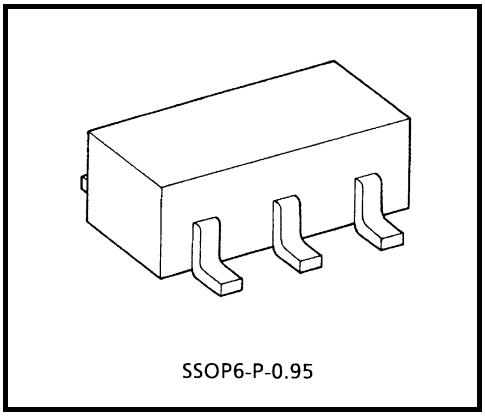
TOSHIBA Bipolar Linear Integrated Circuit Silicon Monolithic

TA4000F

VHF~UHF Wide Band Amplifier Applications

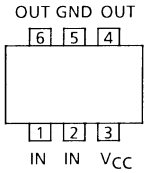
Features

- Band width : 700 MHz (min) @3dB down
- Low noise: 4dB (typ.) @f = 400 MHz
- Small package

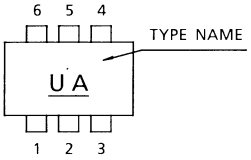


Weight: 0.014 g (typ.)

Pin Assignment (top view)



Marking



Absolute Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Supply voltage	V_{CC}	6	V
Total power dissipation	P_D (Note 1)	300	mW
Operating temperature	T_{opr}	−40~85	°C
Storage temperature	T_{stg}	−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).

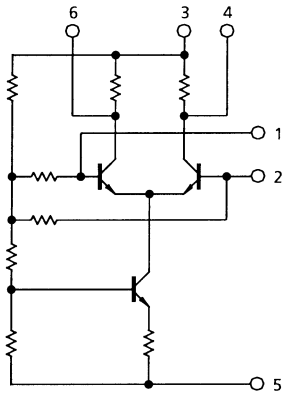
Note 1: When mounted on the glass epoxy board of 2.5 cm^2 × 1.6 t

Electrical Characteristics (Ta = 25°C)

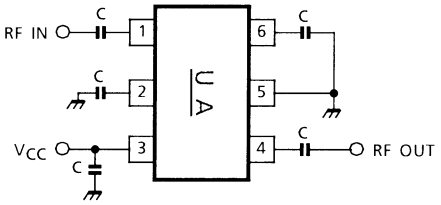
Characteristics	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Circuit current	I_{CC}	—	V_{CC} = 5 V, non carrier	9	12	15	mA
Gain	$\|S_{21}\|^2$	1	V_{CC} = 5 V, f = 400 MHz	11	15	18	dB
Noise figure	NF	1	V_{CC} = 5 V, f = 400 MHz	—	4	7	dB
Band width	BW	1	V_{CC} = 5 V (Note 2)	0.7	1.3	—	GHz
Maximum output level	P_O	1	V_{CC} = 5 V, f = 400 MHz P_{in} = −10dBmW	−8	−2	—	dBmW

Note 2: Frequency of 3dB down from $|S_{21}|^2$ (at f = 400 MHz)

Equivalent Circuit



RF Measure Circuit 1



(*) C : 1000 pF & 10000 pF

Notice

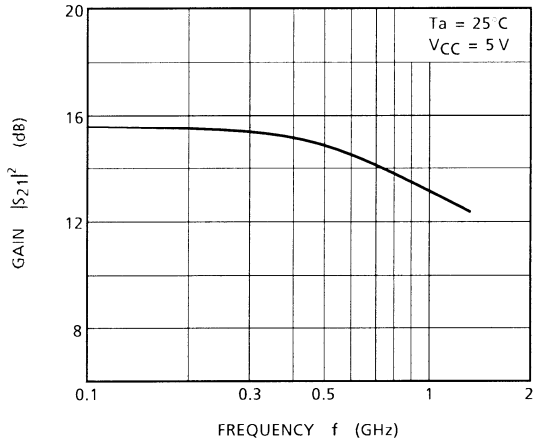
The circuits and measurements contained in this document are given only in the context of as examples of applications for these products.

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.

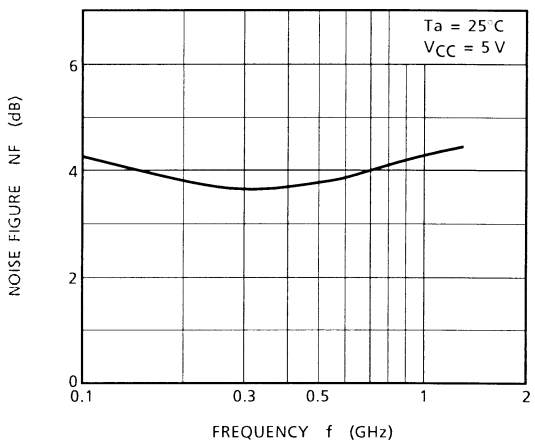
It is the responsibility of the customer to design external circuits which correctly implement the intended application, and to check the characteristics of the design.

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

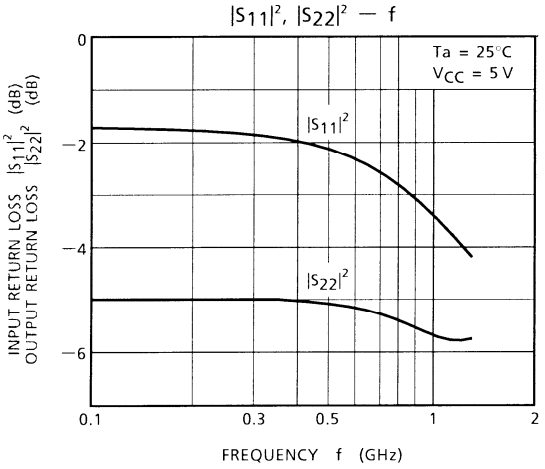
$|S_{21}|^2$ — f



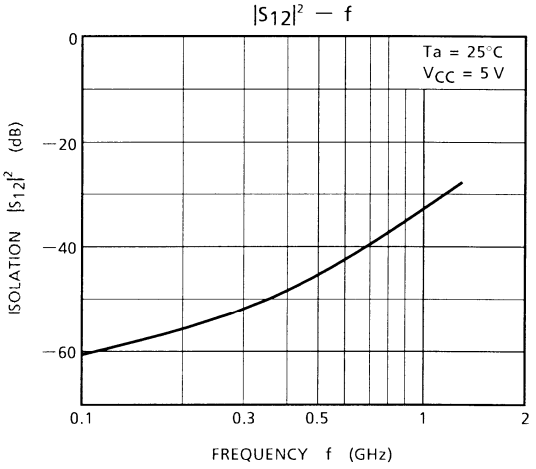
NF — f



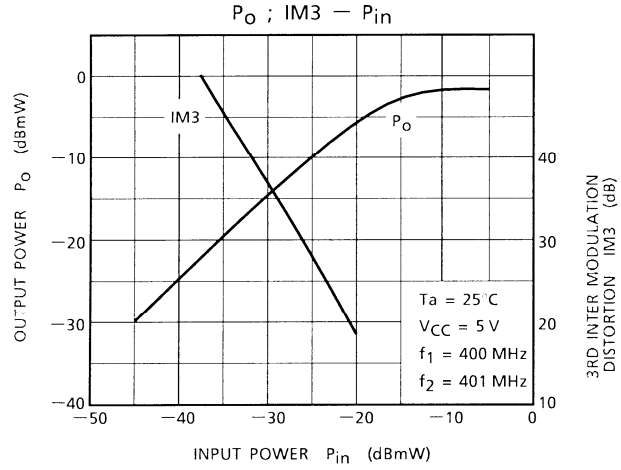
$|S_{11}|^2$, $|S_{22}|^2$ — f



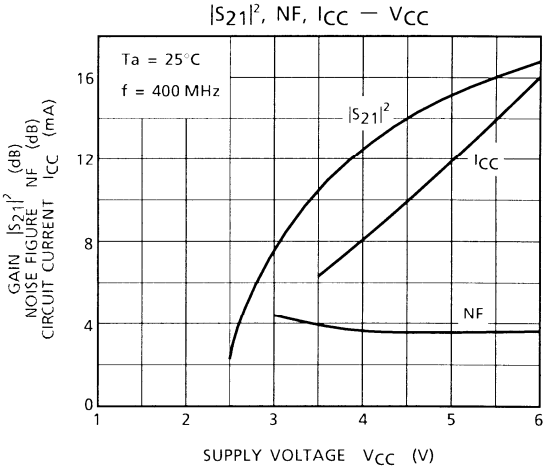
$|S_{12}|^2$ — f



P_O ; IM3 — P_{in}

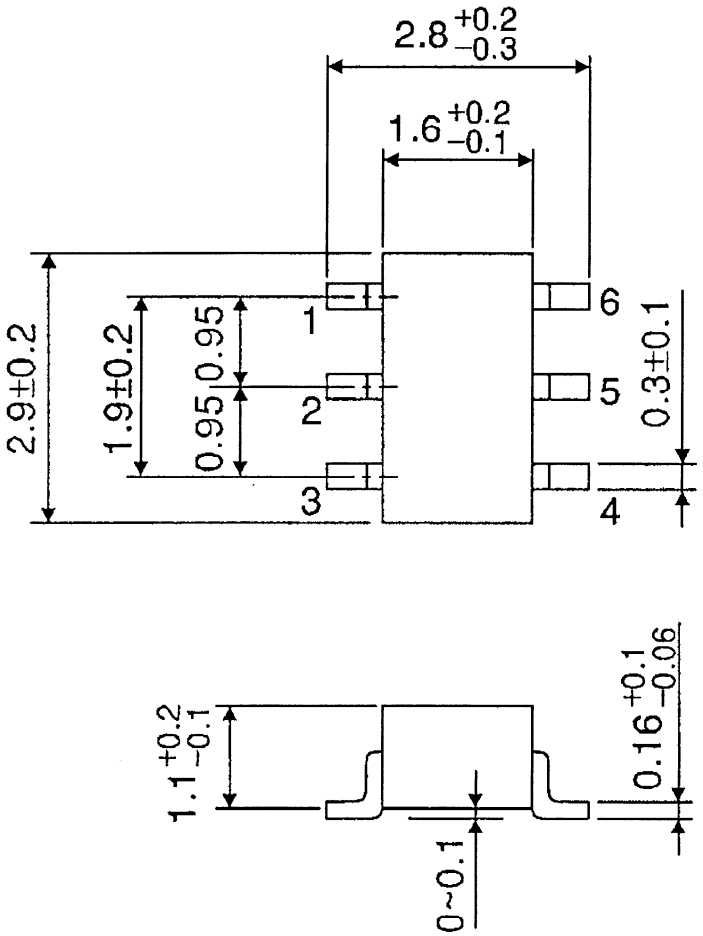


$|S_{21}|^2$, NF, I_{CC} — V_{CC}



Package Dimensions

SSOP6-P-0.95 Unit : mm



Weight : 0.014 g (Typ.)

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