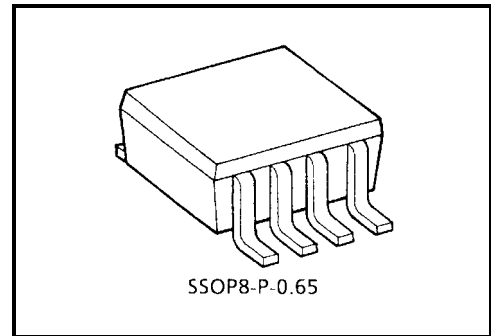


# TA4019F

## UHF Wide Band Amplifier Applications

### Features

- High gain:  $|S_{21}|^2 = 30\text{dB}$  (@45 MHz)
- Low distortion:  $\text{IM3} = 53\text{dB}$  (@45 MHz)
- Operating supply voltage:  $V_{CC} = 4.75\text{ V} \sim 5.25\text{ V}$



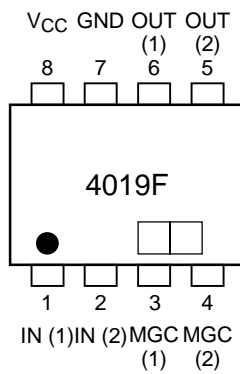
Weight: 0.02g (typ.)

### Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Supply voltage	$V_{CC}$	5.5	V
Total power dissipation	$P_D$ (Note 1)	550	mW
Operating temperature	$T_{opr}$	-40~85	°C
Storage temperature	$T_{stg}$	-55~150	°C

Note 1: When mounted on the glass epoxy  $2.5\text{cm}^2 \times 0.4\text{ t}$

### Pin Assignment

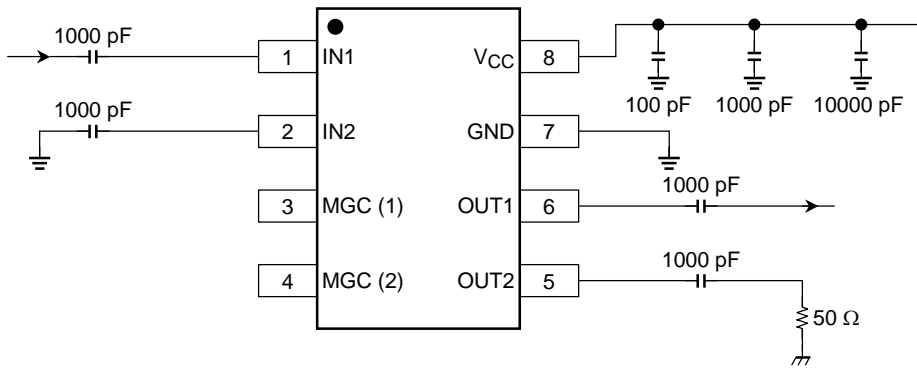


Electrical Characteristics ( $T_a = 25^\circ\text{C}$ ,  $V_{CC} = 5\text{ V}$ ,  $Z_g = Z_l = 50\ \Omega$ )

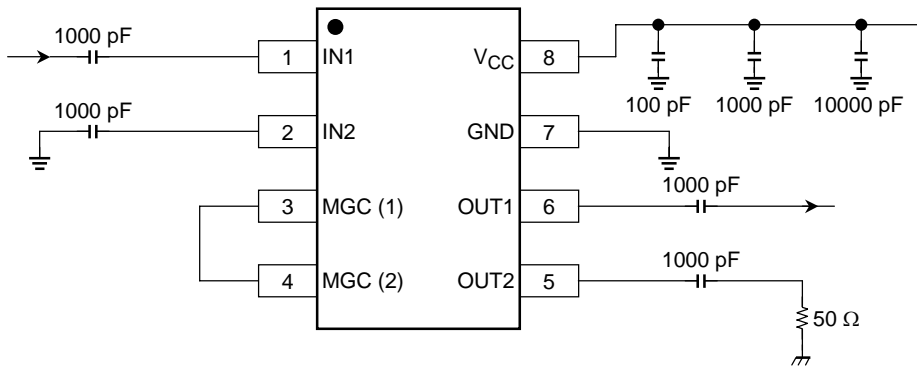
Characteristics	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Circuit current	$I_{CC}$	Fig2	Non carrier	28	35	42	mA
Band width	BW		(Note 2)	200	300	—	MHz
Input return loss	$ S_{11} ^2$		$f = 45\text{MHz}$	—	-0.3	—	dB
Insertion gain (1)	$ S_{21} ^2(1)$	Fig1	$f = 45\text{MHz}$	27	30	33	dB
Insertion gain (2)	$ S_{21} ^2(2)$		$f = 45\text{MHz}$	7.5	10.5	13.5	dB
Isolation	$ S_{12} ^2$	Fig2	$f = 45\text{MHz}$	—	-57	—	dB
Output return loss	$ S_{22} ^2$		$f = 45\text{MHz}$	—	-2.1	—	dB
Noise figure	NF		$f = 45\text{MHz}$	—	8	11	dB
3 <sup>rd</sup> order inter modulation	IM3		$f_1 = 45\text{ MHz}, f_2 = 44\text{ MHz},$ $P_{in} = -35\text{dBmW}$	47	53	—	dB

Note 2: BW is the frequency of 3dB down from  $|S_{21}|^2$  at 45 MHz.

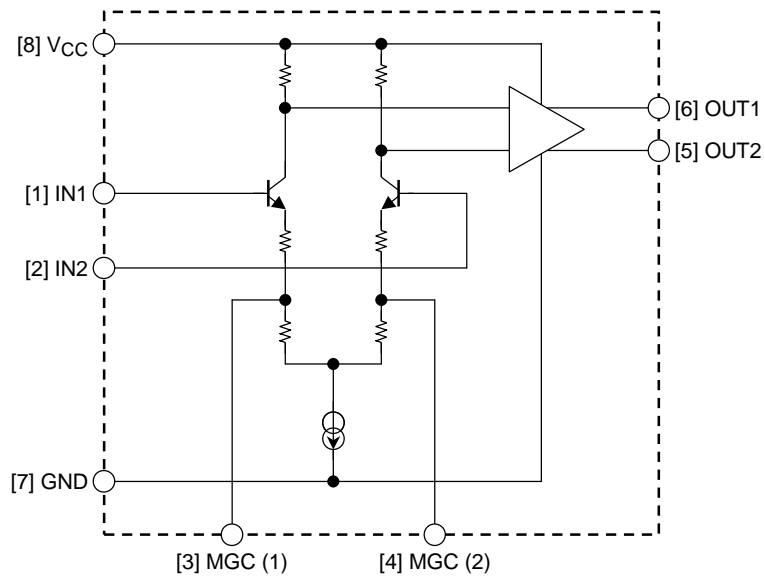
CAUTION: This device electrostatic sensitivity. Please handle with caution.



**Figure 1 Measurement circuit (open)**

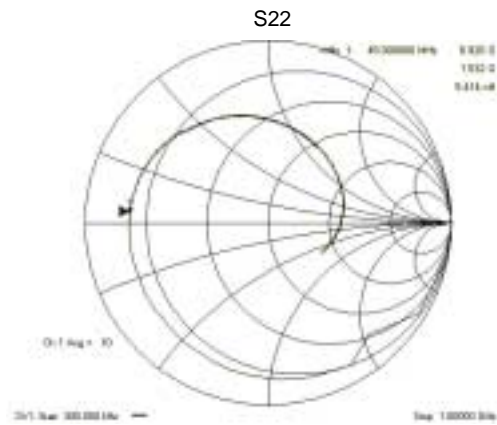
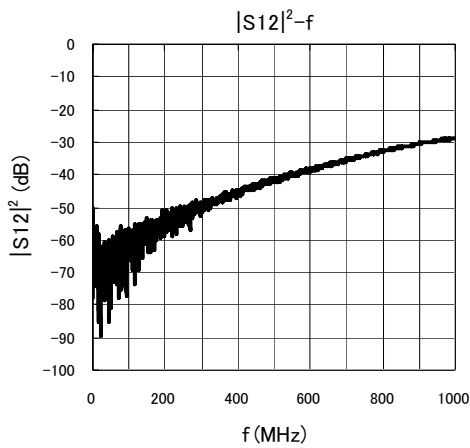
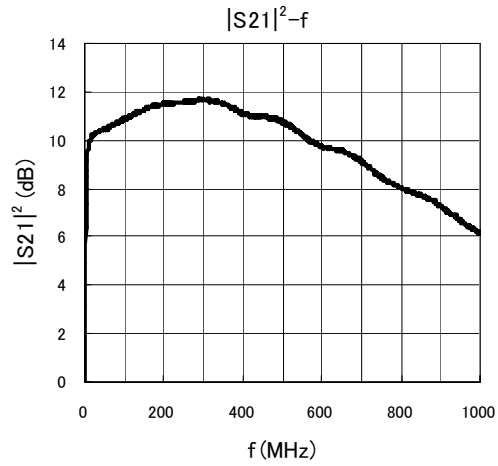
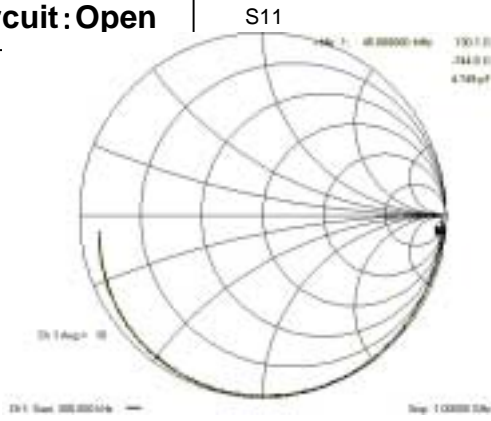


**Figure 2 Measurement circuit (Short)**

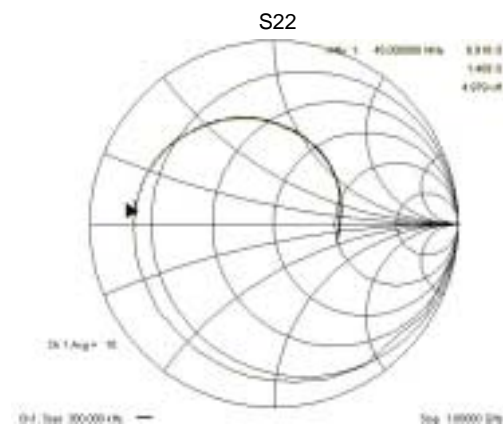
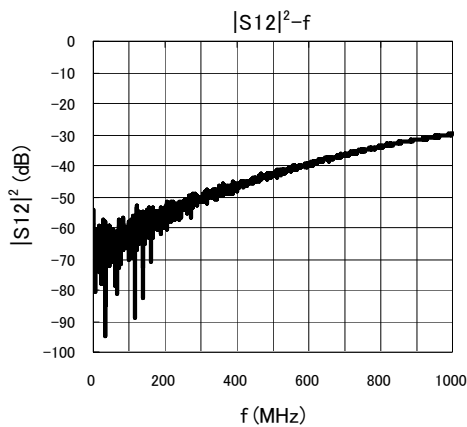
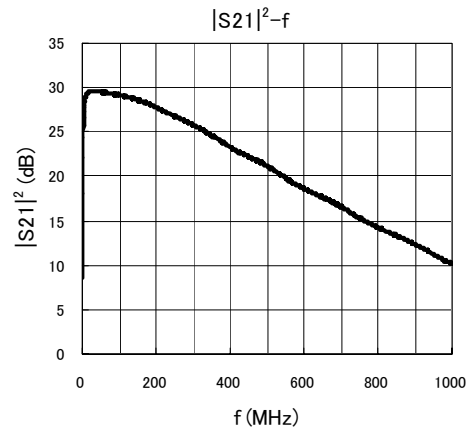
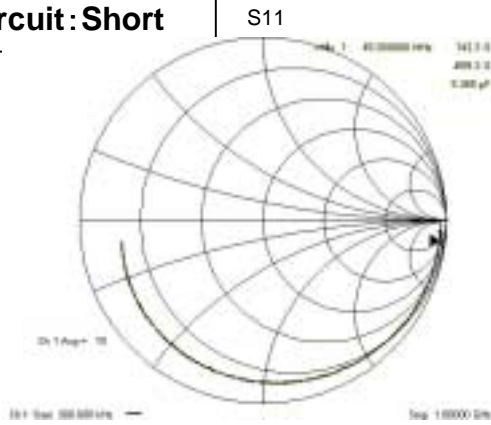


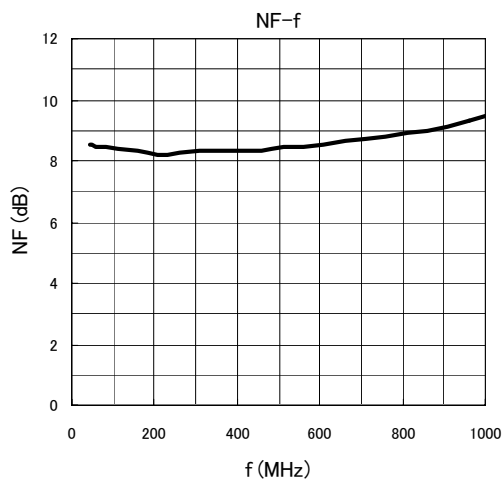
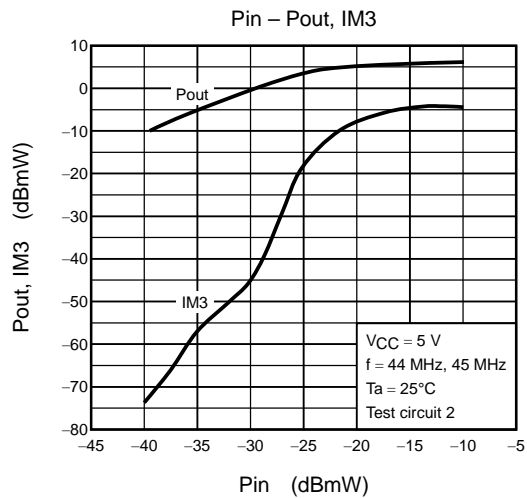
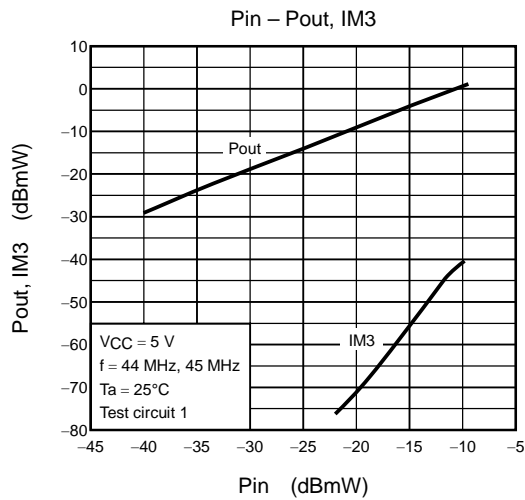
**Figure 3 Equivalent circuit**

**Measurement  
Circuit: Open**



**Measurement  
Circuit: Short**





**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.

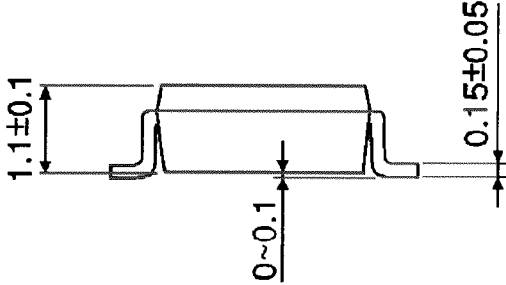
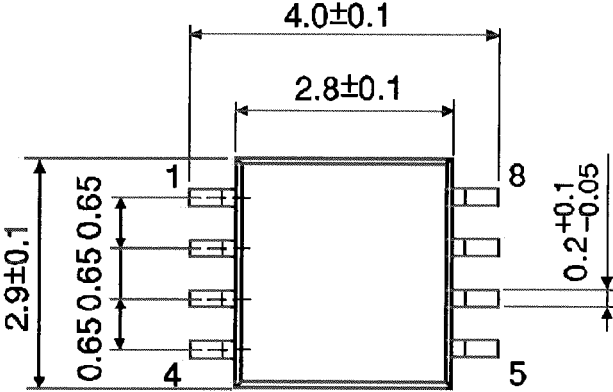
It is the responsibility of the customer to design external circuits which correctly implement the intended application, and to check the characteristics of the design.

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

**Package Dimensions**

SSOP8-P-0.65

Unit : mm



Weight: 0.02g (typ.)

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000707EBA

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