

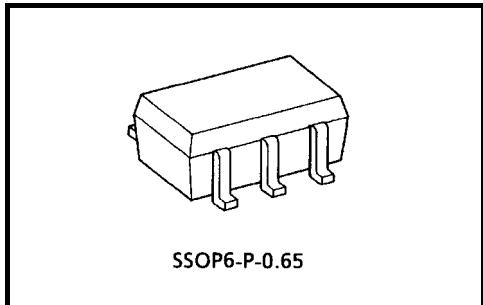
TOSHIBA Bipolar Linear Integrated Circuit Silicon Monolithic

# TA4017FT

VHF Wide Band Amplifier Applications

## Features

- High gain:  $|S21|_2 = 13\text{dB}$  (@45 MHz)
- Low distortion:  $\text{IM3} = 42\text{dB}$  (@45 MHz)
- Operating supply voltage:  $\text{VCC} = 4.75\text{ V} \sim 5.25\text{ V}$



Weight: 0.0045g (typ.)

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

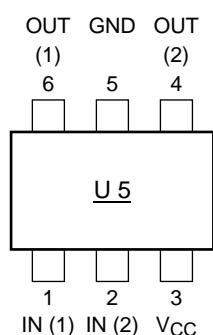
Characteristics	Symbol	Rating	Unit
Supply voltage	$\text{V}_{\text{CC}}$	5.5	V
Total power dissipation	$\text{P}_D$ (Note 1)	300	mW
Operating temperature	$T_{\text{opr}}$	-40 to 85	$^\circ\text{C}$
Storage temperature	$T_{\text{stg}}$	-55 to 150	$^\circ\text{C}$

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 of  $2.5\text{ cm}^2 \times 1.6\text{ t}$

## Pin Assignment

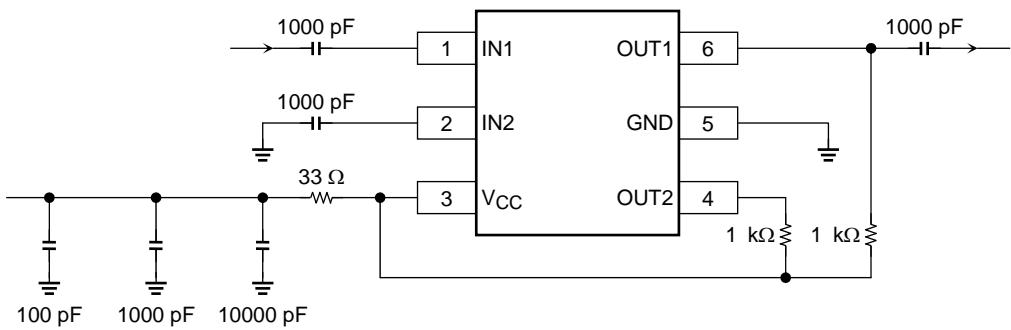


## Electrical Characteristics (Ta = 25°C, VCC = 5 V, Zg = ZI = 50 Ω)

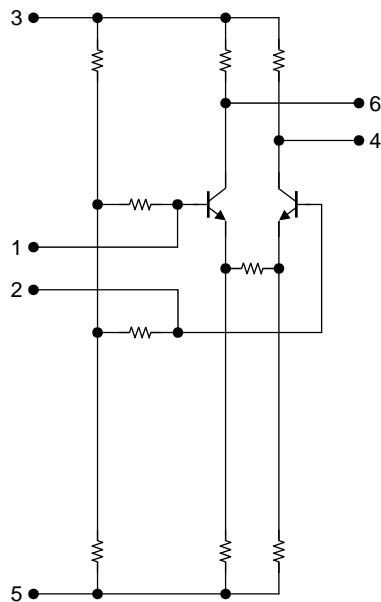
Characteristics	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Circuit current	I <sub>CC</sub>	Fig1	Non Carrier	15	19	25	mA
Band width	BW		(Note 2)	0.7	1	—	GHz
Input return loss	S <sub>11</sub>   <sup>2</sup>		f = 45 MHz	—	-0.8	—	dB
Insertion gain	S <sub>21</sub>   <sup>2</sup>		f = 45 MHz	10	13	16	dB
Isolation	S <sub>12</sub>   <sup>2</sup>		f = 400 MHz	—	12.5	—	
Output return loss	S <sub>22</sub>   <sup>2</sup>		f = 45 MHz	—	-40	—	dB
Noise figure	NF		f = 45 MHz	—	-3.5	—	dB
Output power at 1dB gain compression	P <sub>01dB</sub>		f = 45 MHz	0	2	—	dBmW
3 <sup>rd</sup> order inter modulation	IM3		f = 400 MHz	—	2	—	
			f <sub>1</sub> = 45 MHz, f <sub>2</sub> = 44 MHz, P <sub>in</sub> = -20dBmW	34	42	—	dB
			f <sub>1</sub> = 400 MHz, f <sub>2</sub> = 399 MHz, P <sub>in</sub> = -20dBmW	—	42	—	

Note 2: BW is the frequency of 3dB down from |S<sub>21</sub>|<sup>2</sup> at 45 MHz.

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



**Figure 1 Measurement circuit**



**Figure 2 Equivalent circuit**

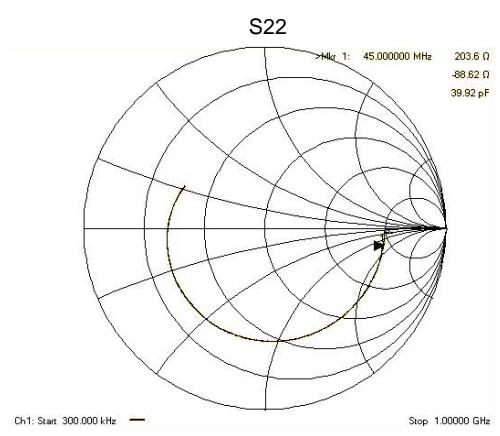
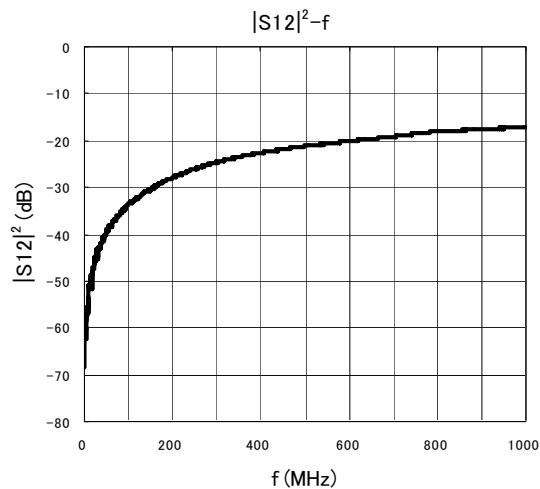
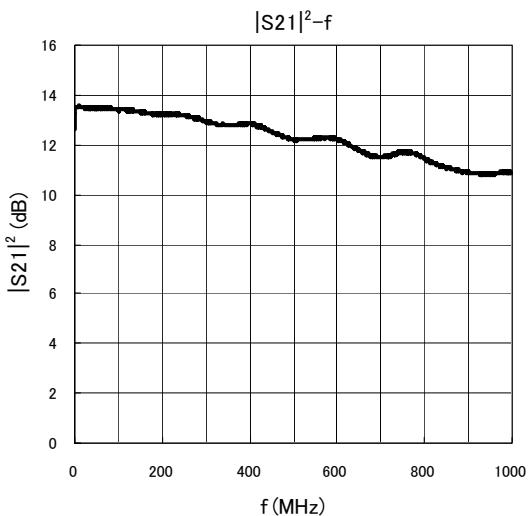
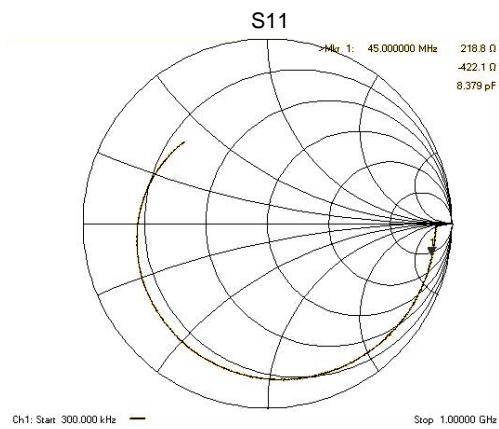
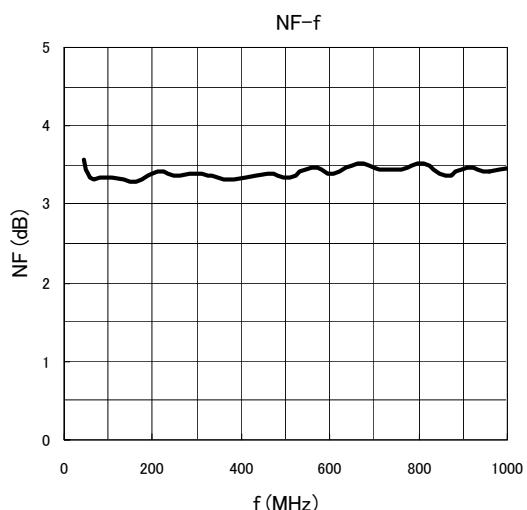
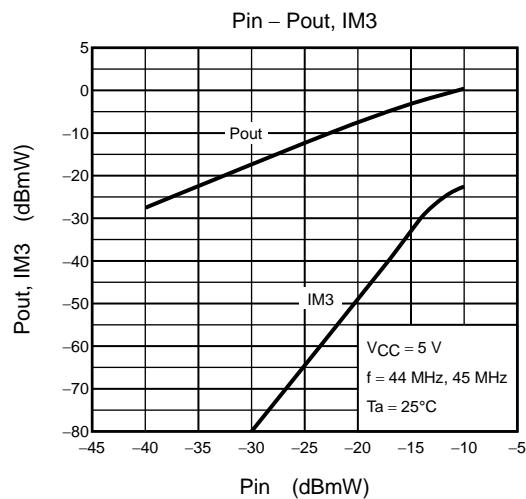
## Notice

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.

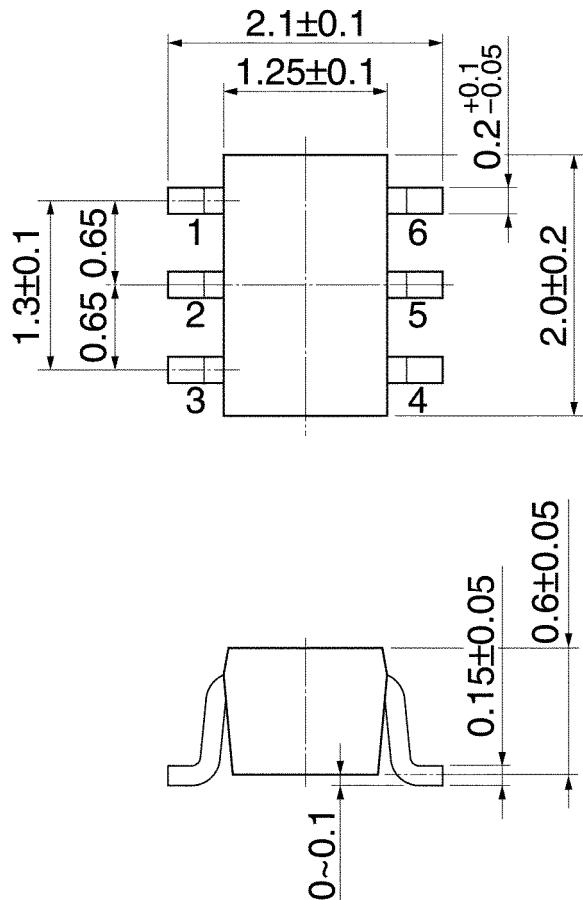
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**Package Dimensions**

SSOP6-P-0.65

Unit: mm



Weight: 0.0045g (typ.)

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