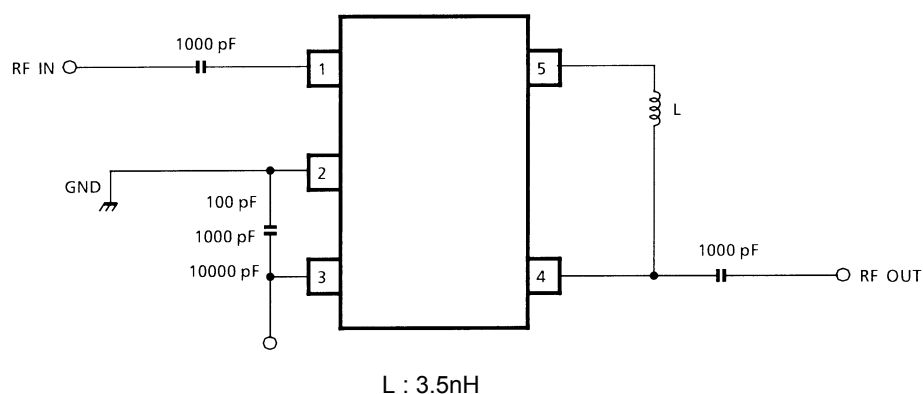
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Electrical Characteristics ( $T_a = 25^\circ\text{C}$ ,  $Z_g = Z_l = 50\ \Omega$ )

| Characteristic                       | Symbol       | Test Condition                               | Min | Typ. | Max | Unit |
|--------------------------------------|--------------|--|-----|------|-----|------|
| Circuit current                      | $I_{CC}$     | $V_{CC} = 2\text{ V}$ , non carrier          | 2.5 | 3.5  | 4.5 | mA   |
| Band width                           | BW           | $V_{CC} = 2\text{ V}$ (Note 3)               | 2.2 | 2.4  | —   | GHz  |
| Insertion gain                       | $ S_{21} ^2$ | $V_{CC} = 2\text{ V}$ , $f = 1.5\text{ GHz}$ | 8   | 10   | —   | dB   |
| Noise figure                         | NF           | $V_{CC} = 2\text{ V}$ , $f = 1.5\text{ GHz}$ | —   | 6.5  | 8   | dB   |
| Isolation                            | $ S_{12} ^2$ | $V_{CC} = 2\text{ V}$ , $f = 1.5\text{ GHz}$ | —   | -22  | —   | dB   |
| Input return loss                    | $ S_{11} ^2$ | $V_{CC} = 2\text{ V}$ , $f = 1.5\text{ GHz}$ | —   | -6.5 | —   | dB   |
| Output return loss                   | $ S_{22} ^2$ | $V_{CC} = 2\text{ V}$ , $f = 1.5\text{ GHz}$ | —   | -5.5 | —   | dB   |
| Output power at 1dB gain compression | $P_{o1dB}$   | $V_{CC} = 2\text{ V}$ , $f = 1.5\text{ GHz}$ | —   | -6   | —   | dBmW |

Note 3: BW is the frequency of 3dB down from  $|S_{21}|^2$  at 1.5 GHz.

## RF Test Circuit (top view)



## Notice

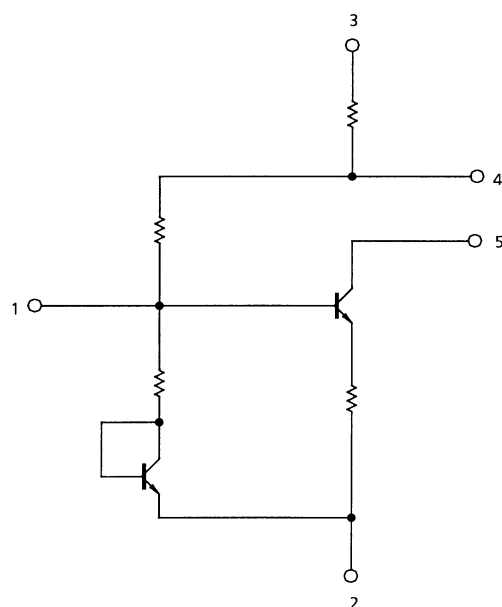
The circuits and measurements contained in this document are given only in the context of as examples of applications for these products.

Moreover, these example application circuits are not intended for mass production, since the high-frequency characteristics (the AC characteristics) of these devices will be affected by the external components which the customer uses, by the design of the circuit and by various other conditions.

It is the responsibility of the customer to design external circuits which correctly implement the intended application, and to check the characteristics of the design.

TOSHIBA assume no responsibility for the integrity of customer circuit designs or applications.

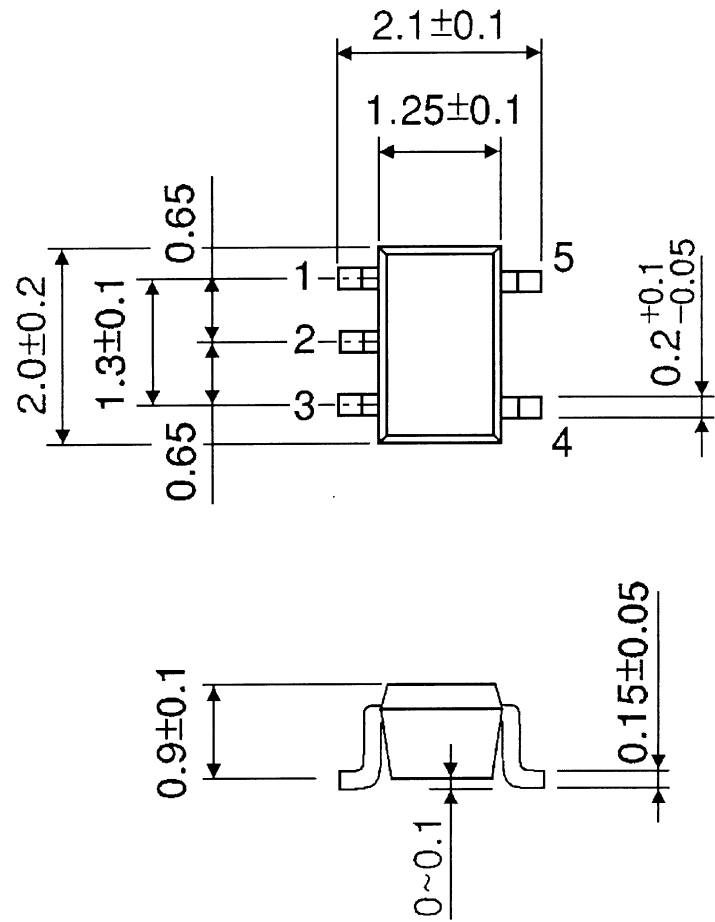
## Equivalent Circuit



Package Dimensions

SSOP5-P-0.65

Unit : mm



Weight : 0.006 g (Typ.)