TOSHIBA Bipolar Linear Integrated Circuit Silicon Monolithic

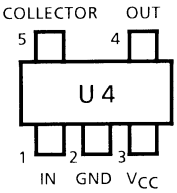
TA4012FU

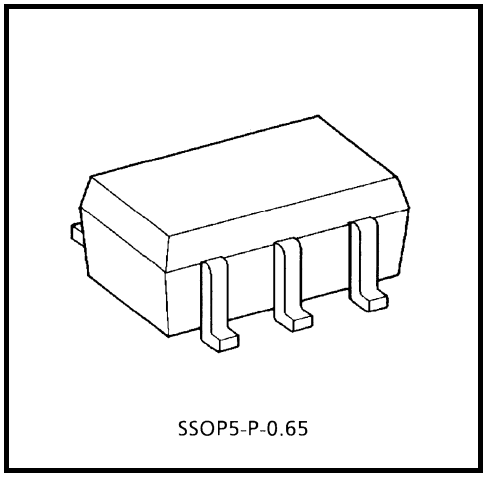
UHF Wide Band Amplifier Applications

Features

- Low current: I_{CC} = 6.5 mA
- Wide band: f = 2.0 GHz (3dB down)
- Operatin supply voltage: V_{CC} = 1.5~2.2 V

Pin Assignment





Weight: 0.006 g (typ.)

Absolute Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Supply voltage 1	V_{CC1}	2.2	V
Supply voltage 2	V_{CC2} (Note 1)	3	V
Total power dissipation	P_D (Note 2)	300	mW
Operating temperature	T_{opr}	−40~85	°C
Storage temperature	T_{stg}	−55~150	°C

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings and the operating ranges.
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook (“Handling Precautions”/“Derating Concept and Methods”) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

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 cm^2 × 1.6 t

Caution

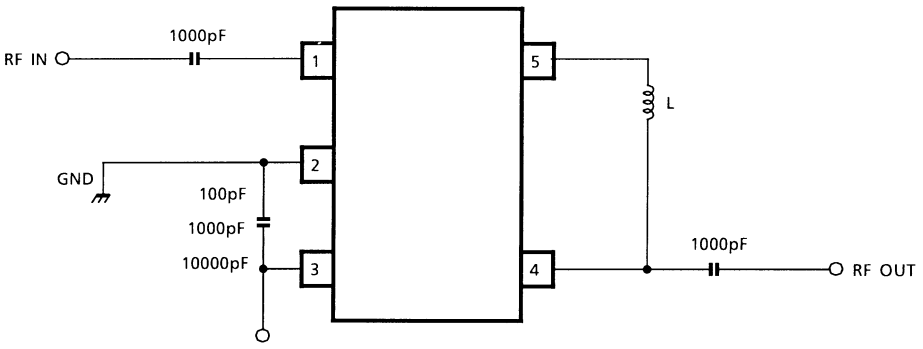
This device electrostatic sensitivity. Please handle with caution.

Electrical Characteristics (Ta = 25°C, Zg = Zl = 50 Ω)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Circuit current	I_{CC}	V_{CC} = 2 V, non carrier	4.5	6.5	8.5	mA
Band width	BW	V_{CC} = 2 V (Note 3)	1.8	2.0	—	GHz
Insertion gain	$\|S21\|^2$	V_{CC} = 2 V, f = 1.5 GHz	10	12	—	dB
Noise figure	NF	V_{CC} = 2 V, f = 1.5 GHz	—	6	7.5	dB
Isolation	$\|S12\|^2$	V_{CC} = 2 V, f = 1.5 GHz	—	−22	—	dB
Input return loss	$\|S11\|^2$	V_{CC} = 2 V, f = 1.5 GHz	—	−6.5	—	dB
Output return loss	$\|S22\|^2$	V_{CC} = 2 V, f = 1.5 GHz	—	−7.5	—	dB
Output power at 1dB gain compression	Po1dB	V_{CC} = 2 V, f = 1.5 GHz	—	0	—	dBmW

Note 3: BW is the frequency of 3dB down from $|S21|^2$ at 1.5 GHz.

RF Test Circuit (top view)



L : 4nH

Notice

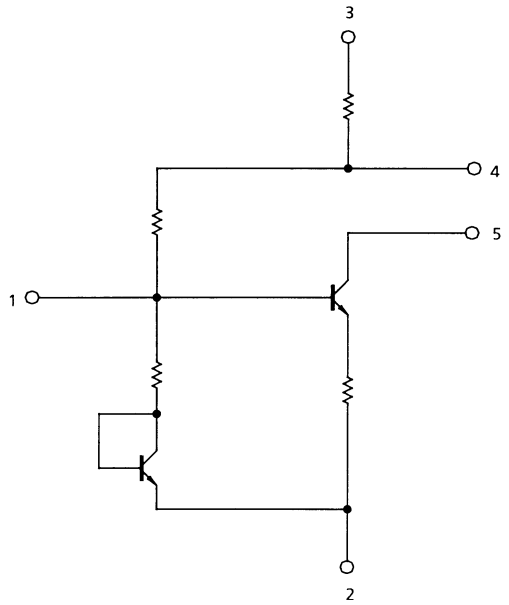
The circuits and measurements contained in this document are given only in the context of as examples of applications for these products.

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.

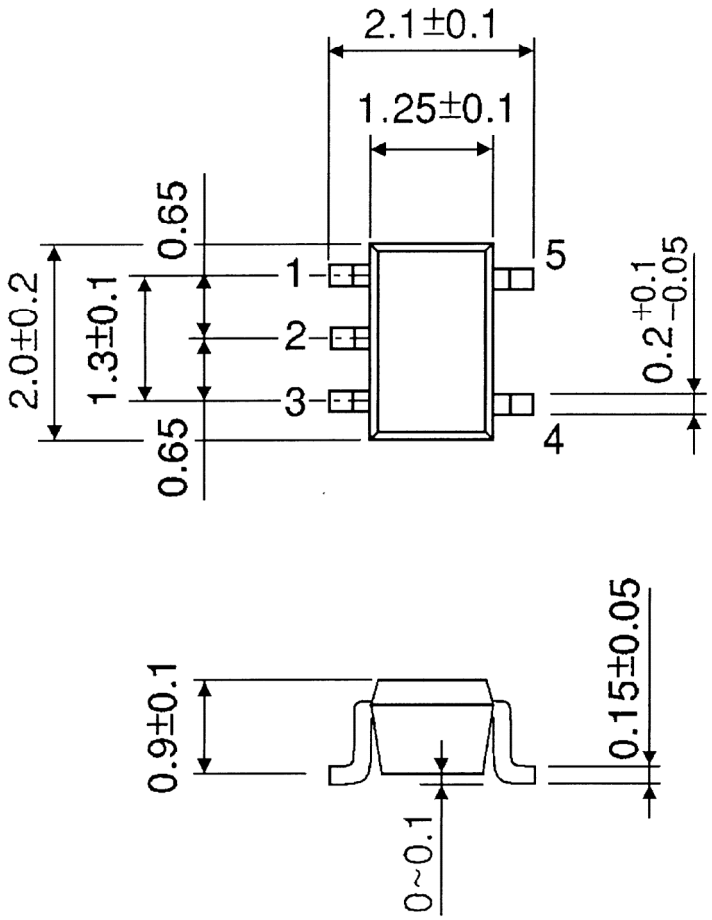
TOSHIBA assume no responsibility for the integrity of customer circuit designs or applications.

Equivalent Circuit



Package Dimensions

SSOP5-P-0.65 Unit : mm



Weight : 0.006 g (Typ.)

RESTRICTIONS ON PRODUCT USE

20070701-EN GENERAL

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