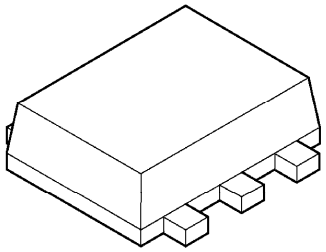
TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

TA4016AFE

UHF WIDE BAND AMPLIFIER APPLICATIONS

FEATURES

- Low Current : I_{CC} = 6 mA
- Wide Band : f = 3.2 GHz (3 dB down)
- Operating Supply Voltage : V_{CC} = 1.8~3 V



SSOP6-P-0.5

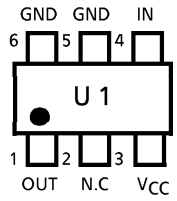
Weight : 0.003 g (Typ.)

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	3.6	V
Total Power Dissipation	P_D (*)	300	mW
Operating Temperature	T_{opr}	−40~85	°C
Storage Temperature	T_{stg}	−55~150	°C

(*) : When mounted on the glass epoxy of 2.5 cm^2 × 1.6 t

PIN ASSIGNMENT



CAUTION

This device electrostatic sensitivity. Please handle with caution.

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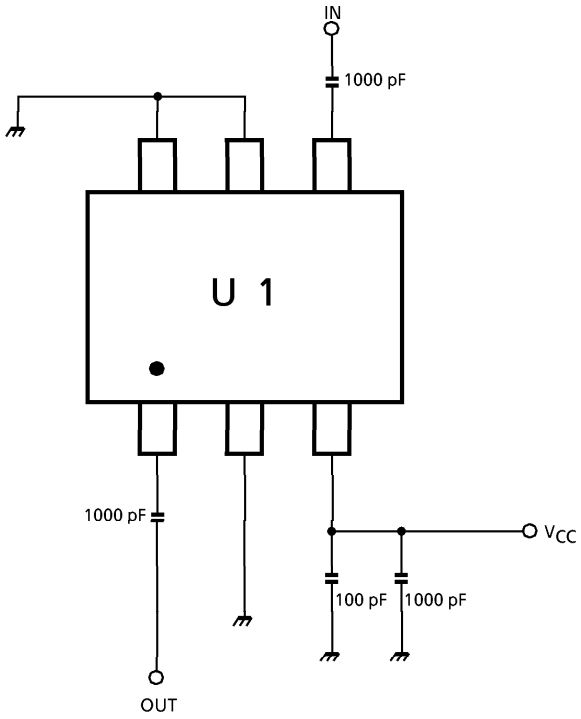
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  In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent TOSHIBA products specifications. Also, please keep in mind the precautions and conditions set forth in the "Handling Guide for Semiconductor Devices," or "TOSHIBA Semiconductor Reliability Handbook" etc..
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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	5	6	8	mA
Band Width	BW	V_{CC} = 2 V (Note)	2.8	3.2	—	GHz
Insertion Gain	$\|S21\|^2$	V_{CC} = 2 V, f = 1.5 GHz	17	19	22	dB
Noise Figure	NF	V_{CC} = 2 V, f = 1.5 GHz	—	4.5	6	dB
Isolation	$\|S12\|^2$	V_{CC} = 2 V, f = 1.5 GHz	—	−34	—	dB
Input Return Loss	$\|S11\|^2$	V_{CC} = 2 V, f = 1.5 GHz	—	−16	—	dB
Output Return Loss	$\|S22\|^2$	V_{CC} = 2 V, f = 1.5 GHz	—	−7	—	dB
Output Power at 1dB Gain Compression	Po1dB	V_{CC} = 2 V, f = 1.5 GHz	—	−7	—	dBmW

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

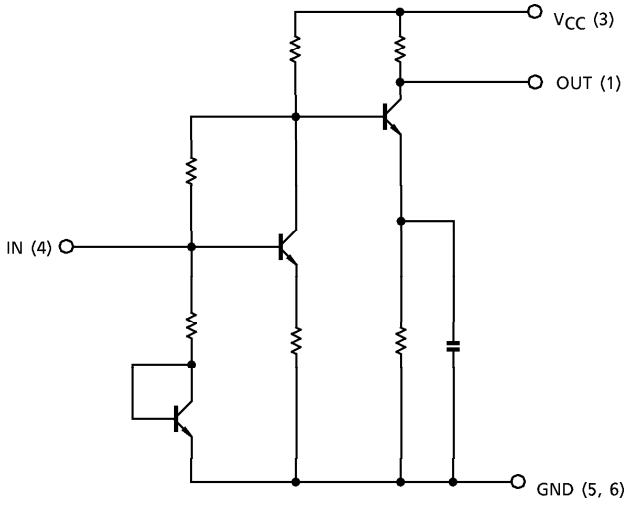
TEST CIRCUIT



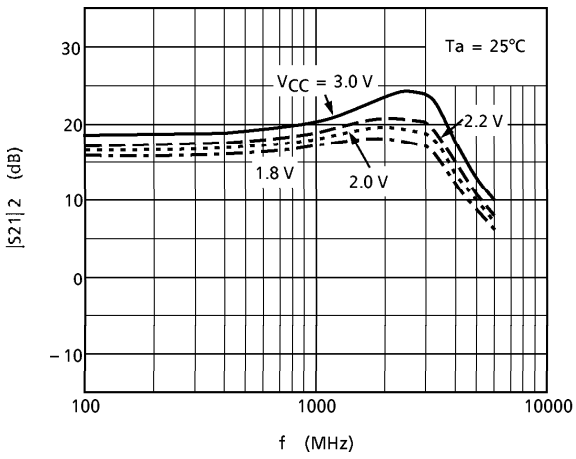
NOTICE

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.

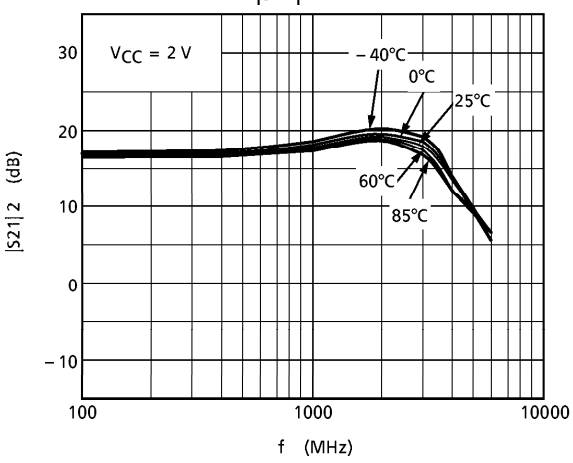
EQUIVALENT CIRCUIT



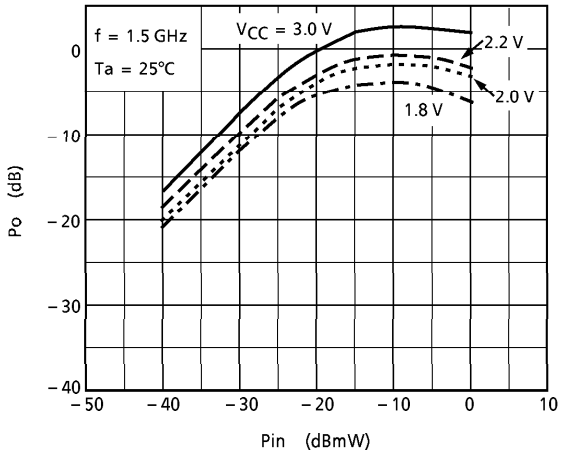
|S21|2 – f



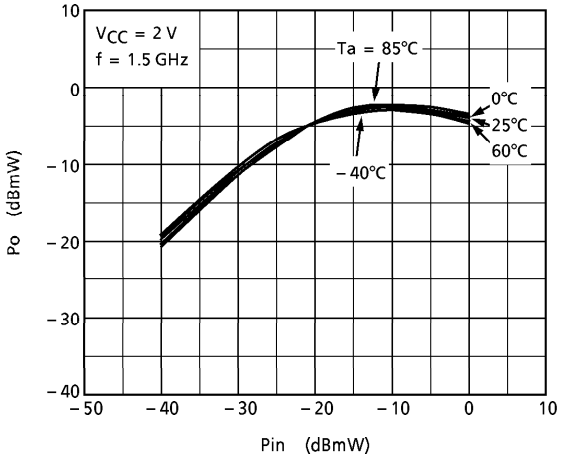
|S21|2 – f



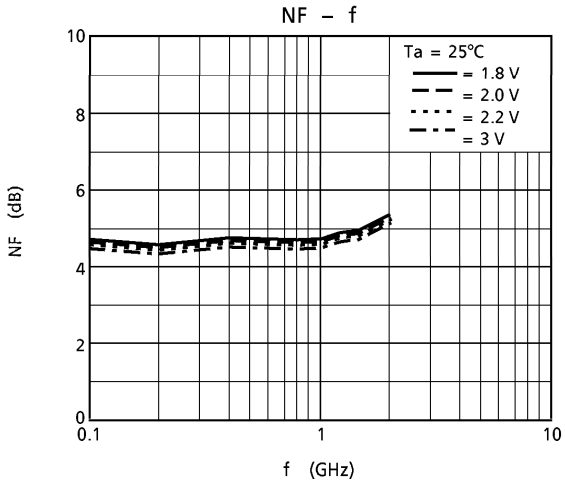
Po – Pin



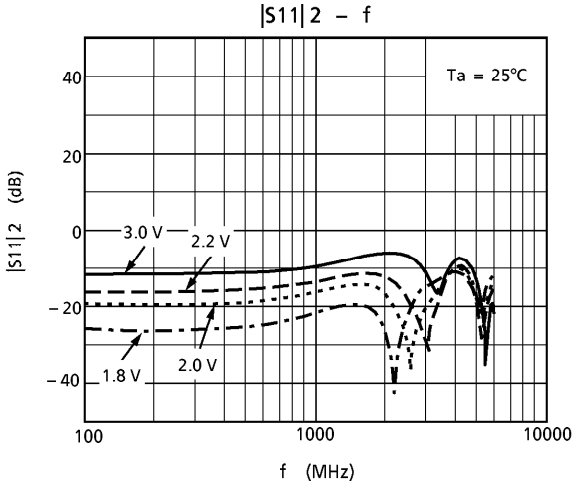
Po – Pin



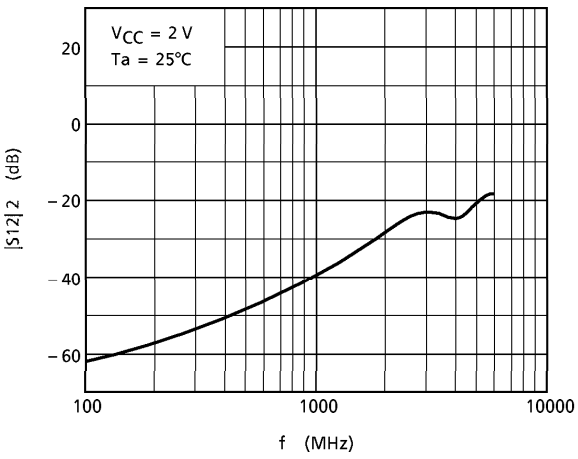
NF – f



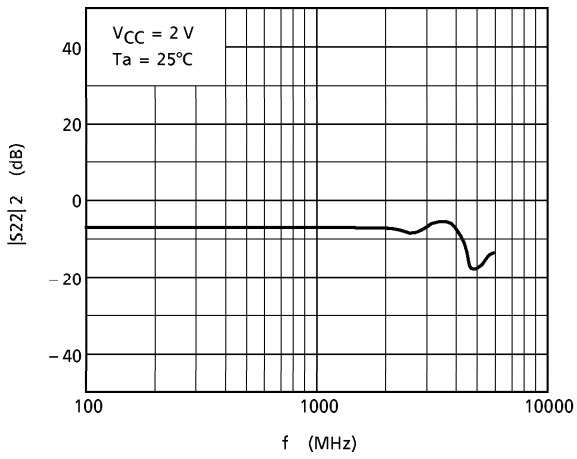
|S11|2 – f



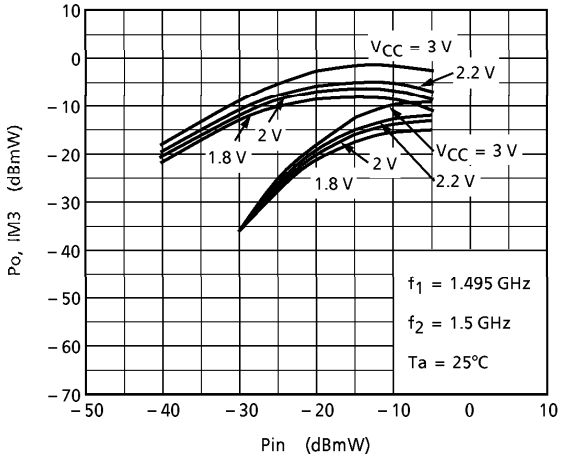
|S12|2 – f



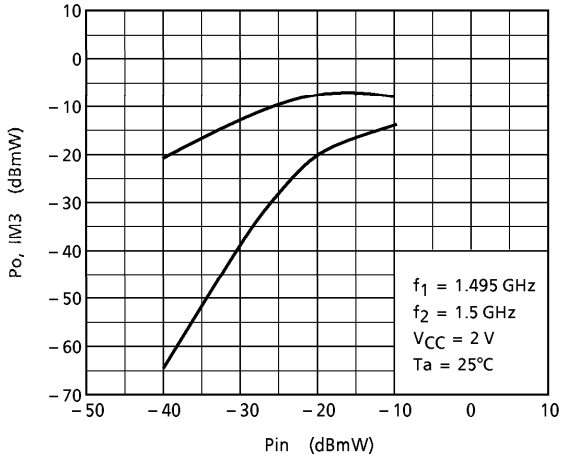
|S22|2 – f



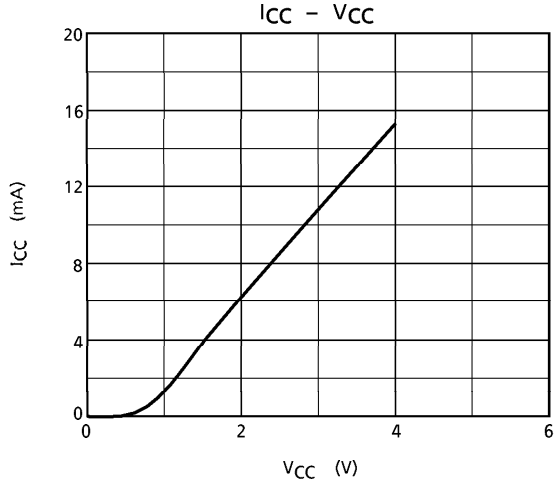
Pin – Pout, IM3



Pin – Pout, IM3



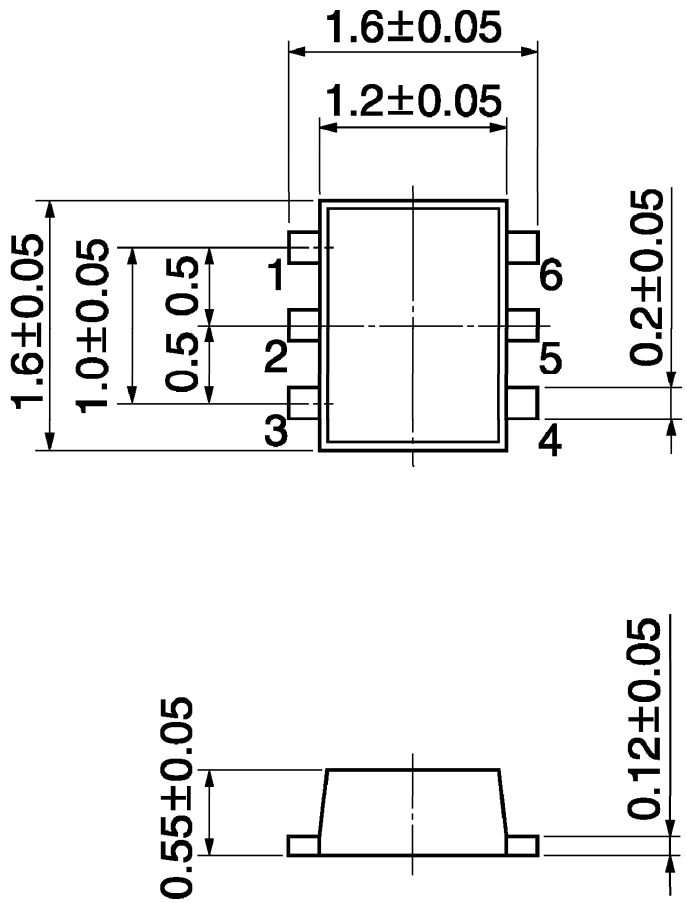
ICC – VCC



PACKAGE DIMENSIONS

SSOP6-P-0.5

Unit : mm



Weight : 0.003 g (Typ.)