

➤ FEATURES

- Frequency: 55-70GHz
- Typical small signal gain: 16dB
- Typical output saturation power: 13dBm
- Typical power additional efficiency (PAE): 14%
- Process types: 65nm CMOS
- Power supply: 1V
- Die size: 1.2×0.6mm²

➤ GENETAL DESCRIPTION

The chip is a three-stage V-band Monolithic Power Amplifier (MMIC) with good electrical performance. It is manufactured by standard CMOS process. The power consumption is as low as 150mW to obtain 16dB small signal gain and 13dBm output saturation power.

➤ APPLICATION

- Test equipment and instrumentation

➤ ABSOLUTE MAXIMUM RATINGS

Table 1. Absolute maximum ratings (T_A=25°C)

Symbol	Parameter	Numerical value	Unit
V _{DD}	Power supply	1.2	V
I _D	Drain current	300	mA
V _G	Bias voltage	1	V
I _G	Gate current	0.1	uA
P _d	DC power consumption	360	mW
P _{in}	Input signal power	10	dBm
T _a	Operating temperature	-45~85	°C
T _j	Maximum junction temperature	125	°C
T _{mg}	Storage temperature	-55~165	°C

➤ CHARACTERISTIC PARAMETERS

Table 2. Electrical characteristic parameters (T_A=25°C)

Symbol	Parameter	Numerical value			Unit
		Min	Typ	Max	
V _{DD}	Power supply	0.95	1	1.2	V
V _G	Bias voltage		0.8		V
P _{DC}	Power consumption		150		mW
G	Small signal gain		16		dB
P _{SAT}	Saturated output power		13		dBm
P _{AE}	Power additional efficiency		14.6		%

➤ TYPICAL PERFORMANCE CHARACTERISTIC

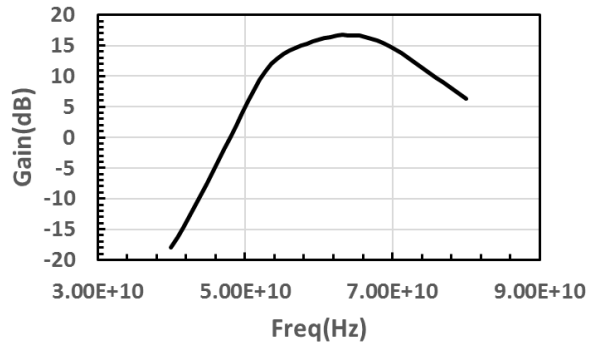


Figure 1. Small signal gain

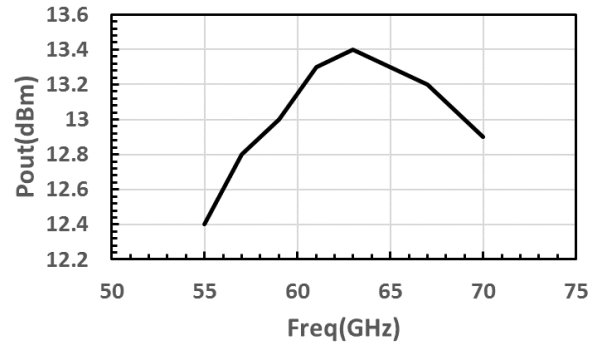


Figure 4. Output power

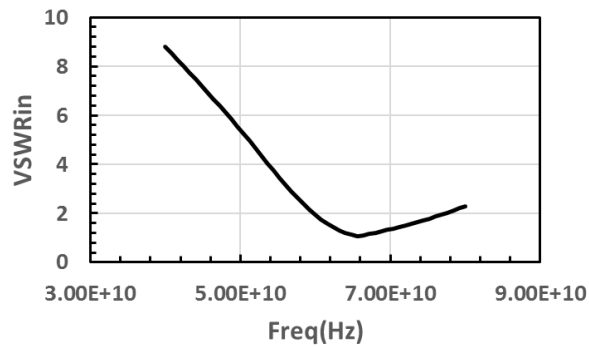


Figure 2. Input standing wave

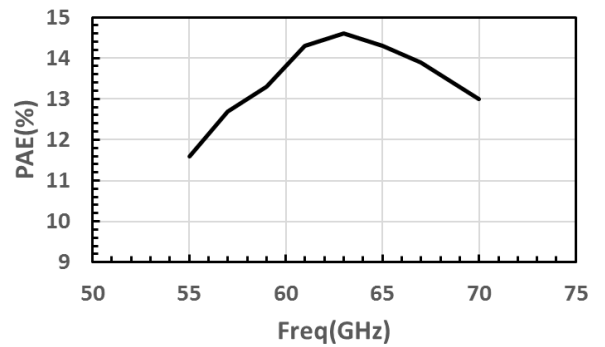


Figure 5. CW Pout

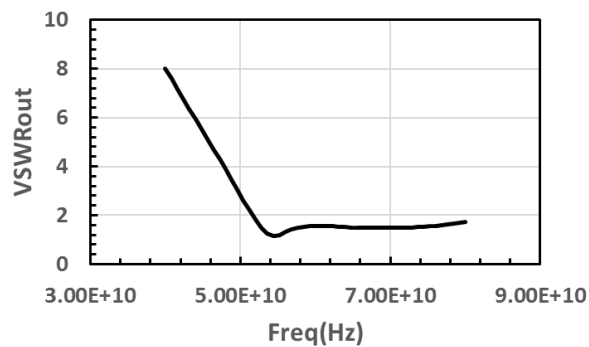


Figure 3. Output standing wave

➤ **PIN CONFIGURATION AND FUNCTION DESCRIPTIONS**

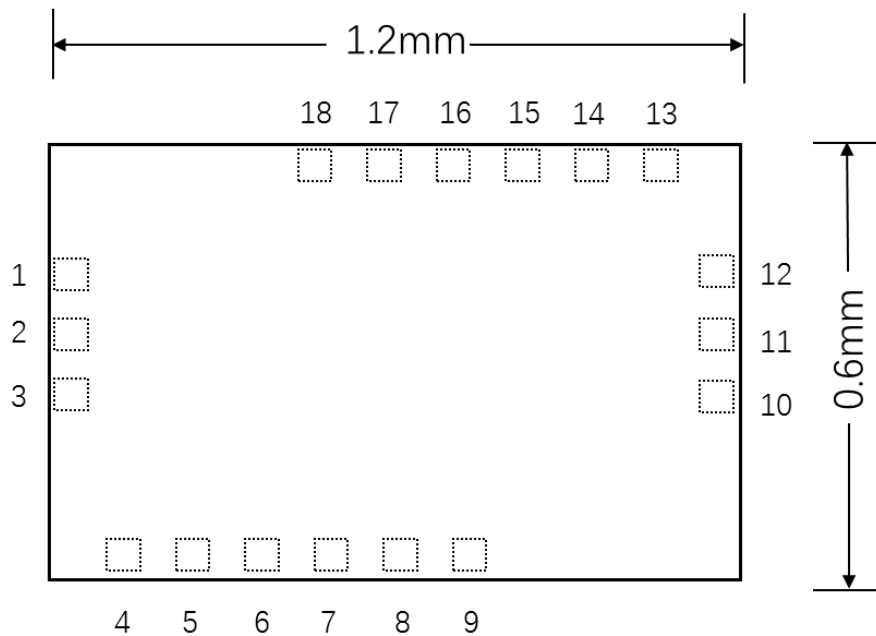


Figure 6. Pin configuration

Table 3. Pin function descriptions

Pin No.	Mnemonic	Description
1,3,5,8,10,12,14,17	GND	Ground
4,9,13,15,16	V _{DD}	Power supply
6,7,18	V _G	Bias voltage
2	RF _{IN}	RF signal input
11	RF _{OUT}	RF signal output