

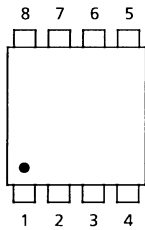
# TA4101F

UHF VHF MIX Application

## Features

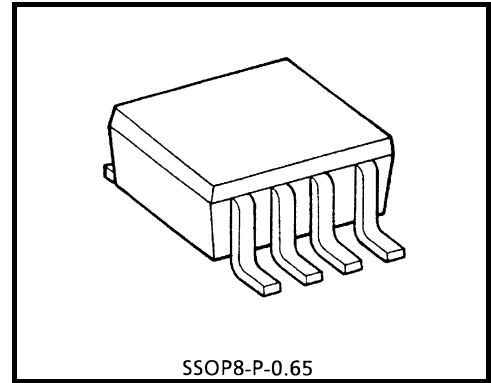
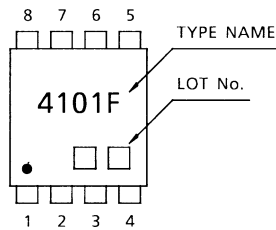
- Double balance circuit

## Pin Assignment (top view)



- |                    |              |
|--------------------|--------------|
| 1. IF OUT          | 5. Base      |
| 2. V <sub>CC</sub> | 6. Base      |
| 3. OSC IN          | 7. GND       |
| 4. Base            | 8. Collector |

## Marking



Weight: 0.02 g (typ.)

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

Characteristic	Symbol	Rating	Unit
Supply voltage	V <sub>CC</sub>	6	V
Total power dissipation	P <sub>D</sub> (Note 1)	300	mW
Operating temperature	T <sub>opr</sub>	-40~85	°C
Storage temperature range	T <sub>stg</sub>	-55~125	°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).

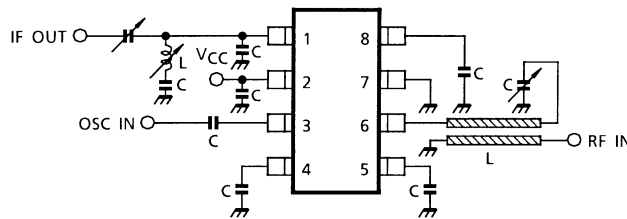
Note 1: When mounted on the glass epoxy board of 2.5 cm<sup>2</sup> × 1.6 t

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

Characteristics	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Circuit current	I <sub>CC</sub>	—	V <sub>CC</sub> = 5 V	3.9	5.7	7.5	mA
MIXER gain	G <sub>MIX</sub>	1	V <sub>CC</sub> = 5 V (Note 2)	-6.0	-3.5	—	dB
MIXER noise figure	NF <sub>MIX</sub>	1	V <sub>CC</sub> = 5 V (Note 2)	—	9.0	12.0	dB
Maximum output level	P <sub>O</sub>	1	V <sub>CC</sub> = 5 V (Note 2)	-12	-9	—	dBmW

Note 2: f<sub>RF</sub> = 800 MHz, f<sub>LO</sub> = 860 MHz (0dBm), f<sub>F</sub> = 60 MHz

**Measurement Circuit 1**



**Notice**

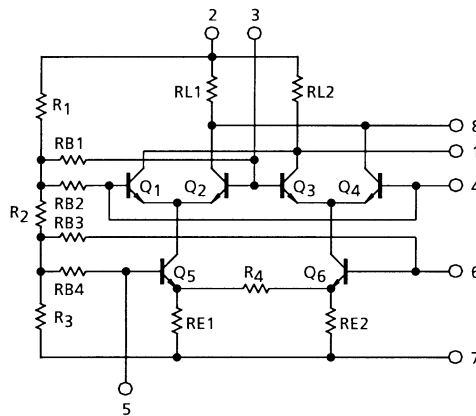
The circuits and measurements contained in this document are given only in the context of as examples of applications for these products.

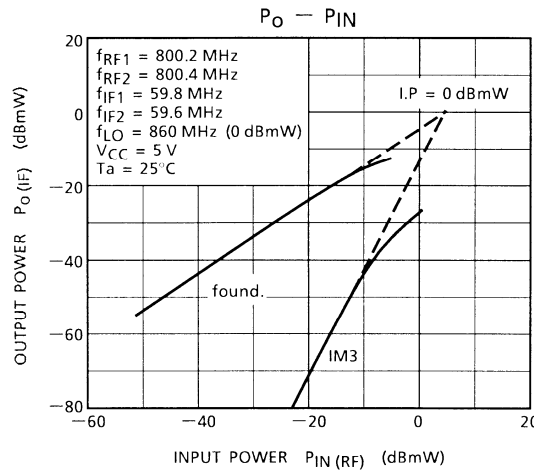
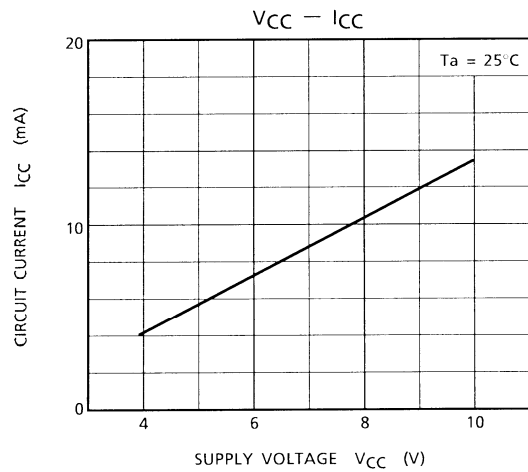
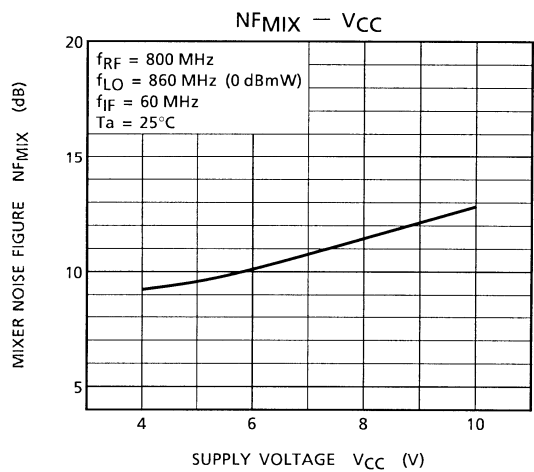
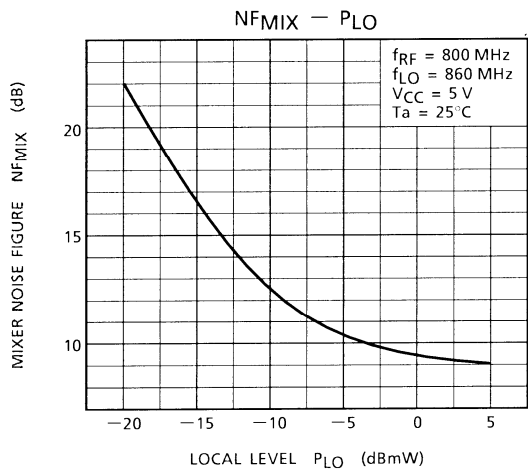
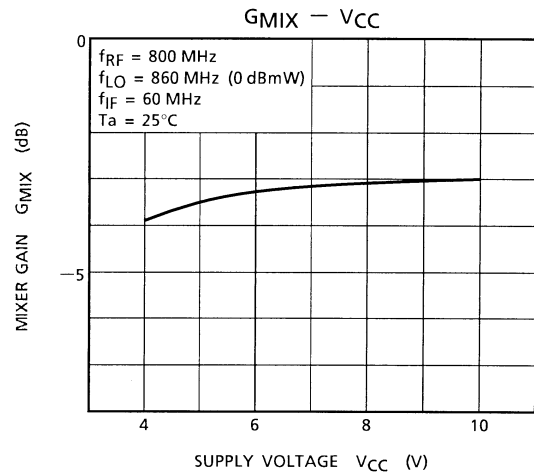
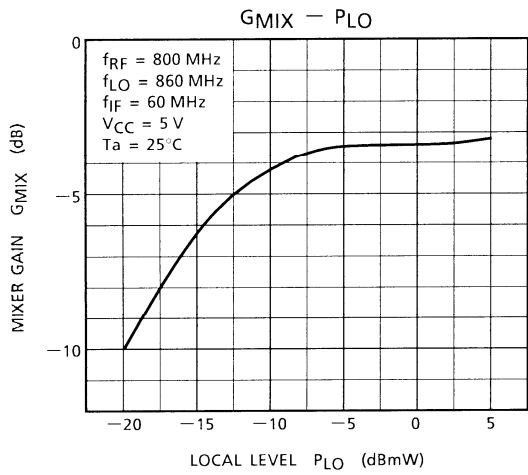
Moreover, these example application circuits are not intended for mass production, since the high-frequency characteristics (the AC characteristics) of these devices will be affected by the external components which the customer uses, by the design of the circuit and by various other conditions.

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**







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