

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

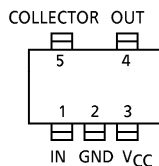
TA4003F

VHF~UHF WIDE BAND AMPLIFIER

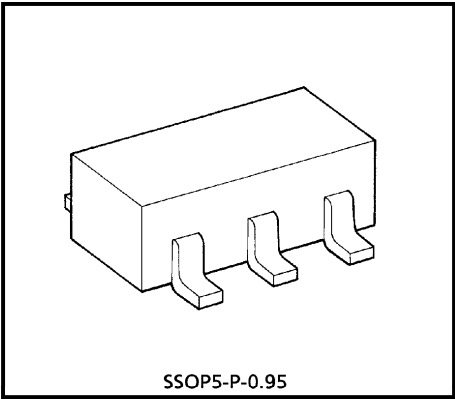
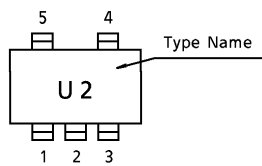
FEATURES

- Band Width 1.5 CHz (Typ.) (3 dB down, V_{CC} = 2 V)
- High Gain : |S₂₁|² = 11dB (Typ.), (f = 500 MHz, V_{CC} = 2 V)
- Operating Supply Voltage : V_{CC} = 2~3 V
- Low Current Operation : I_{CC} = 3.5 mA (Typ.) (V_{CC} = 2 V)
- Small Package

PIN ASSIGNMENT (TOP VIEW)



MARKING



MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V _{CC}	4	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 2.5 cm² × 1.6 t

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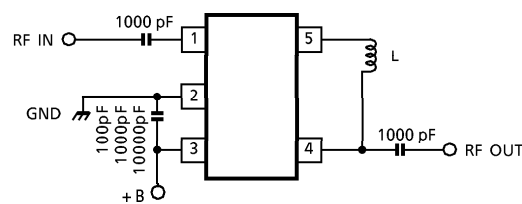
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ELECTRICAL CHARACTERISTICS (Ta = 25°C) (Note 1)

CHARACTERISTIC	SYMBOL	TEST CIR- CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Circuit Current	I_{CC}	—	$V_{CC} = 2\text{ V}$, Non carrier	2.5	3.5	4.5	mA
Insertion Gain	$ S_{21} ^2$	1	$V_{CC} = 2\text{ V}$, $f = 500\text{ MHz}$	9	11	14	dB
Band Width	BW	1	$V_{CC} = 2\text{ V}$ (Note 2)	1.2	1.5	—	GHz
Noise Figure	NF	1	$V_{CC} = 2\text{ V}$, $f = 500\text{ MHz}$	—	5.2	7	dB
Input Return Loss	$ S_{11} ^2$	1	$V_{CC} = 2\text{ V}$, $f = 500\text{ MHz}$	—	-7.5	—	dB
Output Return Loss	$ S_{22} ^2$	1	$V_{CC} = 2\text{ V}$, $f = 500\text{ MHz}$	—	-7.5	—	dB
Isolation	$ S_{12} ^2$	1	$V_{CC} = 2\text{ V}$, $f = 500\text{ MHz}$	—	-24	—	dB
Maximum Output Level	P_O	1	$V_{CC} = 2\text{ V}$, $f = 500\text{ MHz}$, $P_{in} = 0\text{ dBmW}$	—	0	—	dBmW

(Note 1) : Have use for connect inductance between terminal 4 and 5 8 nH at $V_{CC} = 2\text{ V}$
(Note 2) : BW is frequency of 3 dB down from $|S_{21}|^2$ at 500 MHz.

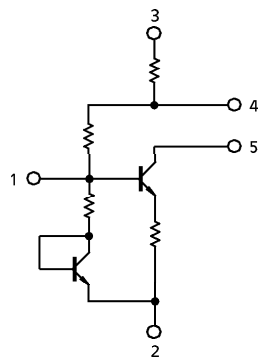
TEST CIRCUIT 1 (TOP VIEW)

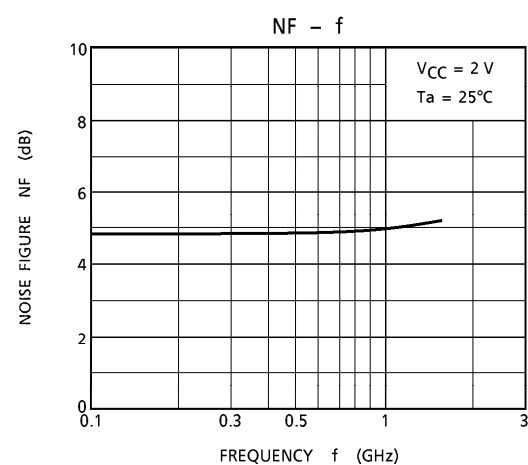
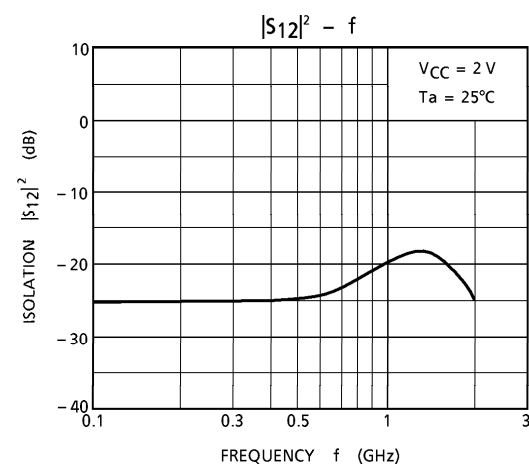
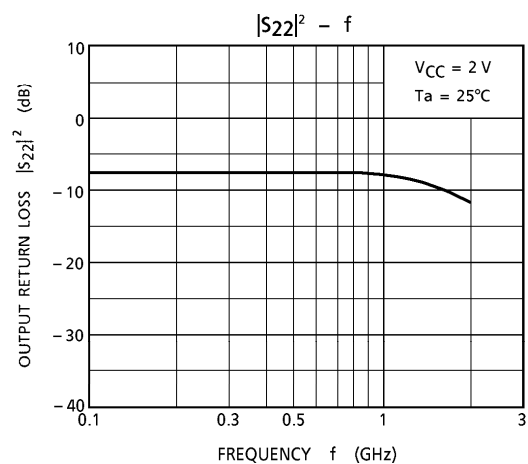
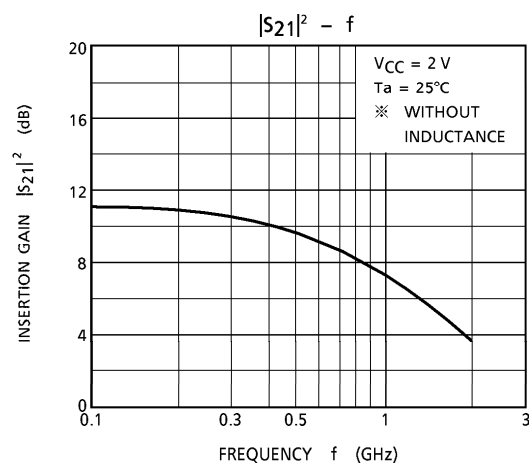
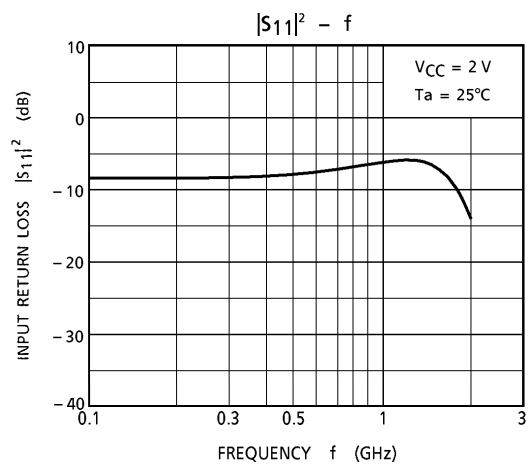
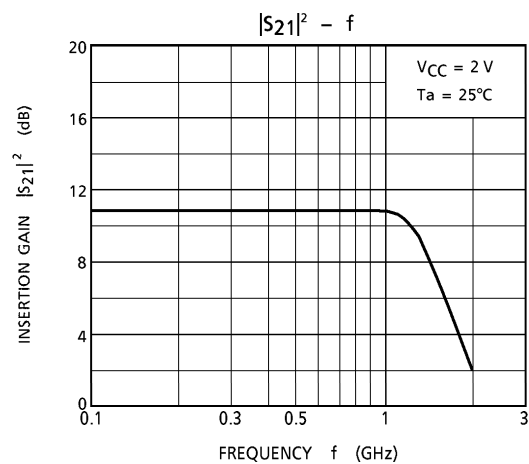


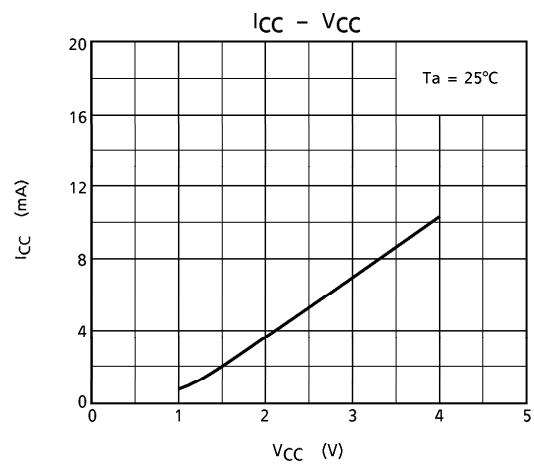
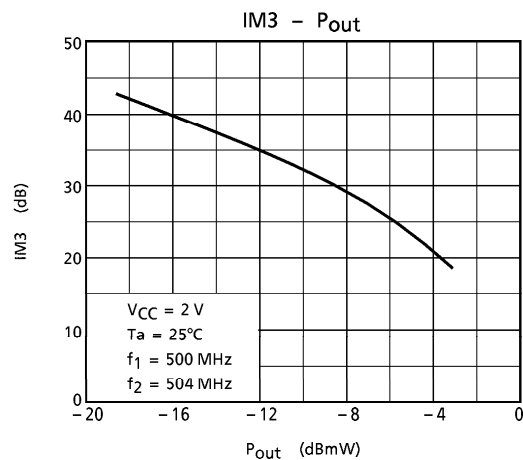
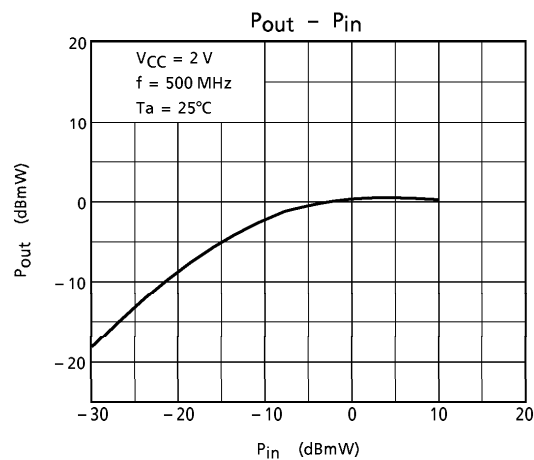
NOTICE

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

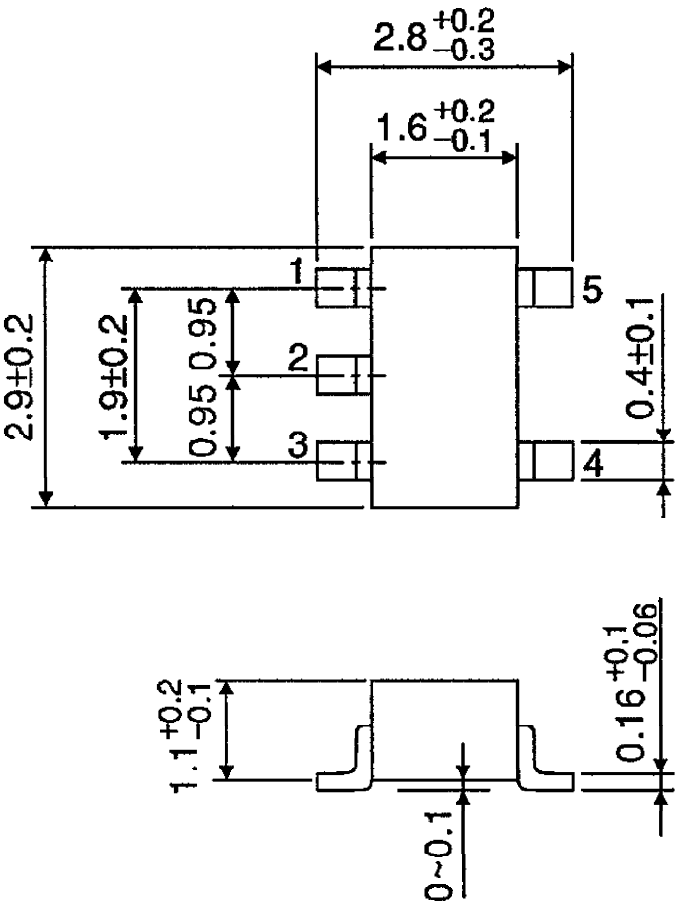






PACKAGE DIMENSIONS
SSOP5-P-0.95

Unit : mm



Weight : 0.014 g (Typ.)