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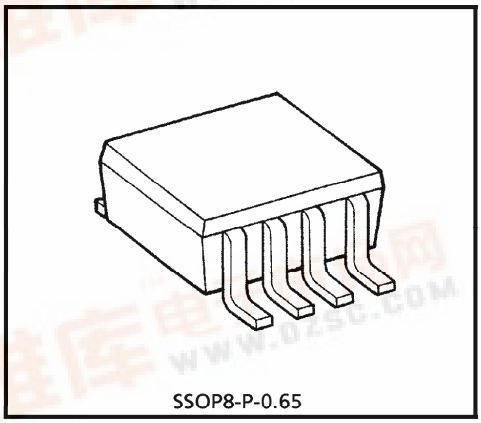
TOSHIBA GaAs LINEAR INTEGRATED CIRCUIT GaAs MONOLITHIC

TG2006F

1.9GHz BAND POWER AMPLIFIER
PHS, DIGITAL CORDLESS TELECOMMUNICATION

FEATURES

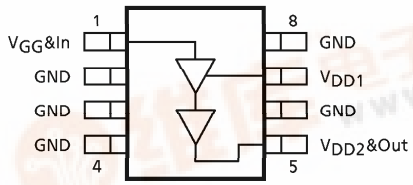
- Positive Voltage Operation : $V_d = 3V$, $V_g = 0$ to $3V$
- Low Current Consumption : It = 130mA (Typ.)
- Small Package : SM8 Package (2.9*2.8*1.1mm)
- Low Cost : Can be achieved minimum function.



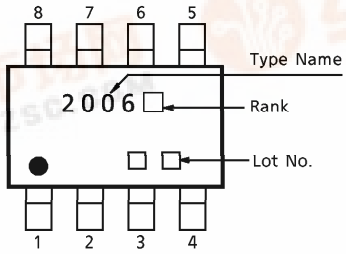
SSOP8-P-0.65

Weight : 0.02g (Typ.)

PIN ASSIGNMENT (TOP VIEW)



MARKING



MAXIMUM RATINGS (Ta = 25°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}	−40~85	°C
Storage Temperature Range	T_{stg}	−55~150	°C

(Note) When mounted on $2.5cm^2 \times 1.6t$ 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.
Can't order to choose any rank.

RANK	V_g CONDITION
A	$V_g = 0V$
B	$V_g = 1V$
C	$V_g = 3V$

Fig.1

CAUTION

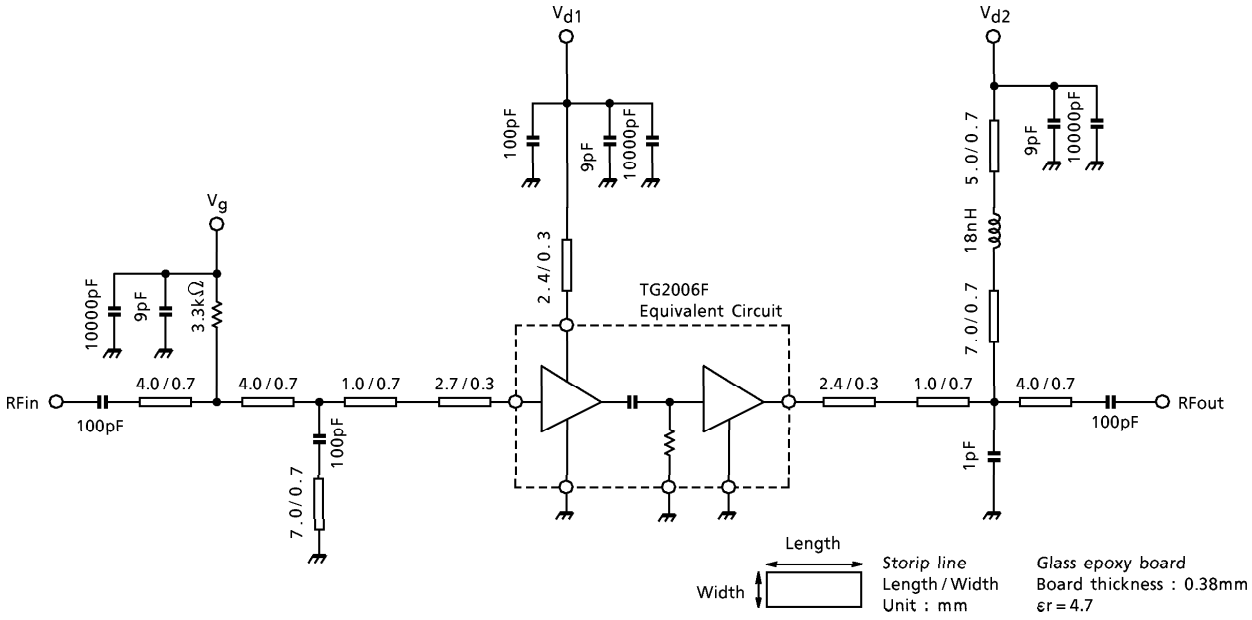
This device is electrostatic sensitivity. Please handle with caution.

ELECTRICAL CHARACTERISTICS
($V_d = 3V$, V_g = (Note 1), f = 1.9GHz, Ta = 25°C, $Z_g = Zl = 50\Omega$ 1 / 2 duty operation)

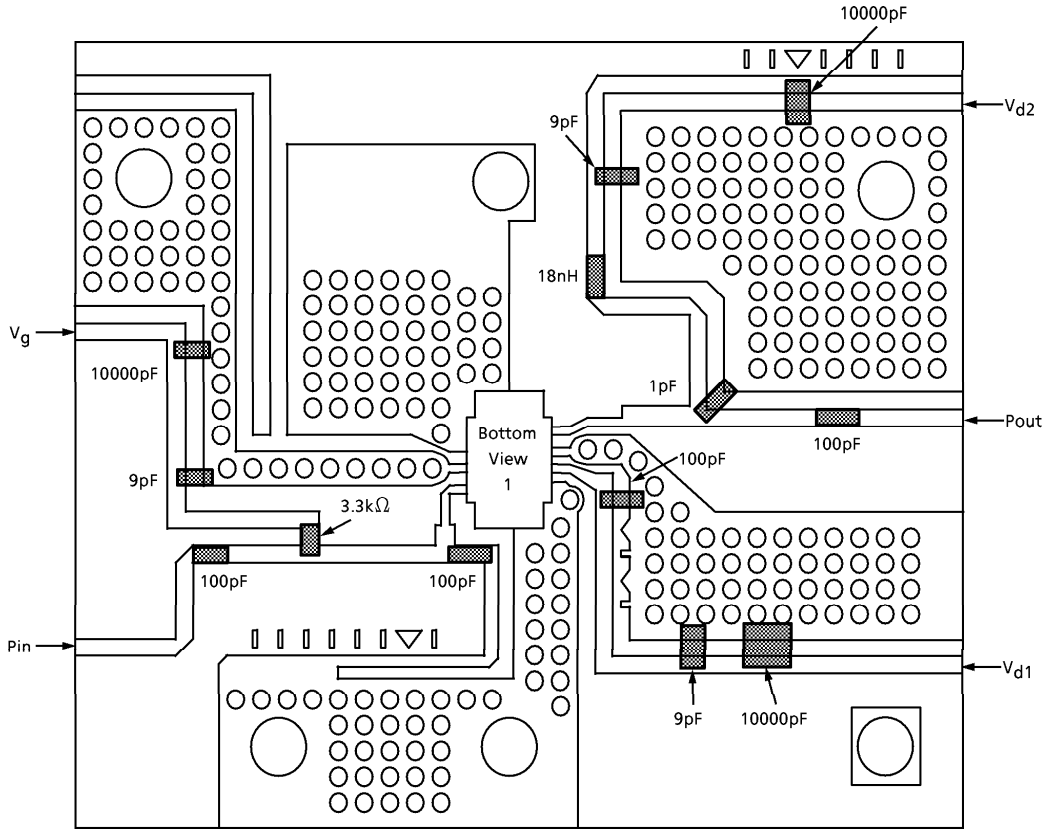
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION		MIN.	TYP.	MAX.	UNIT
Frequency	f_{range}	—	—		1895	—	1918	MHz
Total Current	It	1	$P_o = 21dBmW$, P_i = Regulation		—	130	150	mA
Gate Current	IG	1			—	—	1	
Output Power	Po	1	$P_i = 1dBmW$		21	—	—	dBmW
Small Signal Gain	G_p	1	$P_i = -20dBmW$		21	23	—	dB
Adjacent Channel Leakage Power Ratio	ACP (1)	1	$P_o = 21dBmW$, P_i = Regulation (Note 2)	$\Delta f = 600kHz$	—	−60	−55	dB
	ACP (2)	1		$\Delta f = 900kHz$	—	−65	−60	
Harmonics	$2f_0$	1	$P_o = 21dBmW$, P_i = Regulation		—	—	−30	dB
	$3f_0$	1			—	—	−30	
Input VSWR	$VSWR_{in}$	1	$P_o = 21dBmW$, P_i = Regulation		—	1.5	2.5	—
Load Mismatch	—	—	$V_d = 4.0V$, V_g = (Note 1), $P_o = 21dBmW$, P_i = Regulation, $Z_g = 50\Omega$ VSWR Load = 20 : 1 all phase		No Degradation			—
Stability	—	—	$V_d = 2.7 \sim 4.0V$, V_g = (Note 1), $P_i = -2mW \sim 4dBmW$, $Z_g = 50\Omega$ VSWR Load = 6 : 1 all phase		All spurious output than 60dB below desired signal			—

(Note 1) V_g Voltage is decided on Fig.1.
(Note 2) Input signal is modulated to π / 4QPSK ($\alpha = 0.5$). Bit rate is 384kbps.
(Note 3) $V_d = V_{d1} = V_{d2}$, It = Id1 + Id2

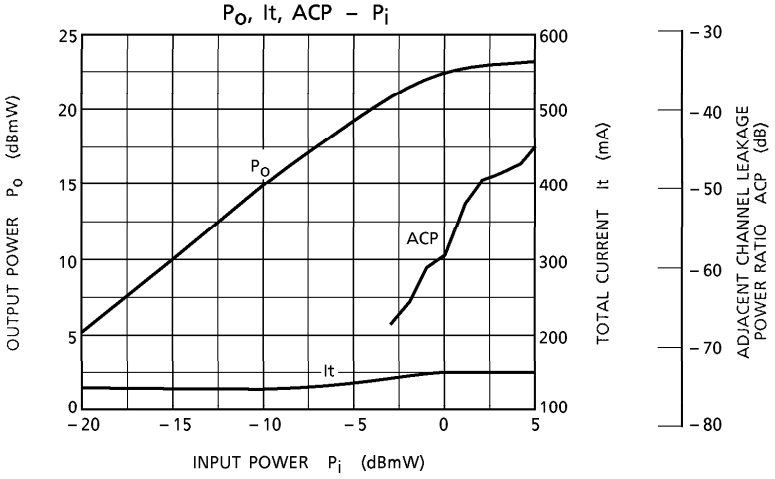
TEST CIRCUIT 1 (RF TEST CIRCUIT)



RF TEST BOARD

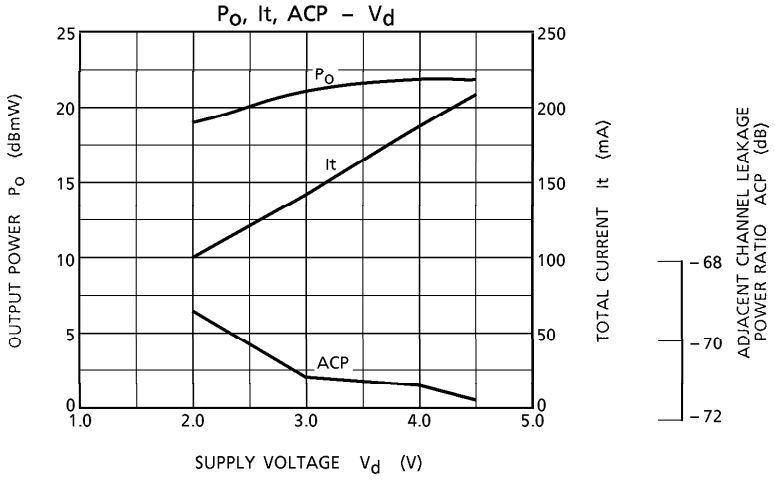


P_O, It, ACP – P_i



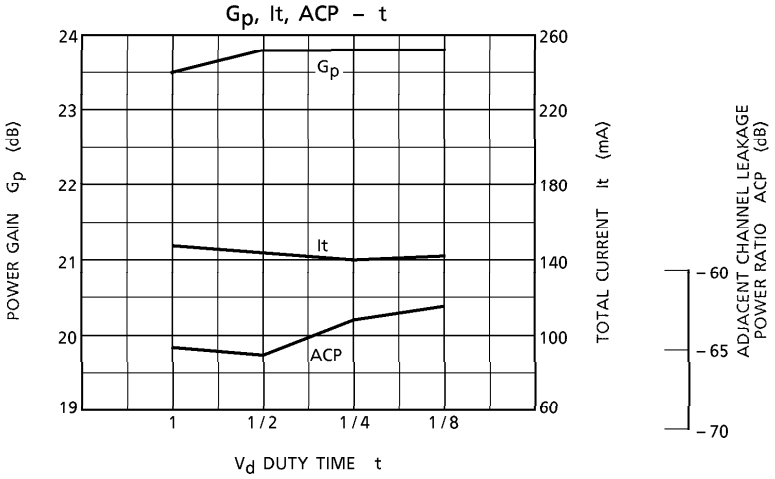
TEST CONDITION
V_d = 3V
V_g = 1V
f = 1.9GHz
V_d operates at 1/2 duty time

P_O, It, ACP – V_d



TEST CONDITION
V_g = 1V
f = 1.9GHz
P_i = Regulation
V_d operates at 1/2 duty time

G_p, It, ACP – t

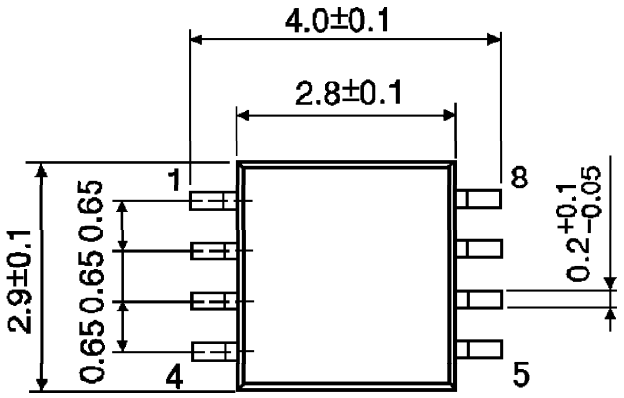


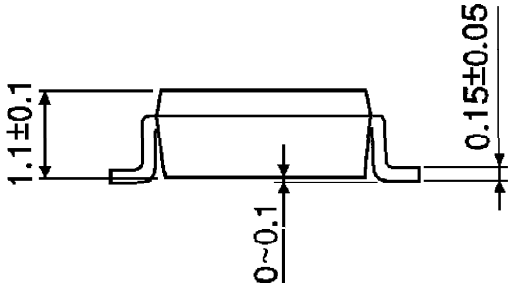
TEST CONDITION
V_d = 3V
V_g = 1V
f = 1.9GHz
P_i = Regulation

OUTLINE DRAWING

SSOP8-P-0.65

Unit : mm





Weight : 0.02g (Typ.)