

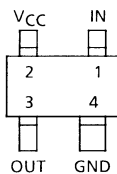
# TA4002F

## VHF~UHF Wide Band Amplifier

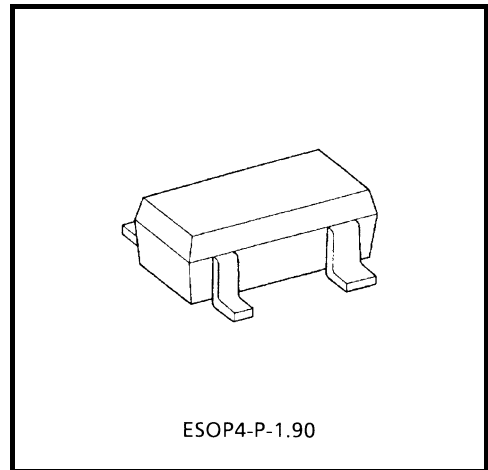
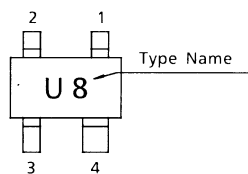
### Features

- Band width: 1.3 GHz (typ.) (3dB down)
- High gain:  $|S_{21}|^2 = 23\text{dB}$  (typ.) ( $f = 500\text{ MHz}$ )
- 50  $\Omega$  Input and output impedance
- Small package

### Pin Assignment (top view)



### Marking



Weight: 0.013 g (typ.)

### Absolute Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Supply voltage	V <sub>CC</sub>	6	V
Total power dissipation	P <sub>D</sub> (Note 1)	300	mW
Operating temperature	T <sub>opr</sub>	-40~85	°C
Storage temperature	T <sub>stg</sub>	-55~125	°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).

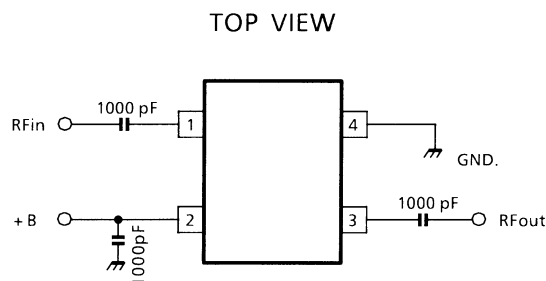
Note 1: When mounted glass epoxy of 2.5 cm<sup>2</sup> × 1.6 t

## Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Circuit current	$I_{CC}$	—	$V_{CC} = 5\text{ V}$ , non carrier	10	14	20	mA
Insertion gain	$ S_{21} ^2$	1	$V_{CC} = 5\text{ V}$ , $f = 500\text{ MHz}$	20	23	26	dB
Band width	BW	1	$V_{CC} = 5\text{ V}$ (Note 2)	0.8	1.3	—	GHz
Noise figure	NF	1	$V_{CC} = 5\text{ V}$ , $f = 500\text{ MHz}$	—	4.7	7	dB
Input return loss	$ S_{11} ^2$	1	$V_{CC} = 5\text{ V}$ , $f = 500\text{ MHz}$	—	-8	—	dB
Output return loss	$ S_{22} ^2$	1	$V_{CC} = 5\text{ V}$ , $f = 500\text{ MHz}$	—	-15	—	dB
Isolation	$ S_{12} ^2$	1	$V_{CC} = 5\text{ V}$ , $f = 500\text{ MHz}$	—	-33	—	dB
Maximum output level	$P_O$	1	$V_{CC} = 5\text{ V}$ , $f = 500\text{ MHz}$ , $P_{in} = 0\text{ dBmW}$	—	5	—	dBmW

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

### Test Circuit 1



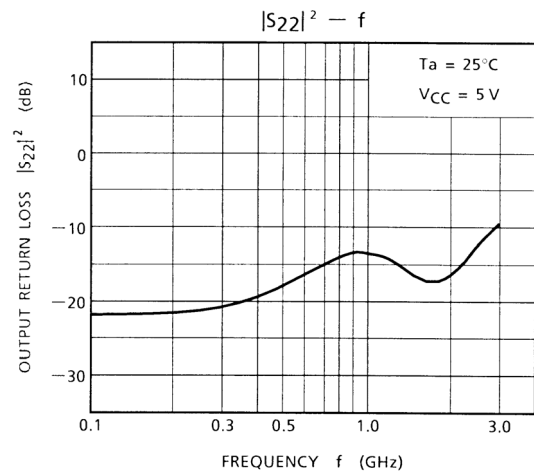
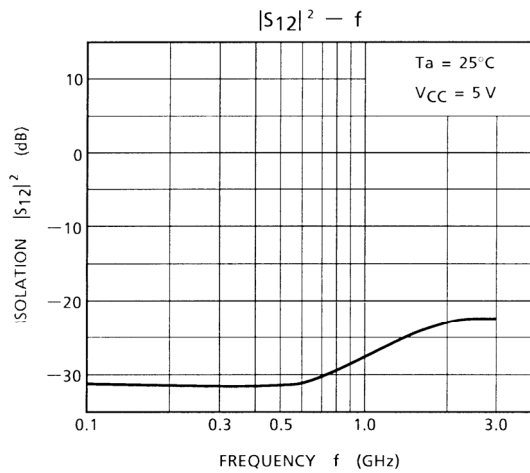
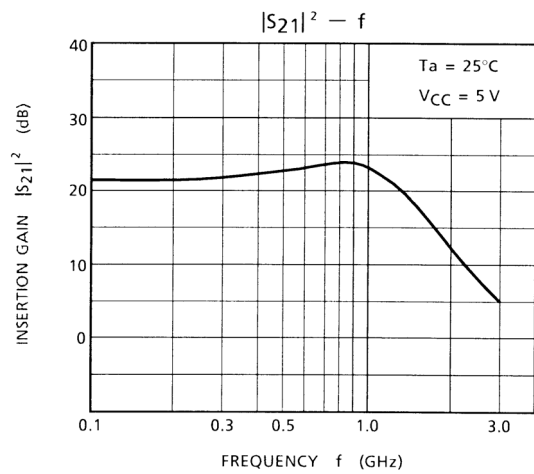
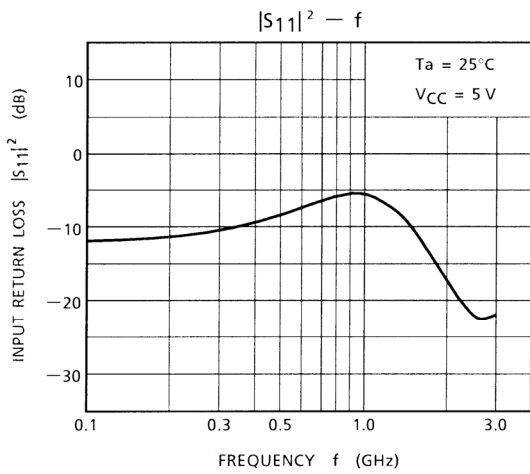
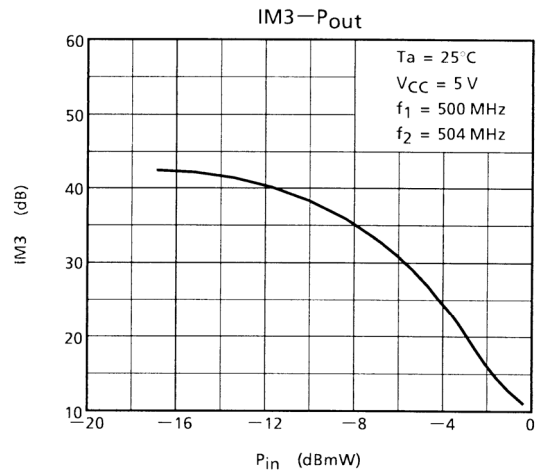
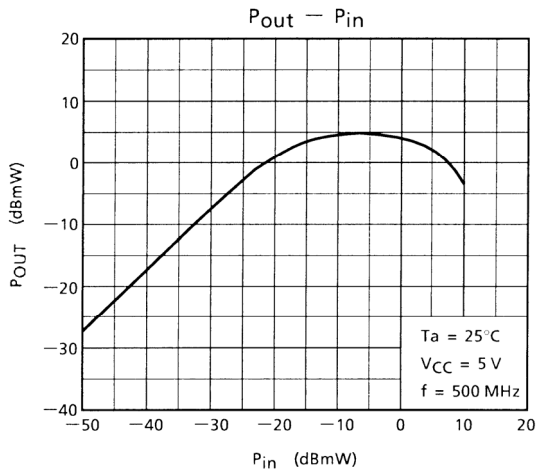
### Notice

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.

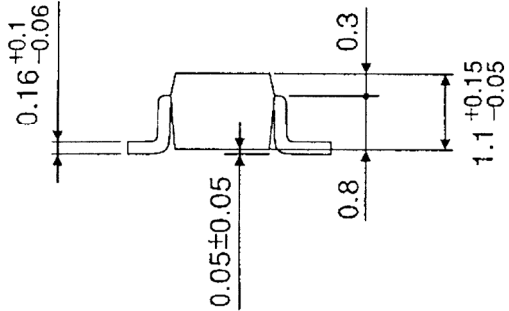
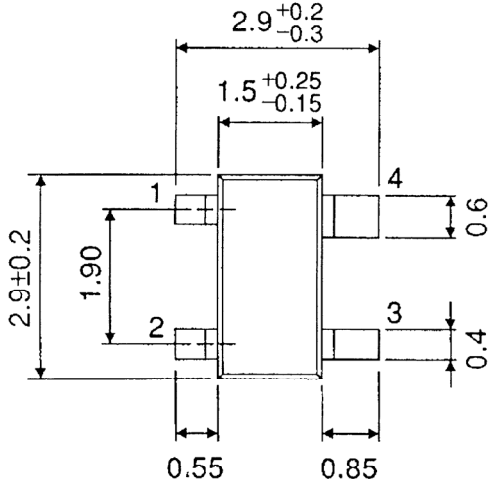
TOSHIBA assume no responsibility for the integrity of customer circuit designs or applications.



Package Dimensions

ESOP4-P-1.90

Unit : mm



Weight : 0.013 g (Typ.)

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20070701-EN GENERAL

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