

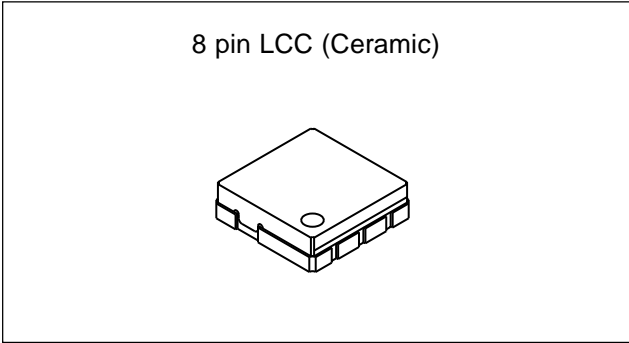
**Power Amplifier Module for JCDMA**

**Description**

The CXG1108K is the power amplifier module which operates at a single power supply. This IC is designed using the Sony's original p-Gate HFET process.

**Features**

- Single power supply operation:
  - $V_{DD1} = V_{DD2} = 3.5V$ ,
  - $V_{GG} = 2.95V$  (@High mode),
  - $V_{GG} = 2.7V$  (@Low mode)
- Ultrasmall package: 0.065cc (6.2mm × 6.2mm × 1.7mm)
- High efficiency:  $\eta_{add} = 37.5\%$  (@900MHz,  $P_{OUT} = 27dBm$ )
- Output power (high/low mode switching supported):
  - $P_{OUT} \leq 17dBm$ : Low mode ( $V_{GG} = 2.7V$ )
  - $P_{OUT} = 17$  to 27dBm: High mode ( $V_{GG} 2.95V$ )
- Gain:  $G_p = 26dB$  (@900MHz)



**Applications**

Power amplifier for JCDMA system cellular phones

**Structure**

p-Gate HFET module

**Recommended Operating Conditions**

$V_{DD} = 3.3$  to 4.2V  
 $V_{GG} = 2.95V \pm 1\%$  (High Mode)  
 2.7V  $\pm 1\%$  (Low Mode)

**Absolute Maximum Ratings**

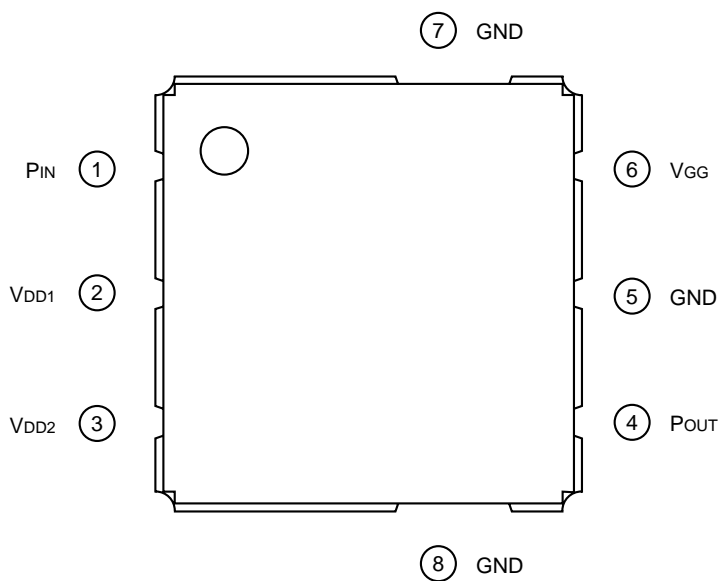
• Operating case temperature	$T_{case}$	-30 to +85	°C
• Storage temperature	$T_{stg}$	-30 to +125	°C
• Bias voltage	$V_{DD1}, V_{DD2}$	6	V
• Bias voltage	$V_{GG}$	3.3	V
		( $V_{DD1} = V_{DD2} = 3.5V$ )	
• Input power	$P_{IN}$	8	dBm

GaAs module is ESD sensitive devices. Special handling precautions are required.

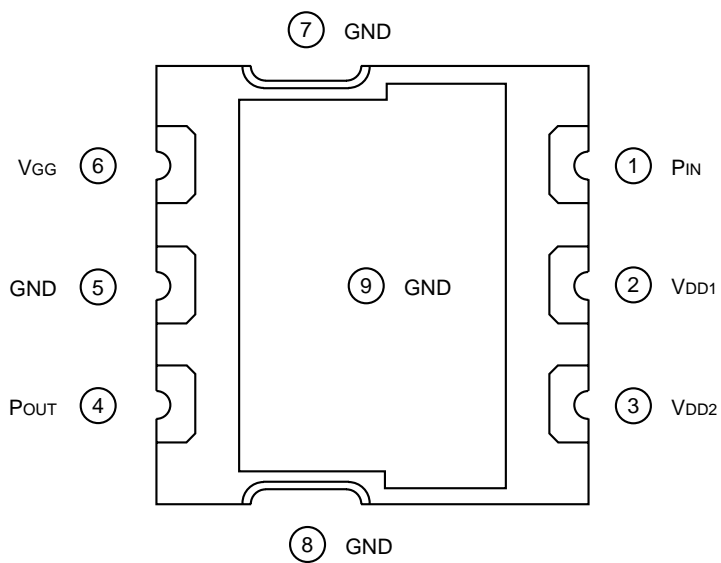
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package Outline/Pin Configuration

Front



Back

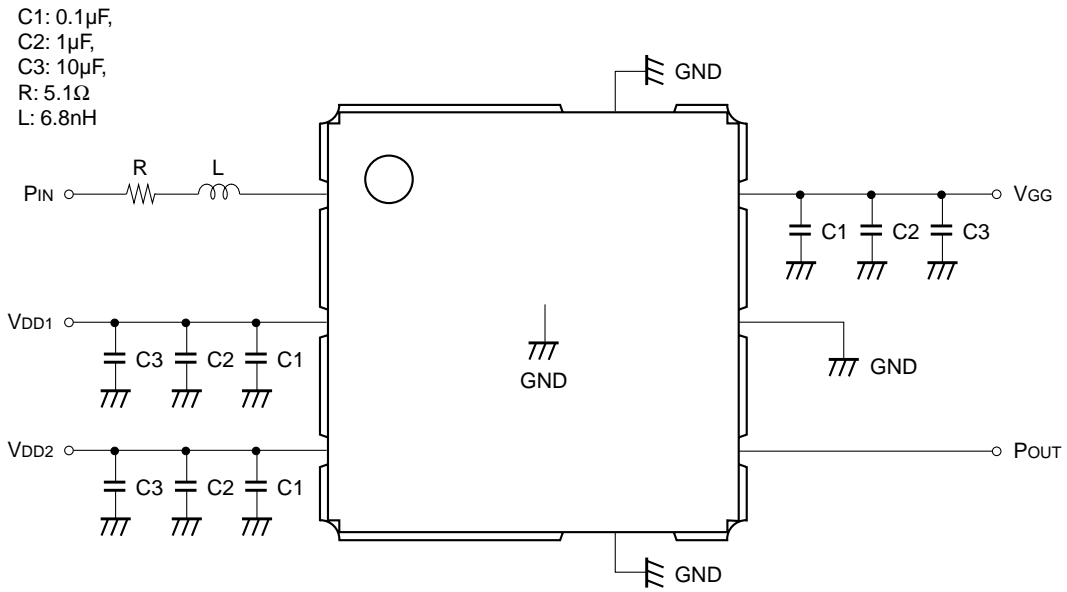


**Electrical Characteristics**

(ZS = ZL = 50Ω, IS-95 Modulation, Ta = 25°C)

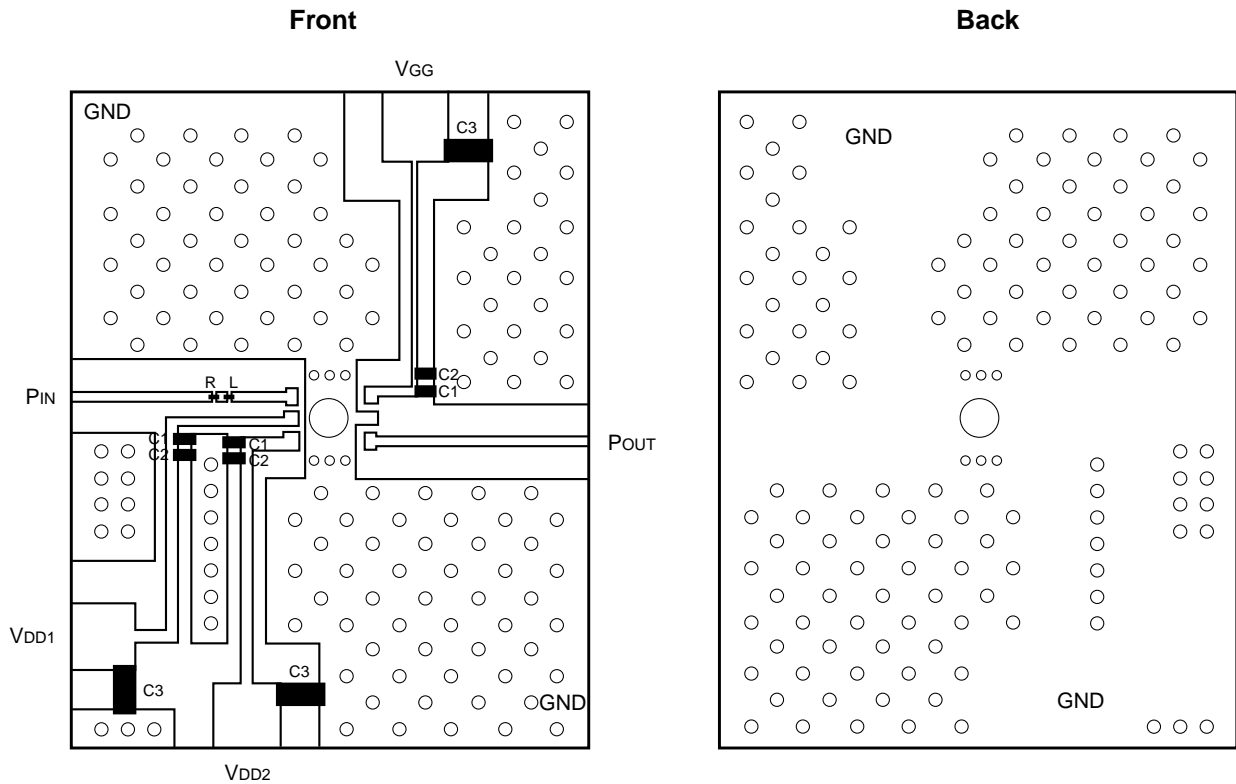
Item	Conditions	Min.	Typ.	Max.	Unit
Frequency		887		925	MHz
Current consumption 1	P <sub>OUT</sub> = 27dBm, V <sub>DD</sub> = 3.5V, V <sub>GG</sub> = 2.95V		380	430	mA
Current consumption 2	P <sub>OUT</sub> = 14dBm, V <sub>DD</sub> = 3.5V, V <sub>GG</sub> = 2.7V		110	130	mA
Gain	P <sub>OUT</sub> = 27dBm, V <sub>DD</sub> = 3.5V, V <sub>GG</sub> = 2.95V	24	26	28	dB
ACPR1 (High mode)	P <sub>OUT</sub> = 27dBm, V <sub>DD</sub> = 3.5V, V <sub>GG</sub> = 2.95V, ±900kHz offset, 30kHz band width		-51	-46	dBc
ACPR2 (High mode)	P <sub>OUT</sub> = 27dBm, V <sub>DD</sub> = 3.5V, V <sub>GG</sub> = 2.95V, ±1.98MHz offset, 30kHz band width		-60	-57	dBc
ACPR1 (Low mode)	P <sub>OUT</sub> = 17dBm, V <sub>DD</sub> = 3.5V, V <sub>GG</sub> = 2.7V, ±900kHz offset, 30kHz band width		-58	-46	dBc
ACPR2 (Low mode)	P <sub>OUT</sub> = 17dBm, V <sub>DD</sub> = 3.5V, V <sub>GG</sub> = 2.7V, ±1.98MHz offset, 30kHz band width		-75	-57	dBc
2nd, 3rd harmonics	P <sub>OUT</sub> = 27dBm, V <sub>DD</sub> = 3.5V, V <sub>GG</sub> = 2.95V		-40	-30	dBc
Input VSWR	V <sub>DD</sub> = 3.5V, V <sub>GG</sub> = 2.95V		1.3	2.5	
Gate current	V <sub>GG</sub> = 2.95V, P <sub>OUT</sub> ≤ 27dBm		2.5	5	mA
Gain deviation within band	P <sub>OUT</sub> = 27dBm, V <sub>DD</sub> = 3.5V, V <sub>GG</sub> = 2.95V		1.2	2	dB

**Recommended External Circuit**



**Recommended Evaluation Board**

Board material: Glass fabric-base epoxy  
 Size: 40mm × 50mm × 0.6mm  
 Relative dielectric constant: 4.6



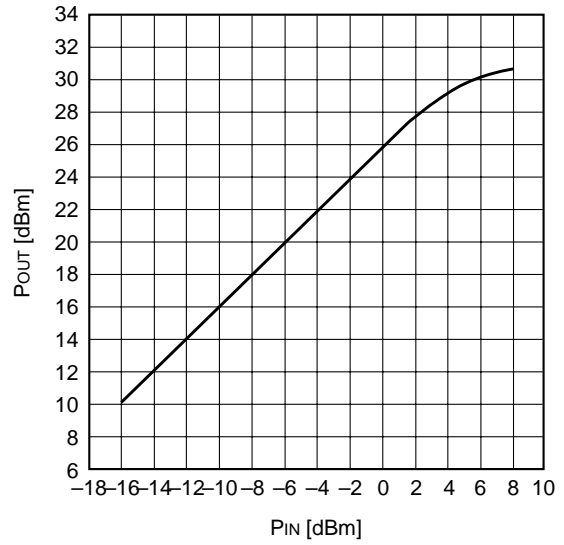
Example of Representative Characteristics

Conditions:  $f = 900\text{MHz}$

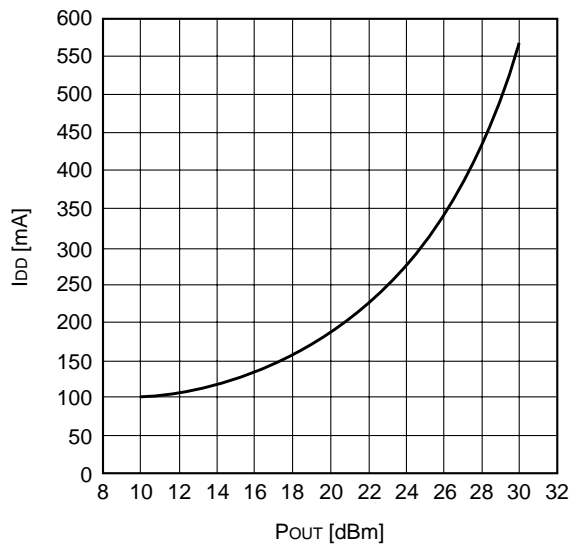
$V_{DD1} = V_{DD2} = 3.5\text{V}$ ,  $V_{GG} = 2.95\text{V}$

$T_a = 25^\circ\text{C}$

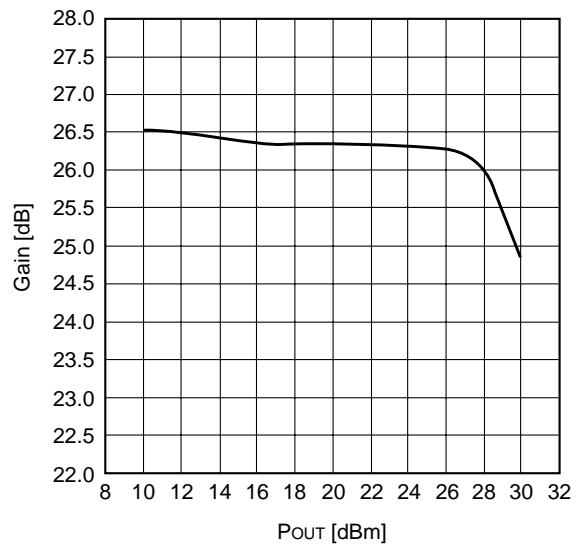
POUT vs. PIN



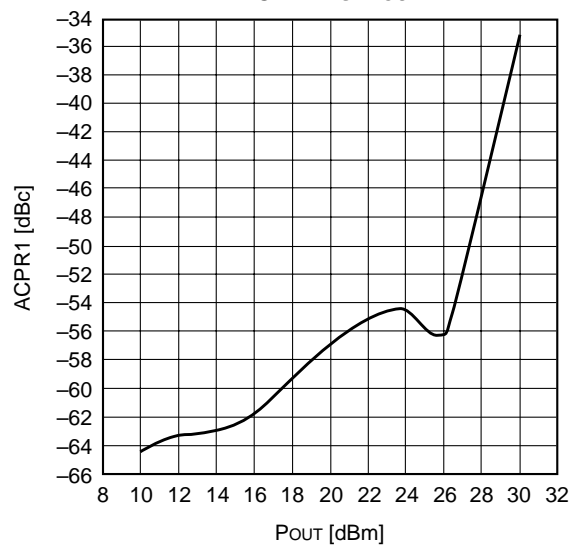
IDD vs. POUT



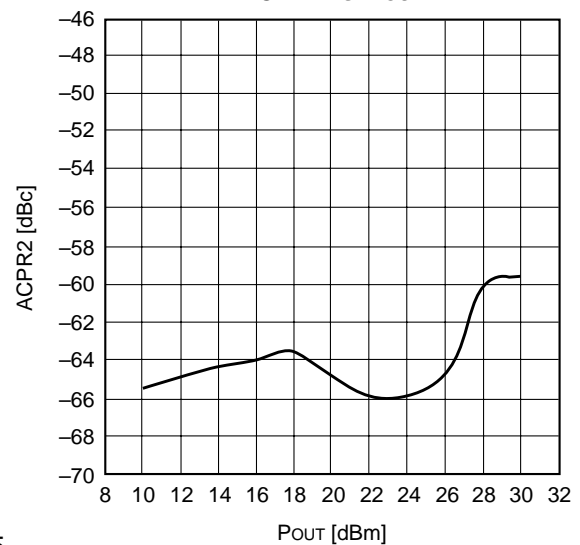
Gain vs. POUT



ACPR1 vs. POUT



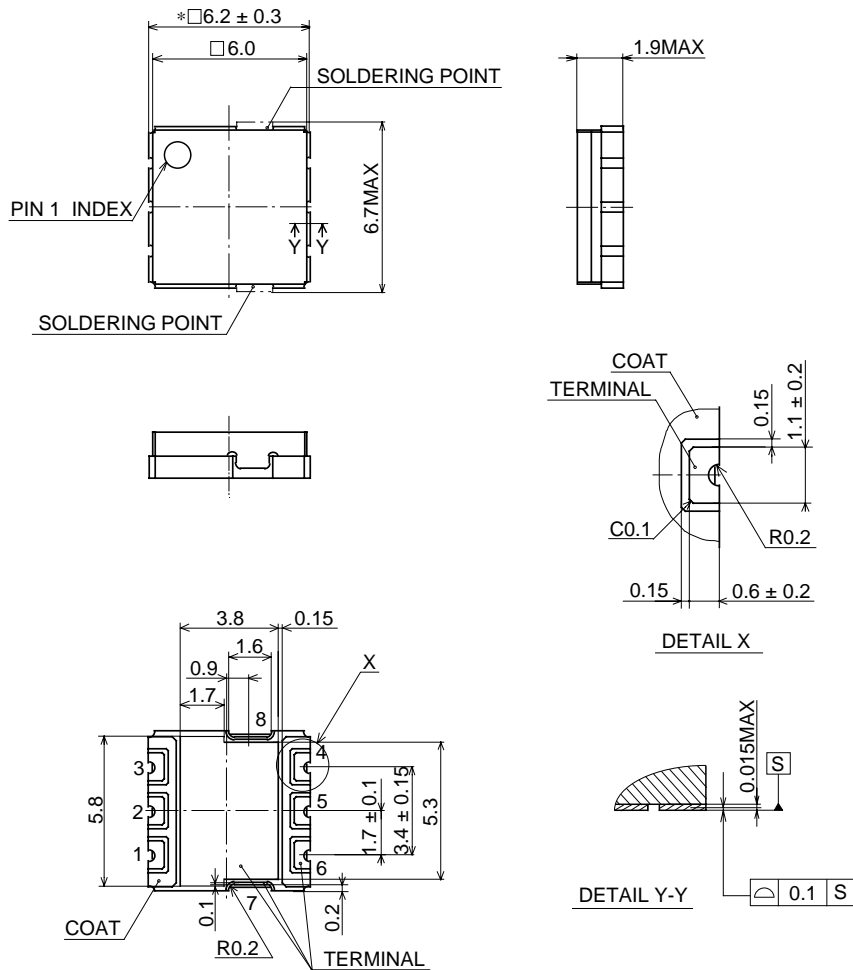
ACPR2 vs. POUT



Package Outline

Unit: mm

8PIN LCC (Ceramic)



Dimension " \*"dose not include cutting burr.

SONY CODE	LCC-8C-601
EIAJ CODE	_____
JEDEC CODE	_____

PACKAGE STRUCTURE

PACKAGE MATERIAL	CERAMIC SUBSTRATE
TERMINAL TREATMENT	GOLD PLATING
TERMINAL MATERIAL	NICKEL PLATING
PACKAGE MASS	0.8g