

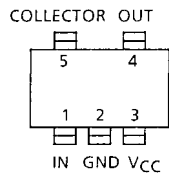
TA4004F

VHF~UHF Wide Band Amplifier

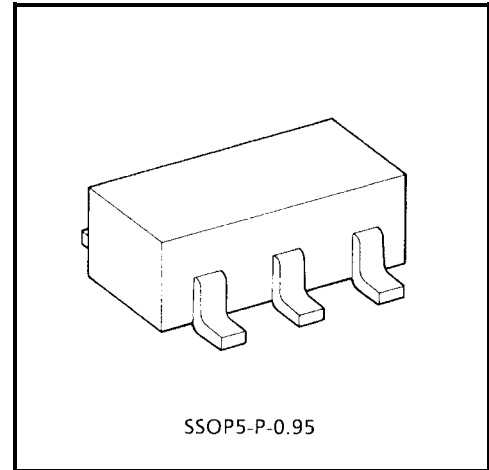
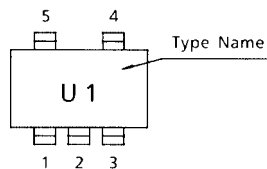
Features

- Band width: 1.2 GHz (typ.) (3dB down, $V_{CC} = 2\text{ V}$)
- High gain: $|S_{21}|^2 = 10.5\text{dB}$ (typ.) ($f = 500\text{ MHz}$, $V_{CC} = 2\text{ V}$)
- Operating supply voltage: $V_{CC} = 2\sim 5\text{ V}$
- Low current operation: $I_{CC} = 3.1\text{ mA}$ (typ.) ($V_{CC} = 2\text{ V}$)
- Small package

Pin Assignment (top view)



Marking



Weight: 0.014 g (typ.)

Maximum Ratings ($T_a = 25^\circ\text{C}$)

Characteristic	Symbol	Rating	Unit
Supply voltage	V_{CC}	6	V
Total power dissipation	P_D (Note1)	300	mW
Operating temperature	T_{opr}	$-40\sim 85$	$^\circ\text{C}$
Storage temperature	T_{stg}	$-55\sim 125$	$^\circ\text{C}$

Note 1: When mounted glass epoxy of $2.5\text{ cm}^2 \times 1.6\text{ t}$

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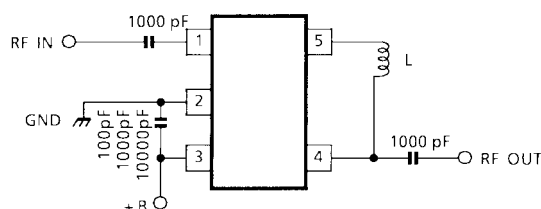
Electrical Characteristics (Ta = 25°C) (Note2)

Characteristics	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Circuit current	I_{CC}	—	$V_{CC} = 2\text{ V}$, non carrier	2.5	3.1	4	mA
			$V_{CC} = 5\text{ V}$, non carrier	10	12.5	16	
Insertion gain	$ S_{21} ^2$	1	$V_{CC} = 2\text{ V}$, $f = 500\text{ MHz}$	8.5	10.5	13.5	dB
			$V_{CC} = 5\text{ V}$, $f = 500\text{ MHz}$	13	15	18	
Band width	BW	1	$V_{CC} = 2\text{ V}$ (Note 3)	0.9	1.2	—	GHz
			$V_{CC} = 5\text{ V}$ (Note 3)	0.7	1	—	
Noise figure	NF	1	$V_{CC} = 2\text{ V}$, $f = 500\text{ MHz}$	—	4.2	6	dB
			$V_{CC} = 5\text{ V}$, $f = 500\text{ MHz}$	—	4.7	6.5	
Input return loss	$ S_{11} ^2$	1	$V_{CC} = 2\text{ V}$, $f = 500\text{ MHz}$	—	-7	—	dB
			$V_{CC} = 5\text{ V}$, $f = 500\text{ MHz}$	—	-9	—	
Output return loss	$ S_{22} ^2$	1	$V_{CC} = 2\text{ V}$, $f = 500\text{ MHz}$	—	-7	—	dB
			$V_{CC} = 5\text{ V}$, $f = 500\text{ MHz}$	—	-9	—	
Isolation	$ S_{12} ^2$	1	$V_{CC} = 2\text{ V}$, $f = 500\text{ MHz}$	—	-23	—	dB
			$V_{CC} = 5\text{ V}$, $f = 500\text{ MHz}$	—	-24	—	
Maximum output level	P_O	1	$V_{CC} = 2\text{ V}$, $f = 500\text{ MHz}$, $P_{in} = 0\text{ dBmW}$	—	0	—	dBmW
			$V_{CC} = 5\text{ V}$, $f = 500\text{ MHz}$, $P_{in} = 0\text{ dBmW}$	—	8	—	

Note 2: Have use for connect inductance between terminal 4 and 5 9 nH at $V_{CC} = 2\text{ V}$

Note 3: BW is frequency of 3dB down from $|S_{21}|^2$ at 500 MHz. 10.5 nH at $V_{CC} = 5\text{ V}$

Test Circuit 1 (top view)



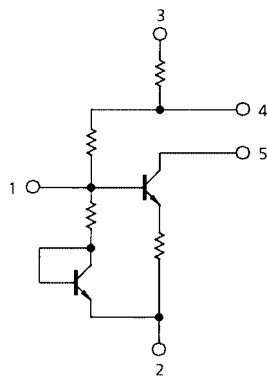
Notice

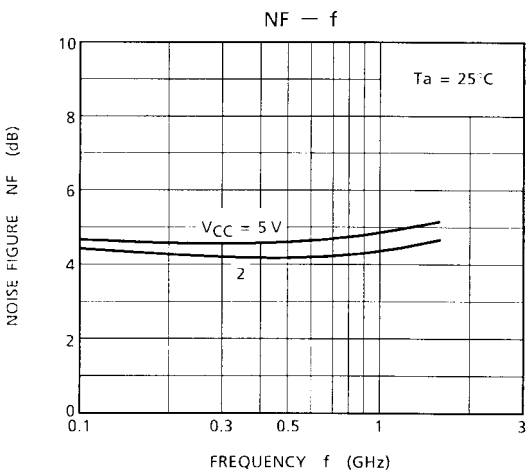
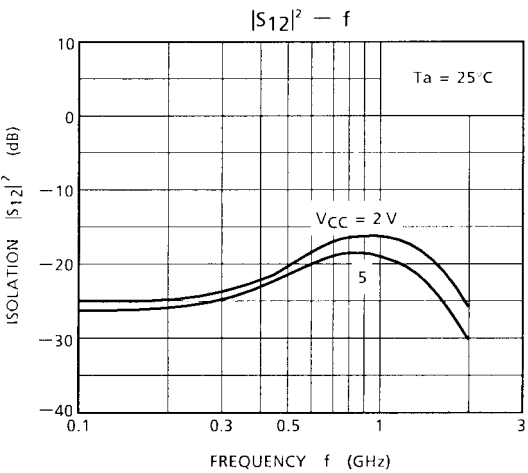
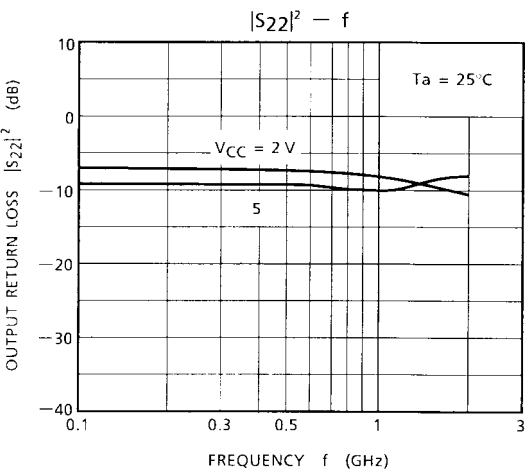
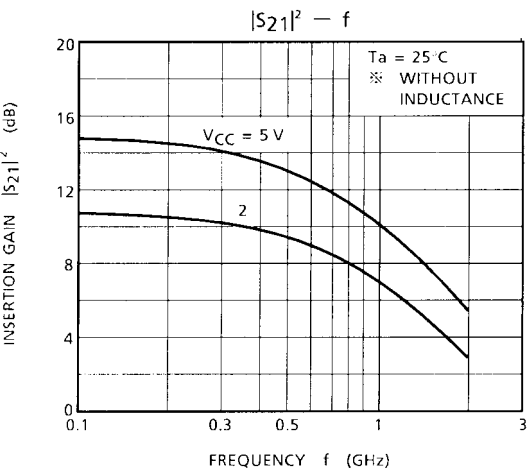
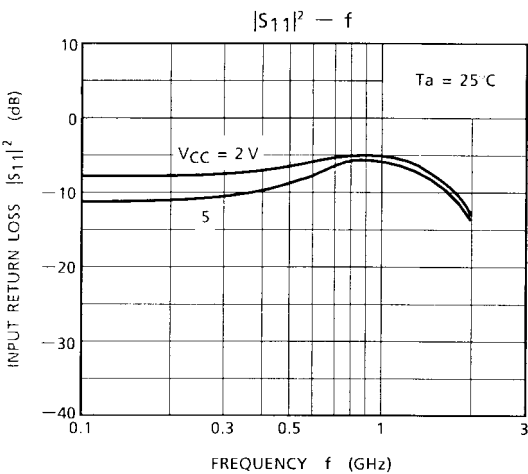
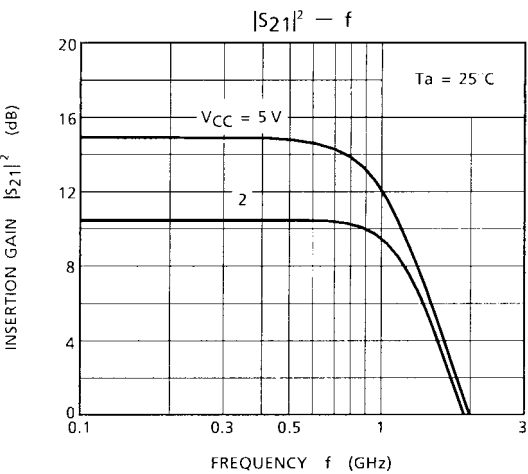
The circuits and measurements contained in this document are given only in the context of as examples of applications for these products.

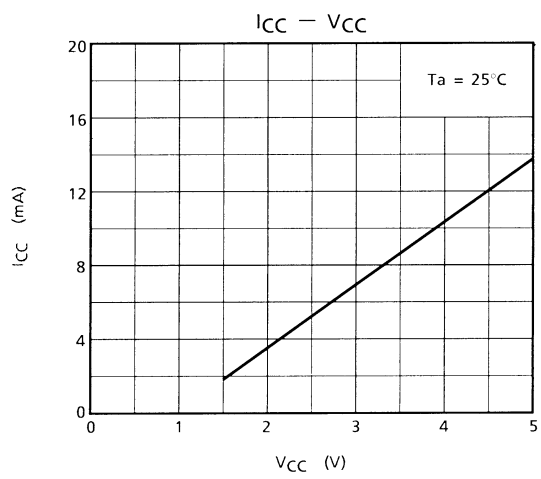
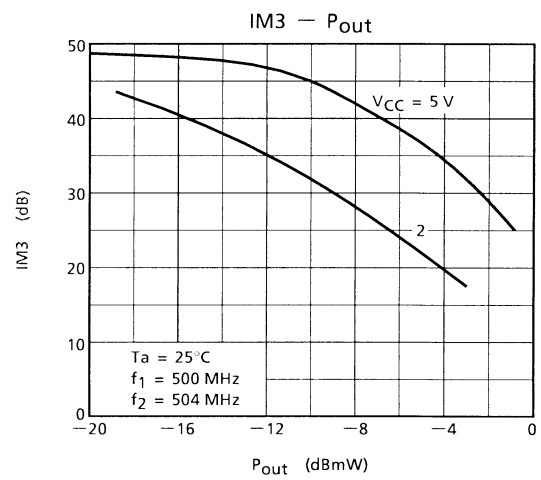
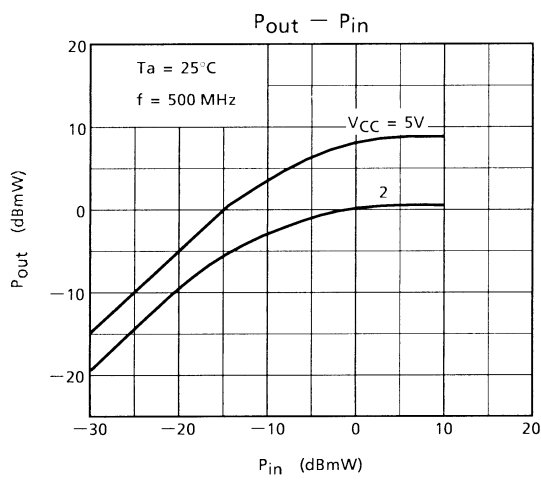
Moreover, these example application circuits are not intended for mass production, since the high-frequency characteristics (the AC characteristics) of these devices will be affected by the external components which the customer uses, by the design of the circuit and by various other conditions.

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

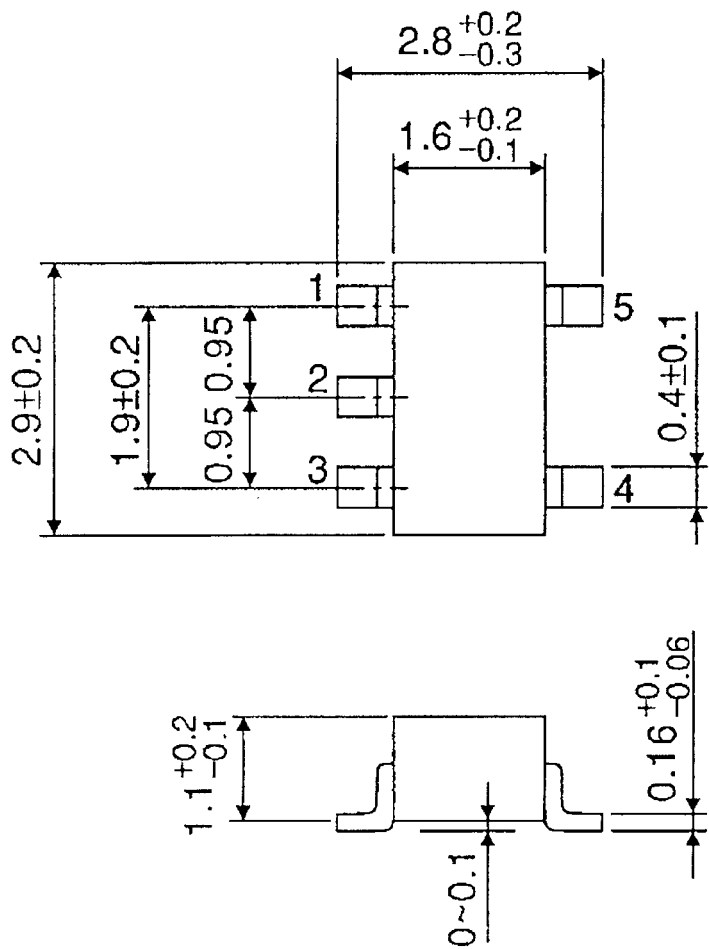




Package Dimensions

SSOP5-P-0.95

Unit : mm



Weight : 0.014 g (Typ.)