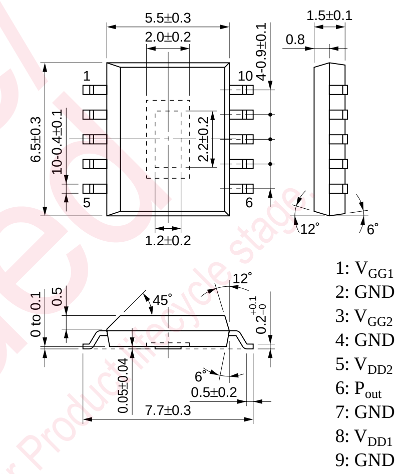
GN05009N

GaAs IC

Transmitting amplifier for PHS base station
Other communication equipment



■ Features

- High output power amplifier (P_{out} = 25.5dBm)
- Low consumption current (I_{DD} max. 420mA)
- Small surface mount package

■ Absolute Maximum Ratings (Ta = 25°C)

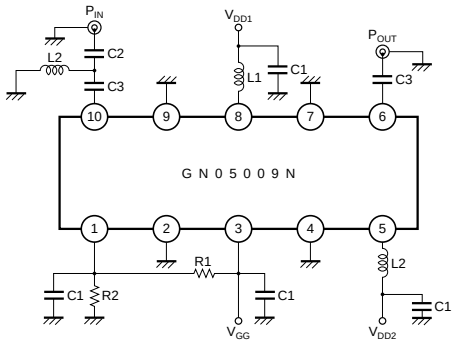
Parameter	Symbol	Ratings	Unit
Power supply voltage	V_{DD1}	6	V
	V_{DD2}	6	V
Gate voltage	V_{GG1}	–5	V
	V_{GG2}	–5	V
Circuit current	I_{DD1}	0.12	A
	I_{DD2}	0.36	A
Input power	P_{in}	7	dBm
Operating temperature	T_{opr}	–20 to +90	°C
Storage temperature	T_{stg}	–30 to +120	°C

■ Electrical Characteristics (Ta = 25 ± 3°C) *1

Parameter	Symbol	Conditions	min	typ	max	Unit
Circuit current*2, 5	I_{DD}	$V_{DD1} = V_{DD2}$ = 4.8V, P_{out} = 25.5dBm			420	mA
Gate current*3, 5	I_{GG}	$V_{DD1} = V_{DD2}$ = 4.8V, P_{out} = 25.5dBm			3	mA
Power gain*5, 6	PG	$V_{DD1} = V_{DD2}$ = 4.8V, P_{out} = 25.5dBm	22		30	dB
Modulation distortion*5, 6	DM_1	$V_{DD1} = V_{DD2}$ = 4.8V, P_{out} = 25.5dBm ±600kHz Detuning, 192kHz Bandwidth			–56	dBc
Modulation distortion*5, 7	DM_2	$V_{DD1} = V_{DD2}$ = 4.8V, P_{out} = 25.5dBm ±900kHz Detuning, 192kHz Bandwidth			–60	dBc
Voltage standing wave ratio*5, 7	VSWRin	$V_{DD1} = V_{DD2}$ = 4.8V, P_{out} = 25.5dBm			3	
Harmonics output ratio*4, 5, 7		$V_{DD1} = V_{DD2}$ = 4.8V, P_{out} = 25.5dBm			–35	dBc

*1 Common conditions: f = 1895.15 to 1917.95MHz, Duty = 1/2 (t = 5ms), Ta = 25°C
*2 $I_{DD} = I_{DD1} + I_{DD2}$
*3 Current flowing through the gate pin in the measurement circuit diagram.
*4 2nd (2fo), 3rd (3fo), and 4th (4fo) harmonics
*5 V_{GG} is the voltage which adjusts I_{DD} to 0.15A when P_{in} is OFF.
P_{out} is the average output power of π/4 shifted QPSK wave.
*6 Sampling inspection items (n = 10/wafer) (c = 0)
*7 Design-guaranteed items.
1) About the stability of the load regulation, no abnormal oscillation and no noise increase are caused under following conditions:
Condition: $V_{DD1} = V_{DD2}$ = 3.5 to 5V, V_{GG} = (*1), P_{in} = –25 to +7dBm, load VSWR ≤ 3, full phase
2) About the damage capacity, no damage should be caused under following conditions:
Condition: $V_{DD1} = V_{DD2}$ = 0 to 5.2V, V_{GG} = (*1), P_{in} = –25 to +7dBm, load VSWR ≤ 3, full phase, t < 10s

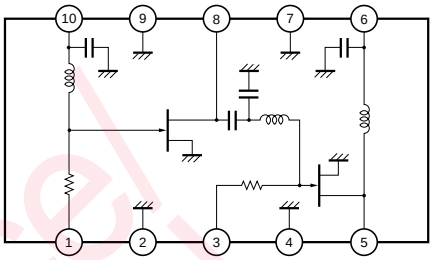
■ Measurement Circuit



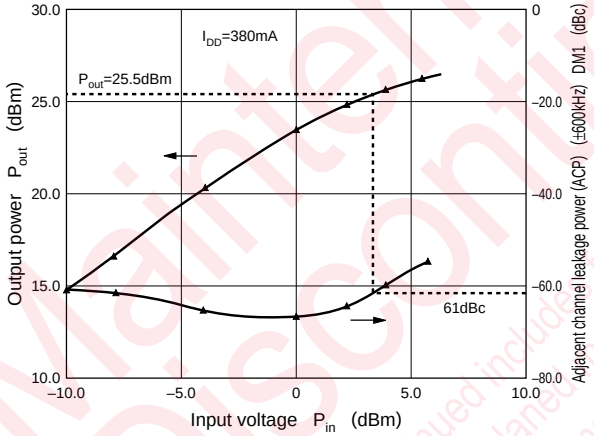
(Component values)

R1 = 560Ω	L1 = 8.2nH	C1 = 100pF, 10µF
R2 = 1.8kΩ	L2 = 5.6nH	C2 = 1pF
		C3 = 100pF

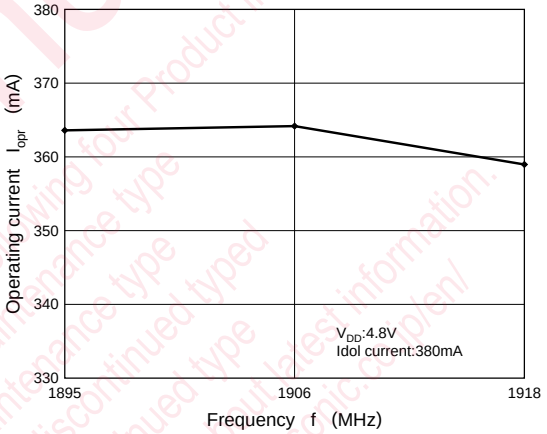
Circuit-Function Block Diagram



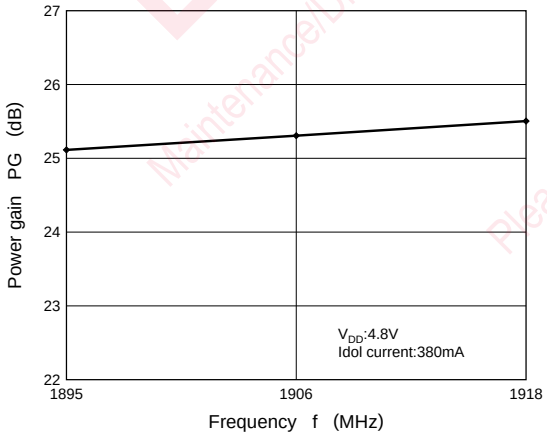
P_{out} (Adj), DM1 — P_{in}



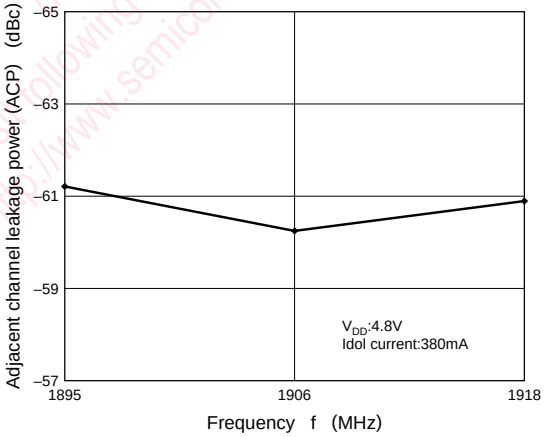
I_{opr} — f



PG — f



ACP — f



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⚠DANGER

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