

# TG2006F

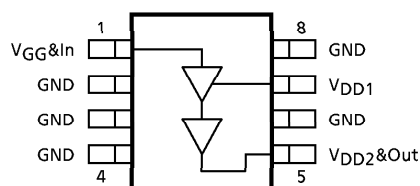
## 1.9 GHz BAND POWER AMPLIFIER

### PHS, DIGITAL CORDLESS TELECOMMUNICATION

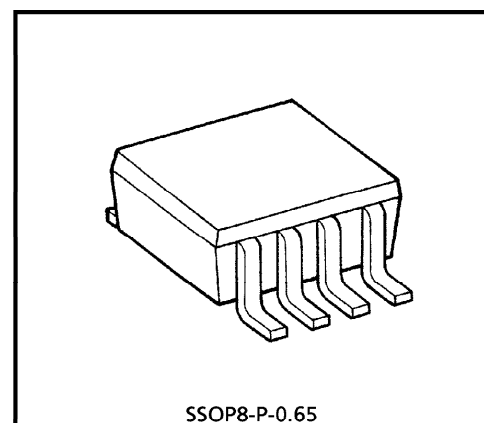
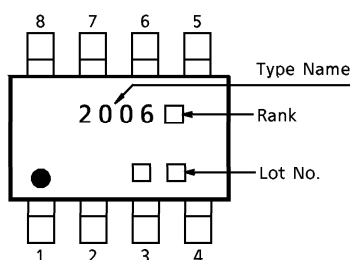
#### FEATURES

- Positive Voltage Operation :  $V_d = 3\text{ V}$ ,  $V_g = 0$  or  $1\text{ V}$
- Low Current Consumption :  $I_t = 130\text{ mA}$  (Typ.)
- Small Package : SM8 Package  
( $2.9 \times 2.8 \times 1.1\text{ mm}$ )
- Low Cost : Can be achieved minimum function.

#### PIN ASSIGNMENT (TOP VIEW)



#### MARKING



SSOP8-P-0.65

Weight : 0.02 g (Typ.)

#### MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ )

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	$V_{DD1}$	5	V
	$V_{DD2}$	5	V
Gate Voltage	$V_{GG}$	1	V
Input Power	$P_i$	10	mW
Power Dissipation	$P_d$ (Note)	250	mW
Operating Temperature Range	$T_{opr}$	$-40 \sim 85$	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	$-55 \sim 150$	$^\circ\text{C}$

(Note) : When mounted on  $2.5\text{ cm}^2 \times 1.6\text{ t}$  glass epoxy board.

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## CLASSIFY RANK

This device is classified by Fig.1.

And satisfy ELECTRICAL CHARACTERISTICS by  $V_g$  Condition on each rank.

The rank division is performed for every reel and can't order to choose any rank.

Table 1

RANK	$V_g$ CONDITION
A	$V_g = 0\text{ V}$
B	$V_g = 1\text{ V}$

## CAUTION

This device is electrostatic sensitivity. Please handle with caution.

## ELECTRICAL CHARACTERISTICS

( $V_d = 3\text{ V}$ ,  $V_g = (\text{Note } 1)$ ,  $f = 1.9\text{ GHz}$ ,  $T_a = 25^\circ\text{C}$ ,  $Z_g = Z_l = 50\ \Omega$  1/2 duty operation)

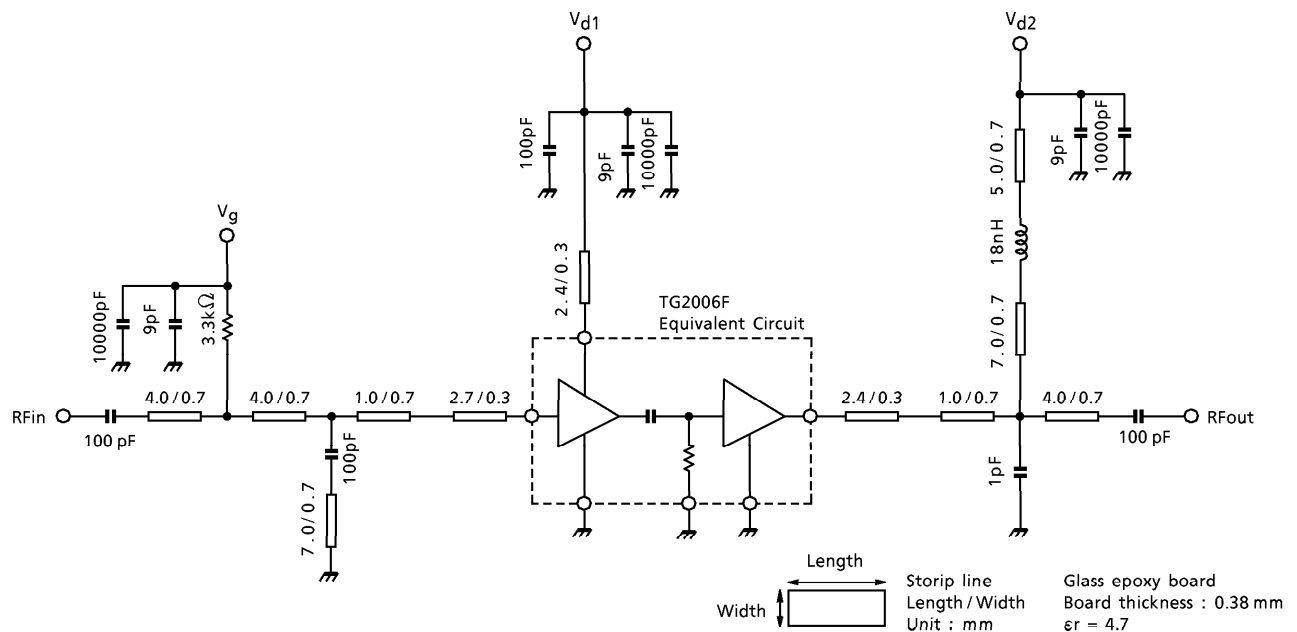
CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Frequency	$f_{\text{range}}$	—	—	1895	—	1918	MHz
Total Current	$I_t$	1	$P_o = 21\text{ dBmW}$ , $P_i = \text{Regulation}$	—	130	150	mA
Gate Current	$I_G$	1		—	—	1	
Output Power	$P_o$	1	$P_i = 1\text{ dBmW}$	21	—	—	dBmW
Small Signal Gain	$G_p$	1	$P_i = -20\text{ dBmW}$	21	23	—	dB
Adjacent Channel Leakage Power Ratio	ACP (1)	1	$P_o = 21\text{ dBmW}$ , $P_i = \text{Regulation}$ (Note 2)	—	$\Delta f = 600\text{ kHz}$ —	$-55$ $-60$	dB
	ACP (2)	1			$\Delta f = 900\text{ kHz}$		
Harmonics	$2f_0$	1	$P_o = 21\text{ dBmW}$ , $P_i = \text{Regulation}$	—	—	$-30$	dB
	$3f_0$	1		—	—	$-30$	
Input VSWR	$VSWR_{\text{in}}$	1	$P_o = 21\text{ dBmW}$ , $P_i = \text{Regulation}$	—	1.5	2.5	—
Load Mismatch	—	—	$V_d = 4.0\text{ V}$ , $V_g = (\text{Note } 1)$ , $P_o = 21\text{ dBmW}$ , $P_i = \text{Regulation}$ , $Z_g = 50\ \Omega$ VSWR Load = 20 : 1 all phase	No Degradation			—
Stability	—	—	$V_d = 2.7\sim 4.0\text{ V}$ , $V_g = (\text{Note } 1)$ , $P_i = -2\text{ mW}\sim 4\text{ dBmW}$ , $Z_g = 50\ \Omega$ VSWR Load = 6 : 1 all phase	All spurious output than 60 dB below desired signal			—

(Note 1) :  $V_g$  Voltage is decided on Fig.1.

(Note 2) : Input signal is modulated to  $\pi/4$ QPSK ( $\alpha = 0.5$ ). Bit rate is 384 kbps.

(Note 3) :  $V_d = V_{d1} = V_{d2}$ ,  $I_t = I_{d1} + I_{d2}$

## TEST CIRCUIT 1 (RF TEST CIRCUIT)



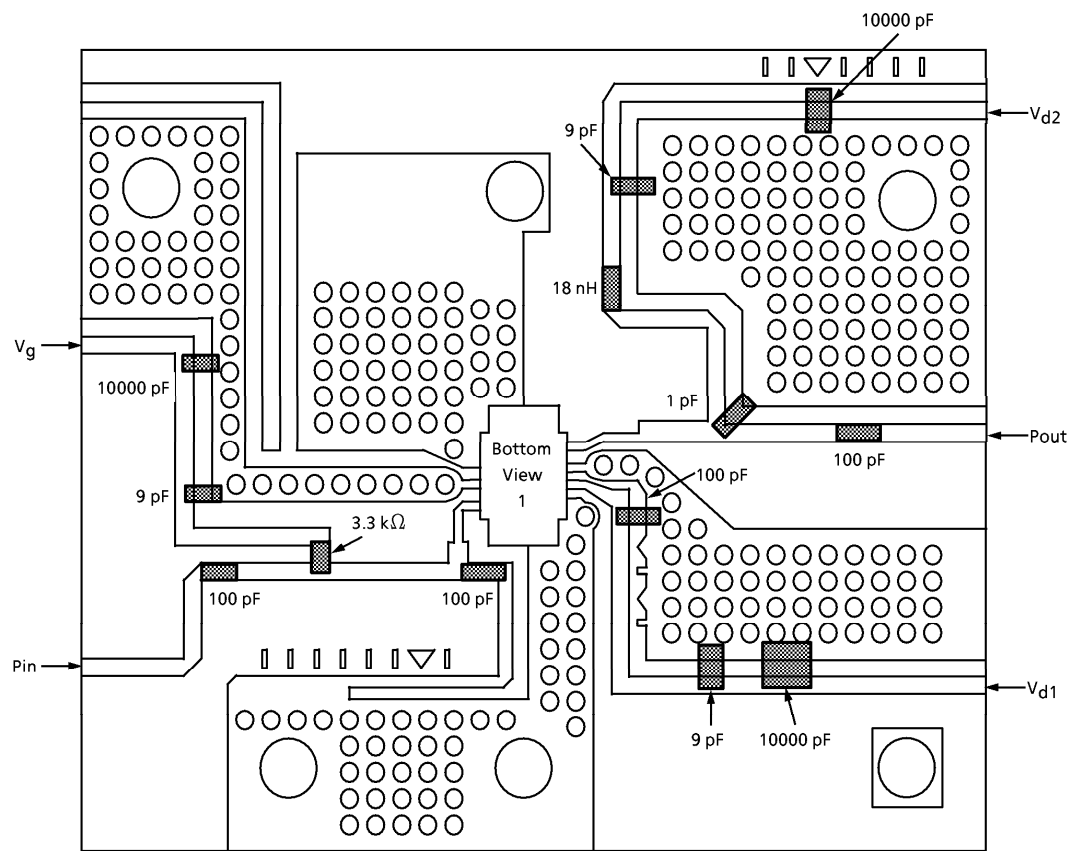
## NOTICE

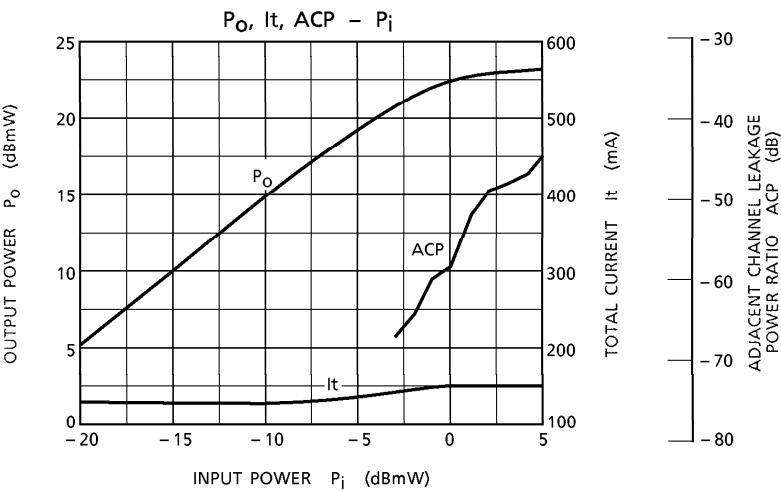
The circuits and measurements contained in this document are given only in the context of as examples of applications for these products.

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.

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

RF TEST BOARD





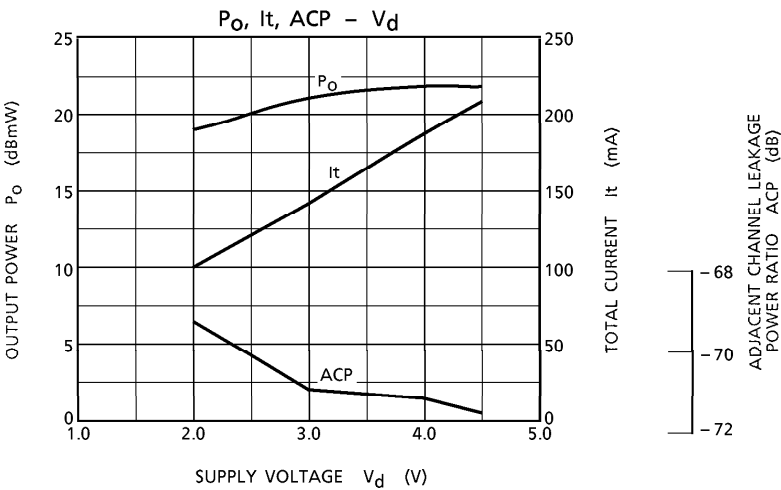
TEST CONDITION

$V_d = 3\text{ V}$

$V_g = 1\text{ V}$

$f = 1.9\text{ GHz}$

$V_d$  operates at 1/2 duty time



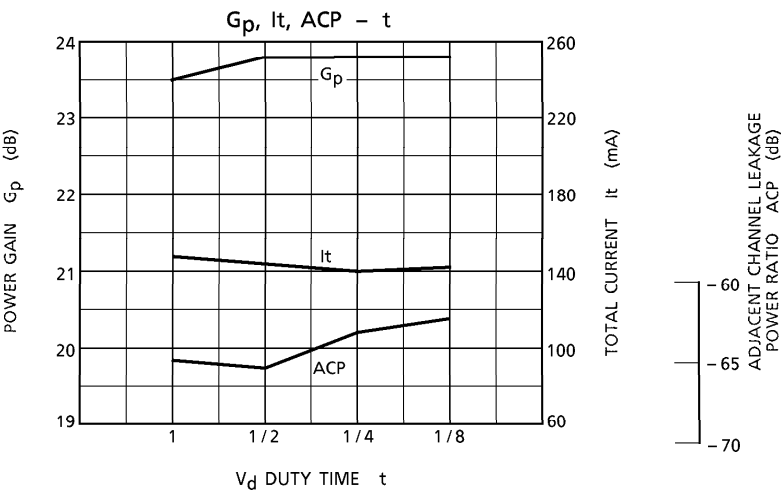
TEST CONDITION

$V_g = 1\text{ V}$

$f = 1.9\text{ GHz}$

$P_i = \text{Regulation}$

$V_d$  operates at 1/2 duty time



TEST CONDITION

$V_d = 3\text{ V}$

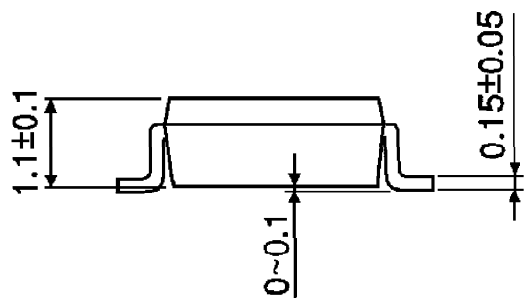
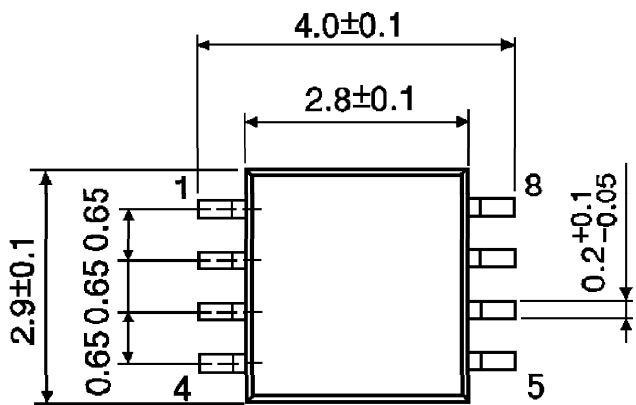
$V_g = 1\text{ V}$

$f = 1.9\text{ GHz}$

$P_i = \text{Regulation}$

PACKAGE DIMENSIONS  
SSOP8-P-0.65

Unit : mm



Weight : 0.02 g (Typ.)