TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

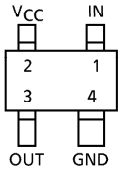
TA4002F

VHF~UHF WIDE BAND AMPLIFIER

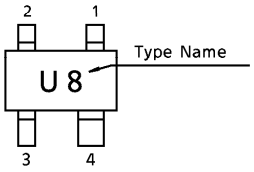
FEATURES

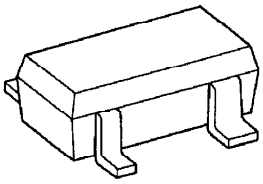
- Band Width 1.3GHz (Typ.) (3dB down)
- High Gain : $|S_{21}|^2$ = 23dB (Typ.) (f = 500MHz)
- 50Ω Input and Output Impedance
- Small Package

PIN ASSIGNMENT (TOP VIEW)



Marking





ESOP4-P-1.90

Weight : 0.013g (Typ.)

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	6	V
Total Power Dissipation	P_D*	300	mW
Operating Temperature	T_{opr}	−40~85	°C
Storage Temperature	T_{stg}	−55~125	°C

* When mounted glass epoxy of 2.5cm² × 1.6t

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Circuit Current	I_{CC}	—	V_{CC} = 5V, Non carrier	10	14	20	mA
Insertion Gain	$\|S_{21}\|^2$	1	V_{CC} = 5V, f = 500MHz	20	23	26	dB
Band Width	BW	1	V_{CC} = 5V (Note 1)	0.8	1.3	—	GHz
Noise Figure	NF	1	V_{CC} = 5V, f = 500MHz	—	4.7	7	dB
Input Return Loss	$\|S_{11}\|^2$	1	V_{CC} = 5V, f = 500MHz	—	−8	—	dB
Output Return Loss	$\|S_{22}\|^2$	1	V_{CC} = 5V, f = 500MHz	—	−15	—	dB
Isolation	$\|S_{12}\|^2$	1	V_{CC} = 5V, f = 500MHz	—	−33	—	dB
Maximum Output Level	P_O	1	V_{CC} = 5V, f = 500MHz, Pin = 0dBmW	—	5	—	dBmW

Note 1 : BW is frequency of 3dB down from $|S_{21}|^2$ at 500MHz.

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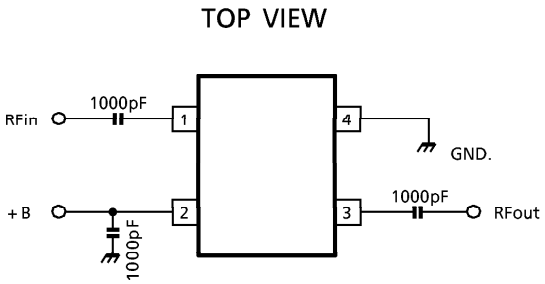
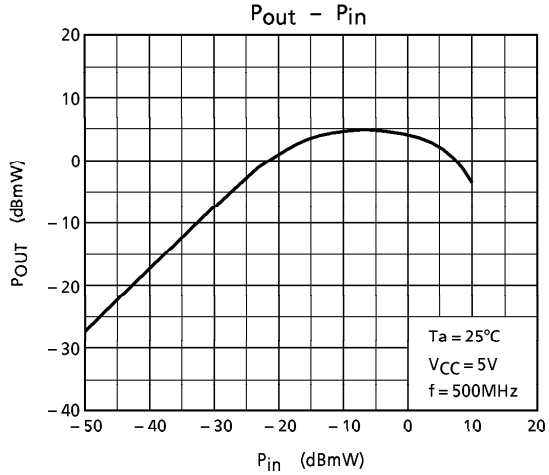
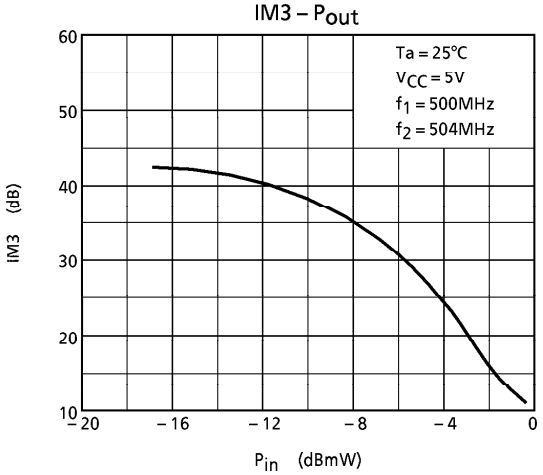
TEST CIRCUIT 1



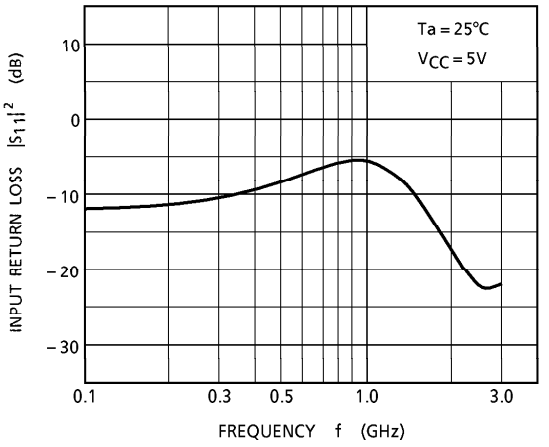
P_{out} – P_{in}



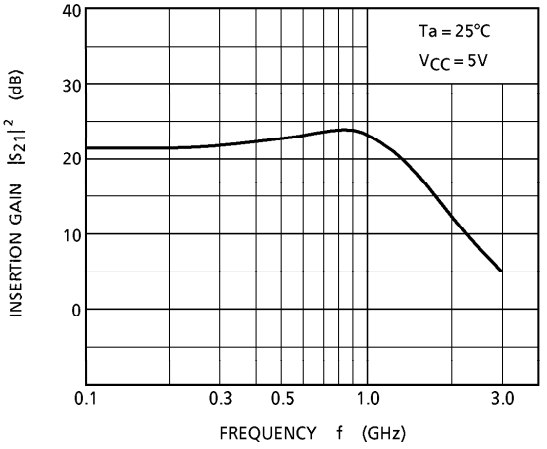
IM3 – P_{out}



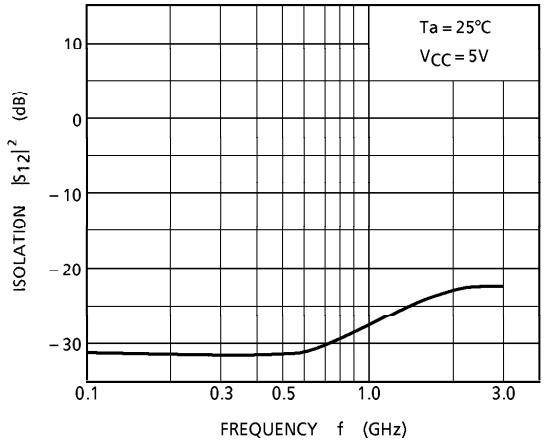
$|S_{11}|^2$ – f



$|S_{21}|^2$ – f



$|S_{12}|^2$ – f



$|S_{22}|^2$ – f