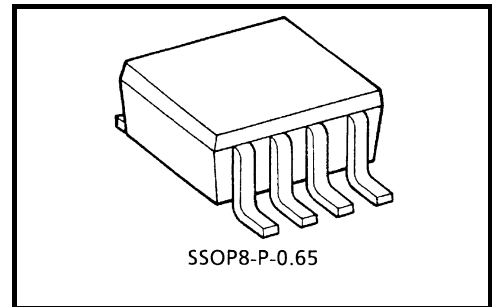


# TA4019F

## 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.)

### Absolute Maximum Ratings (Ta = 25°C)

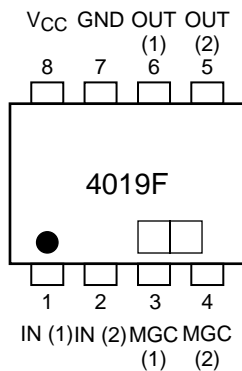
Characteristics	Symbol	Rating	Unit
Supply voltage	$V_{CC}$	5.5	V
Total power dissipation	$P_D$ (Note 1)	550	mW
Operating temperature	$T_{opr}$	-40~85	°C
Storage temperature	$T_{stg}$	-55~150	°C

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings and the operating ranges.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

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

### Pin Assignment

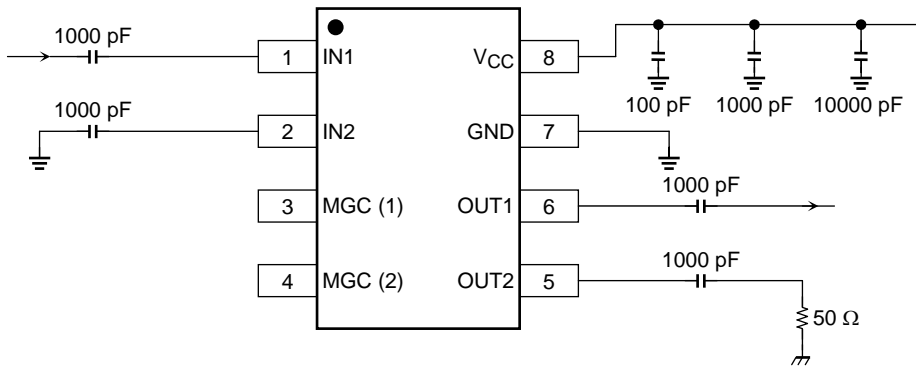


## Electrical Characteristics (Ta = 25°C, VCC = 5 V, Zg = Zl = 50 Ω)

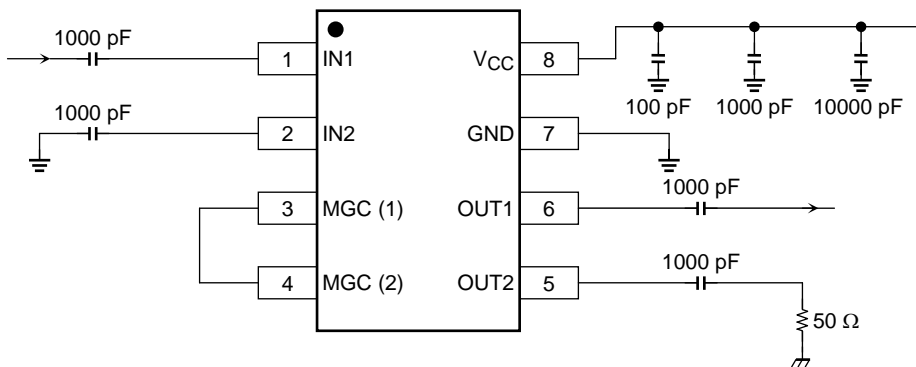
Characteristics	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Circuit current	Icc	Fig2	Non carrier	28	35	42	mA
Band width	BW		(Note 2)	200	300	—	MHz
Input return loss	S11  <sup>2</sup>		f = 45MHz	—	-0.3	—	dB
Insertion gain (1)	S21  <sup>2</sup> (1)	Fig1	f = 45MHz	27	30	33	dB
Insertion gain (2)	S21  <sup>2</sup> (2)		f = 45MHz	7.5	10.5	13.5	dB
Isolation	S12  <sup>2</sup>	Fig2	f = 45MHz	—	-57	—	dB
Output return loss	S22  <sup>2</sup>		f = 45MHz	—	-2.1	—	dB
Noise figure	NF		f = 45MHz	—	8	11	dB
3 <sup>rd</sup> order inter modulation	IM3		f1 = 45 MHz, f2 = 44 MHz, Pin = -35dBmW	47	53	—	dB

Note 2: BW is the frequency of 3dB down from |S21|<sup>2</sup> at 45 MHz.

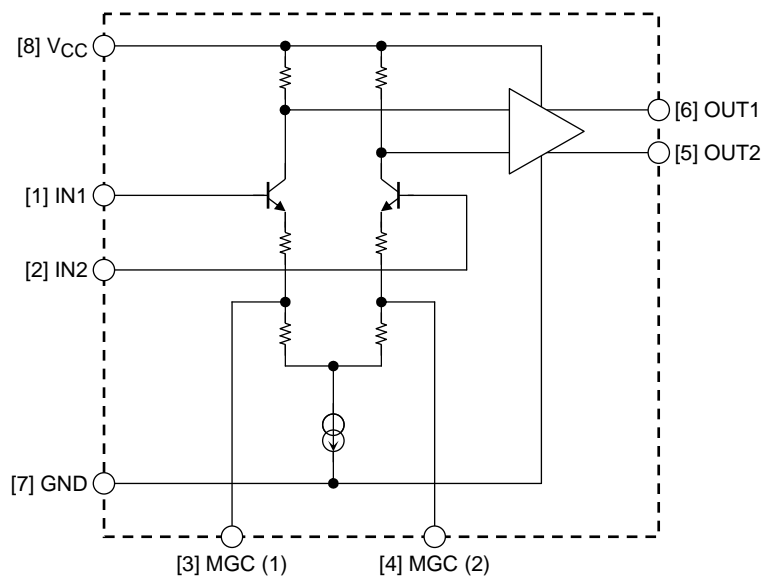
CAUTION: This device electrostatic sensitivity. Please handle with caution.



**Figure 1 Measurement circuit (open)**

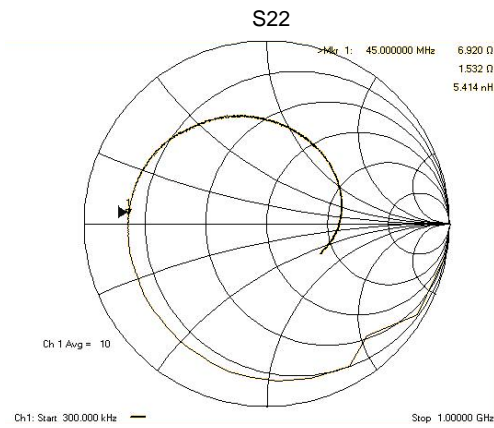
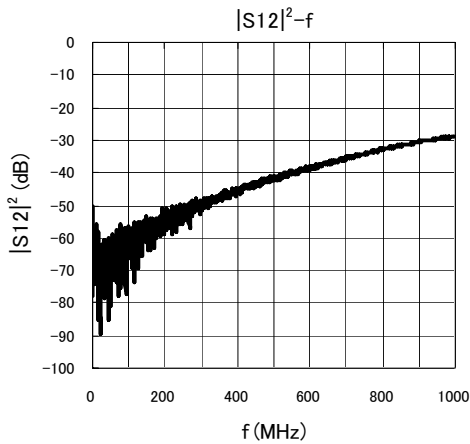
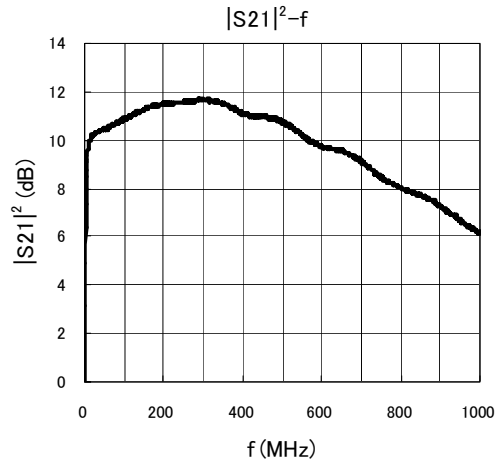
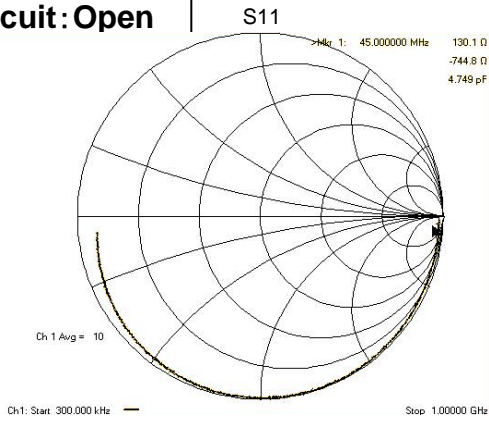


**Figure 2 Measurement circuit (Short)**

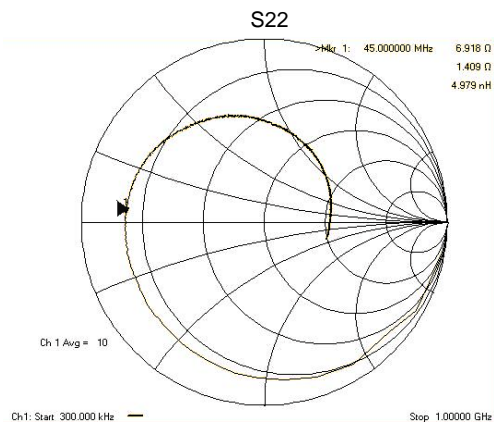
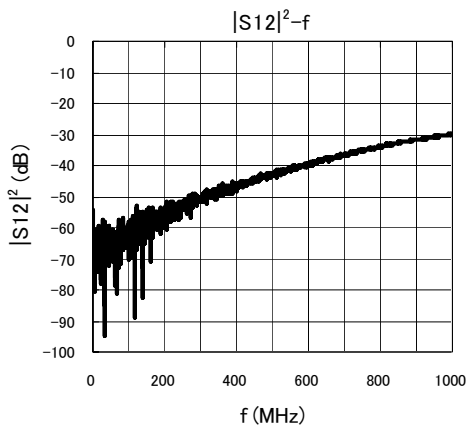
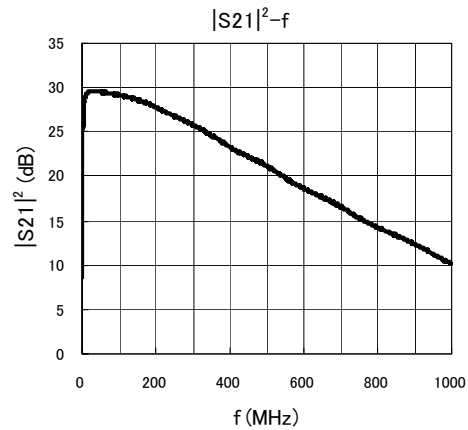
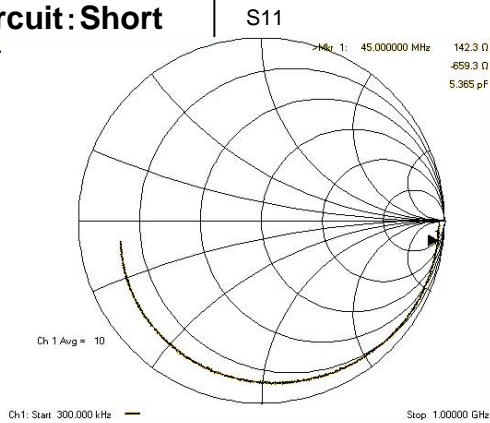


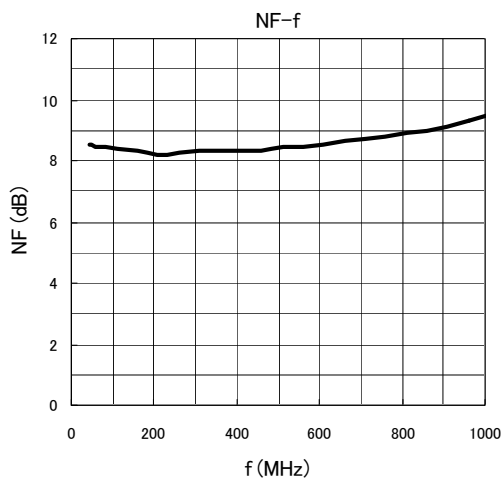
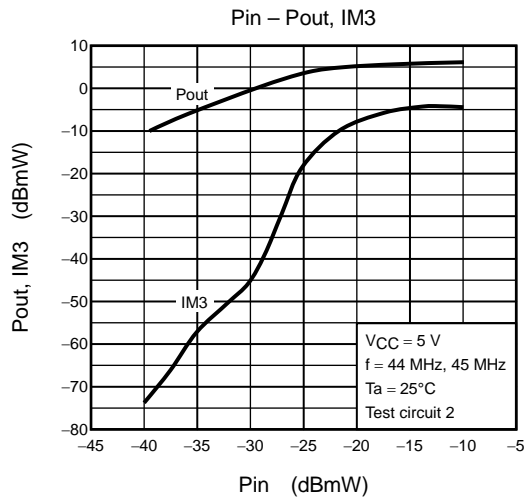
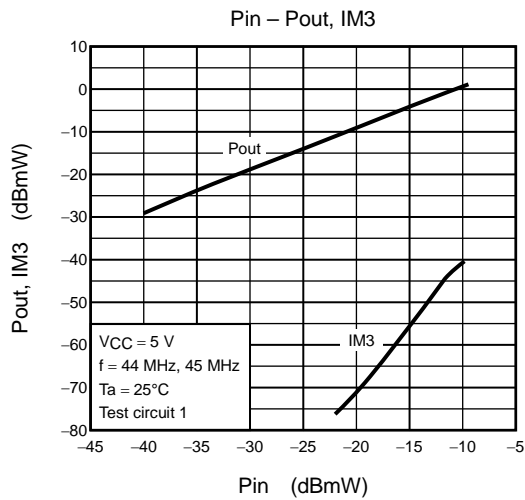
**Figure 3 Equivalent circuit**

## 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.

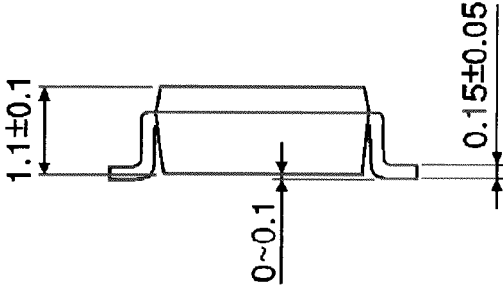
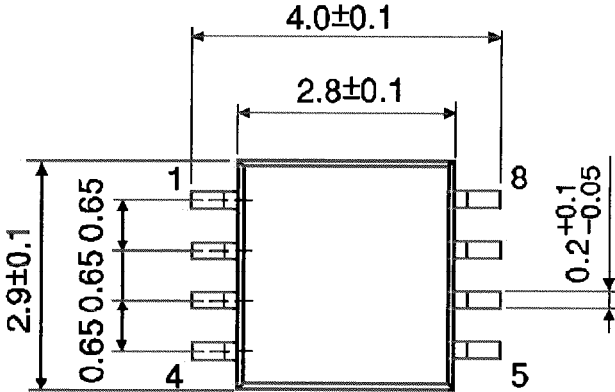
It is the responsibility of the customer to design external circuits which correctly implement the intended application, and to check the characteristics of the design.

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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