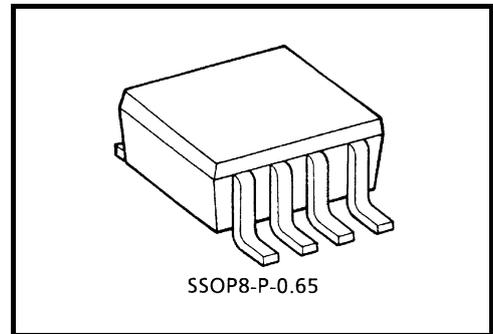


TA4019F

UHF Wide Band Amplifier Applications

Features

- High gain: $|S_{21}|^2 = 30\text{dB}$ (@45 MHz)
- Low distortion: $IM_3 = 53\text{dB}$ (@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)

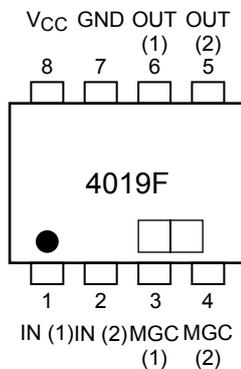
| Characteristics | Symbol | Rating | Unit |
|-------------------------|----------------|---------|------|
| Supply voltage | V_{CC} | 5.5 | V |
| Total power dissipation | P_D (Note 1) | 550 | mW |
| Operating temperature | T_{opr} | -40~85 | °C |
| Storage temperature | T_{stg} | -55~150 | °C |

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 ² | | f = 45MHz | — | -0.3 | — | dB |
| Insertion gain (1) | S21 ² (1) | Fig1 | f = 45MHz | 27 | 30 | 33 | dB |
| Insertion gain (2) | S21 ² (2) | | f = 45MHz | 7.5 | 10.5 | 13.5 | dB |
| Isolation | S12 ² | Fig2 | f = 45MHz | — | -57 | — | dB |
| Output return loss | S22 ² | | f = 45MHz | — | -2.1 | — | dB |
| Noise figure | NF | | f = 45MHz | — | 8 | 11 | dB |
| 3 rd 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|² at 45 MHz.

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

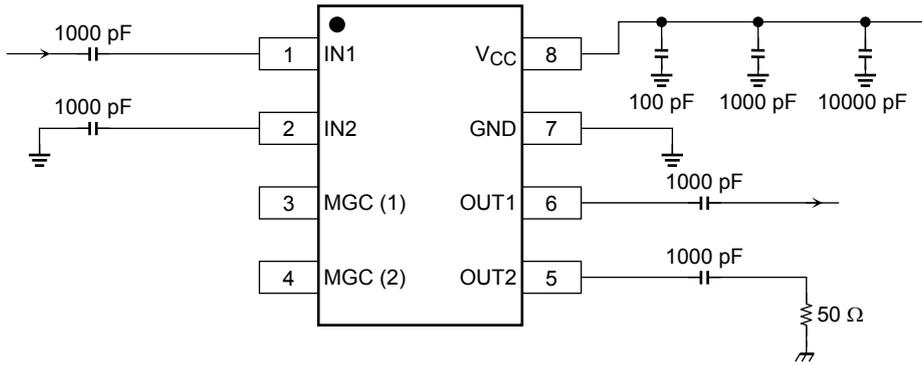


Figure 1 Measurement circuit (open)

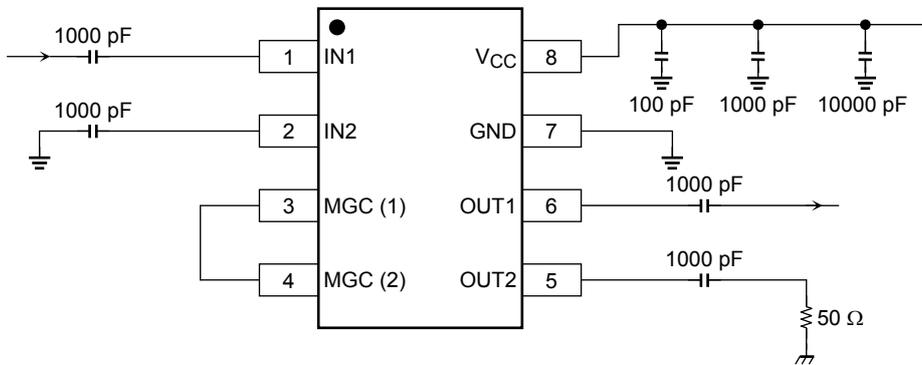


Figure 2 Measurement circuit (Short)

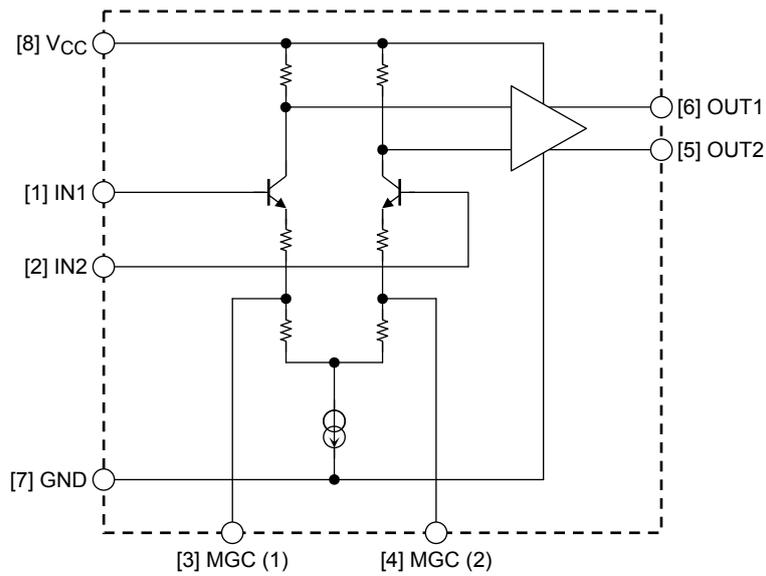
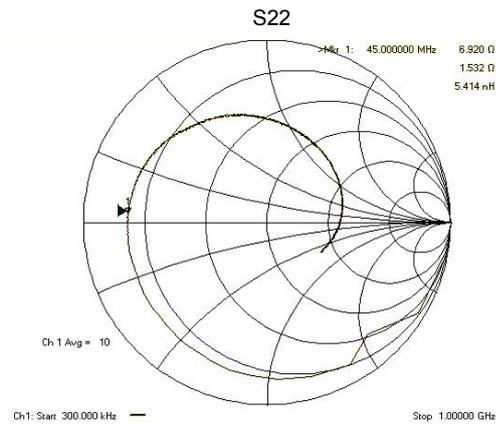
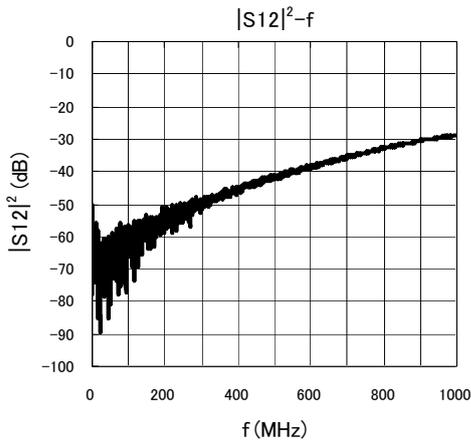
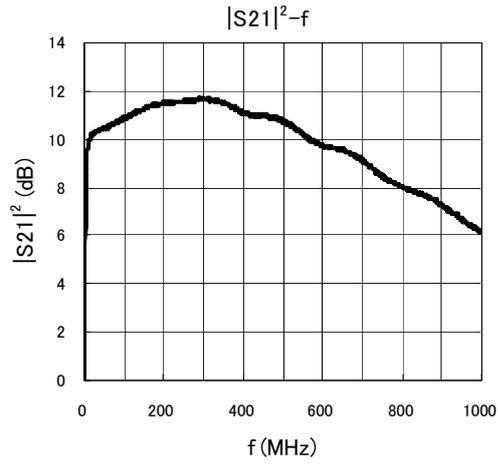
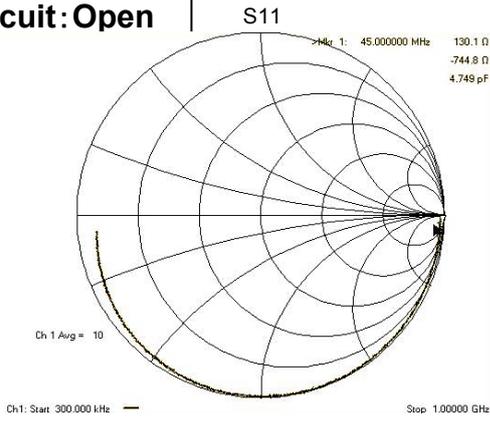
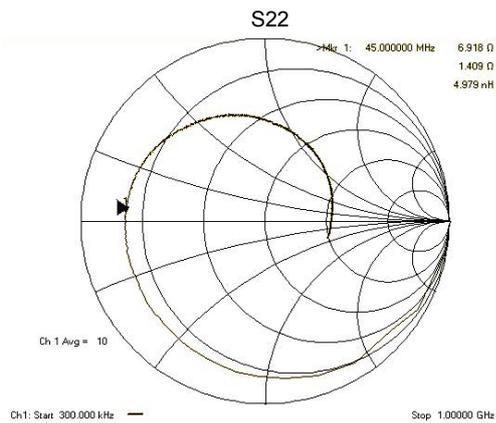
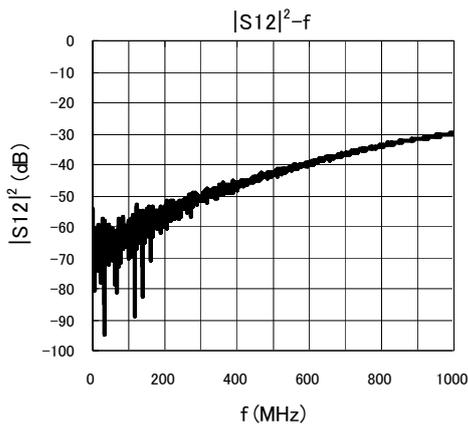
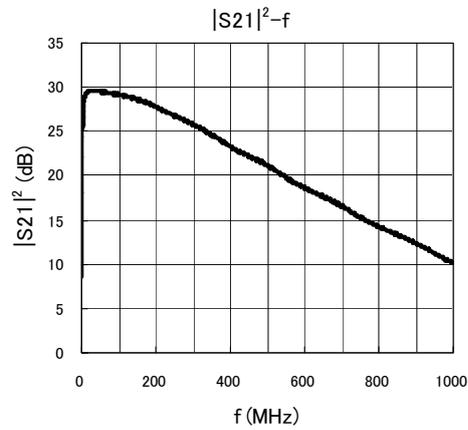
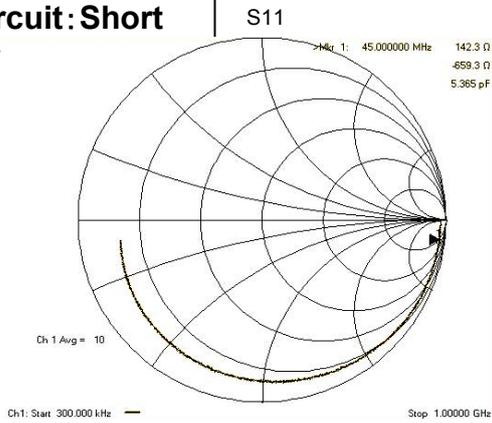


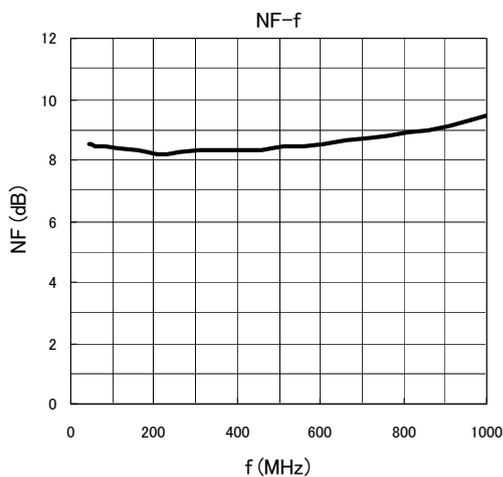
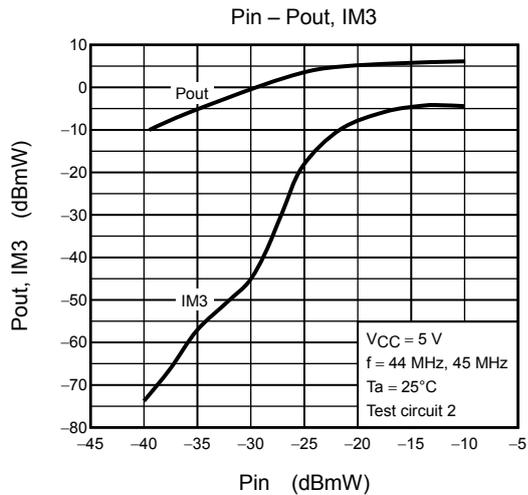
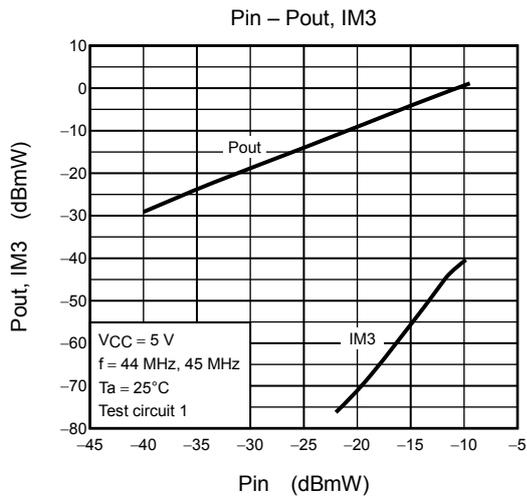
Figure 3 Equivalent circuit

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.

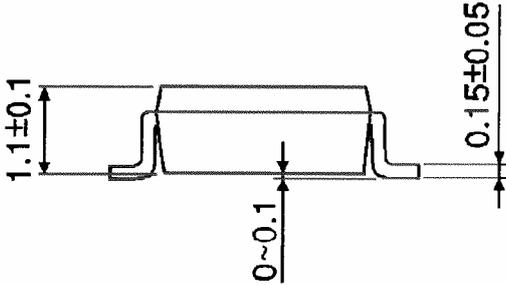
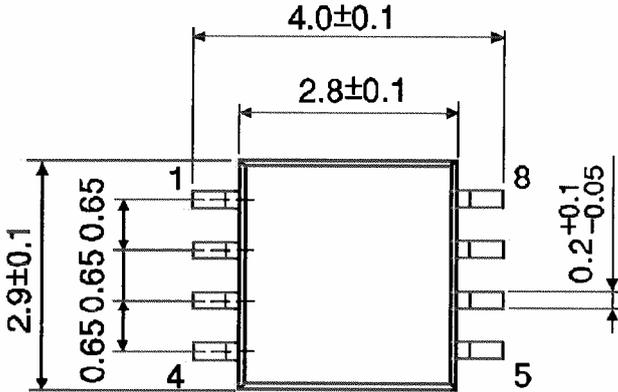
It is the responsibility of the customer to design external circuits which correctly implement the intended application, and to check the characteristics of the design.

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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20070701-EN GENERAL

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