

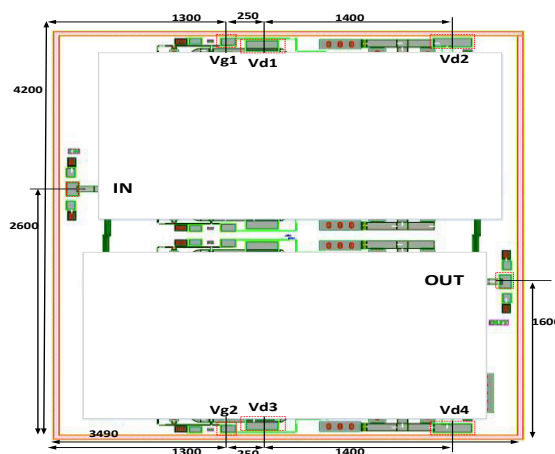
General Description

The MWG205 is an efficient GaAs PHEMT MMIC 4W Power Amplifier which operates between 27.5 and 30GHz, The amplifier provides 19dB of gain, and +35dBm of output power at 1 dB gain compression. while requiring 1800 mA from a +6V supply.

Features

High gain: 19 dB
 P1dB output power : +35dBm @ 24%;
 Output IP3: +41dBm
 Supply voltage: 6V @ 1.8A
 Size: 3.5x4.2x0.1 mm

Functional Diagram(Typical bondpad: 80umx120um)



(Die Thickness: 100 um)

Electrical Specifications, $T_A = +25^{\circ}\text{C}$, $V_{d1} = V_{d2} = +6\text{V}$, $V_g = -0.8\text{V}$, $I_{d1} + I_{d2} = 1.8\text{A}$ ^[1]

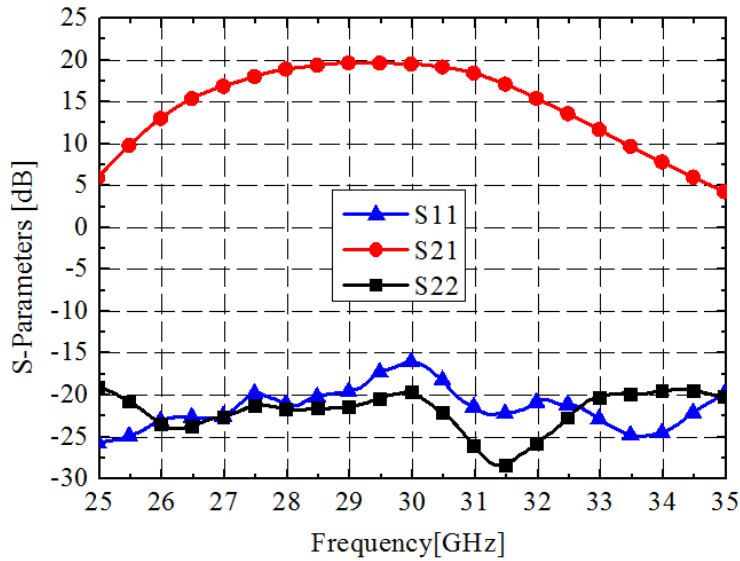
Parameter	Min	Typ	Max	Units
Bandwidth	27.5		30	GHz
Gain	17.5	19	19.5	dB
Gain Variation Over Temperature		0.022		dB/°C
Input Return Loss	15			dB
Output Return Loss	20			dB
Output Power for 1dB Compression	34	35		dBm
Maximum output power	35	36		dBm
PAE	20%	24%		
OIP3	40	41		dBm
(@Vdd=6V) Supply Current		1.8		A

[1], Adjust the V_g form -1.0V to 0V,make $I_d=1.8\text{A}$

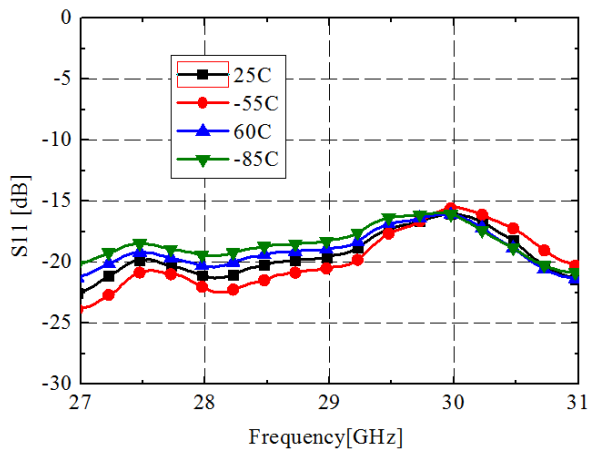


Test Result

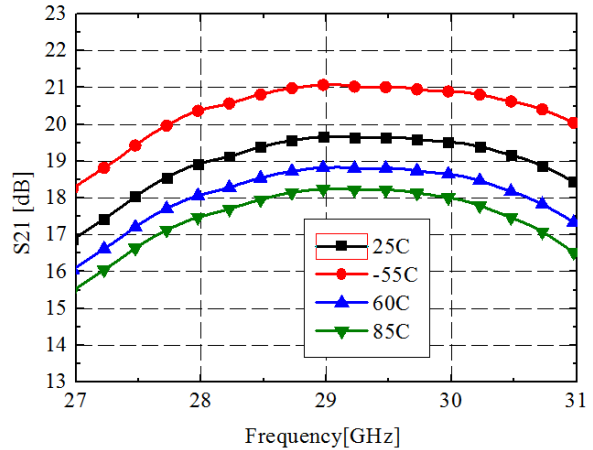
Frequency Response



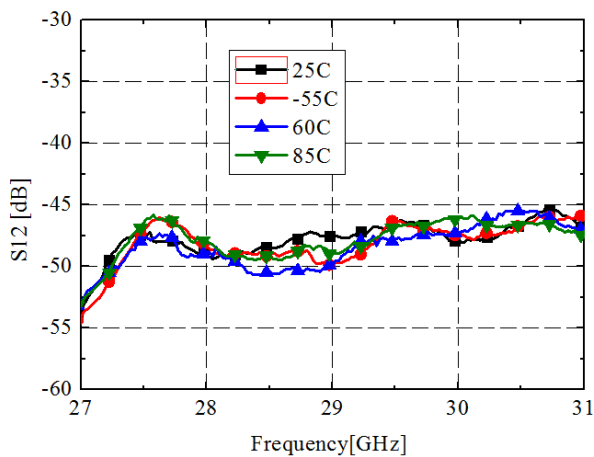
Input Return Loss VS. Temperature



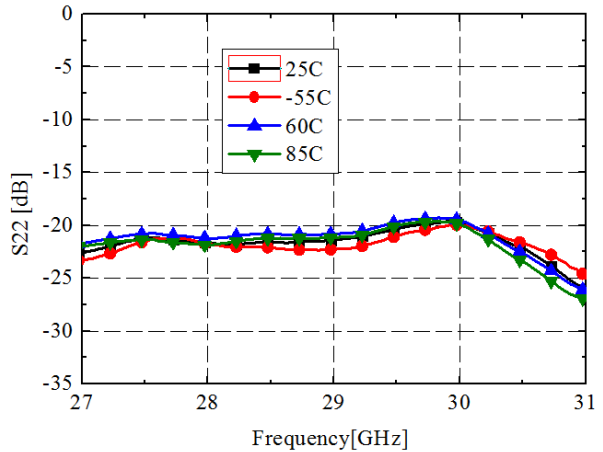
Gain VS. Temperature



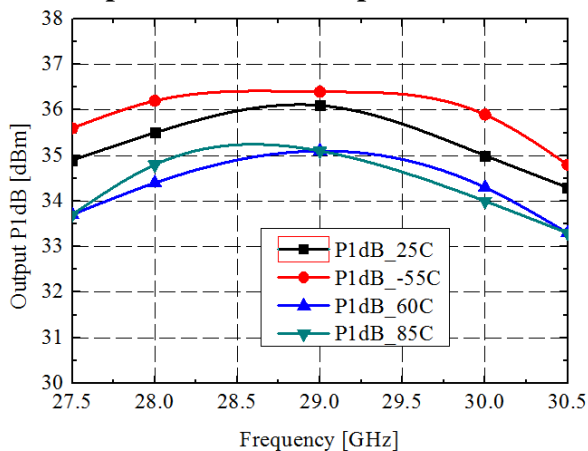
S12 VS. Temperature



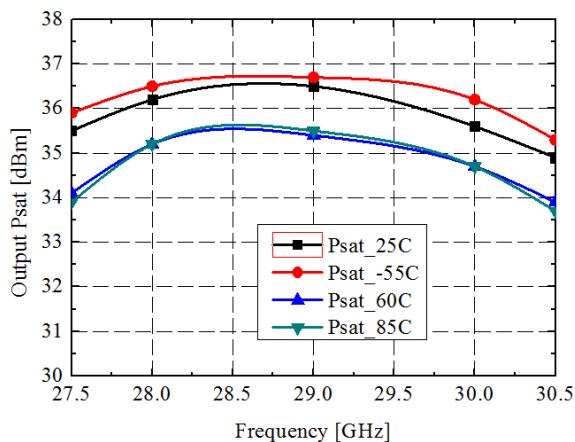
Output Return Loss VS. Temperature



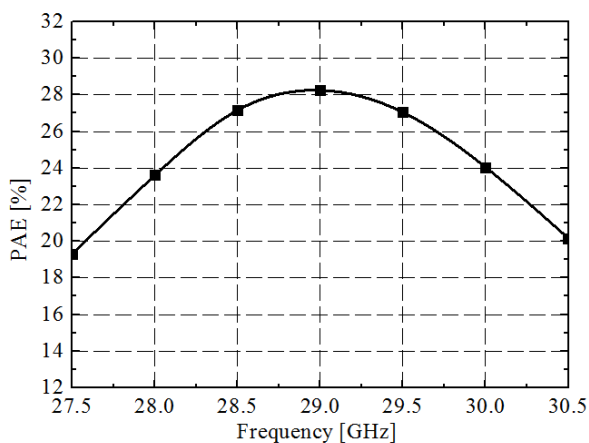
Output P1dB VS. Temperature



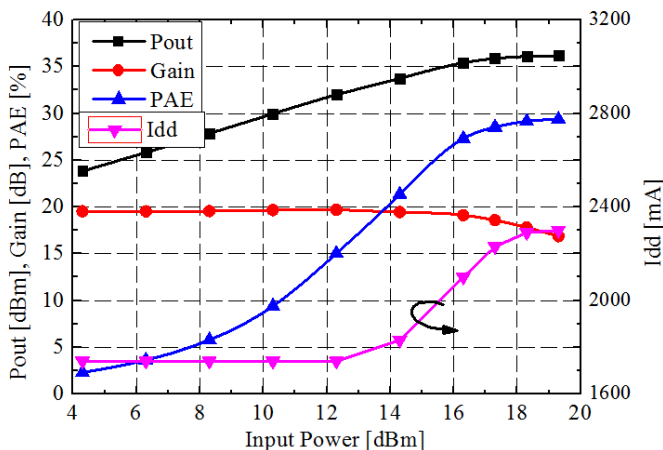
Psat VS. Temperature



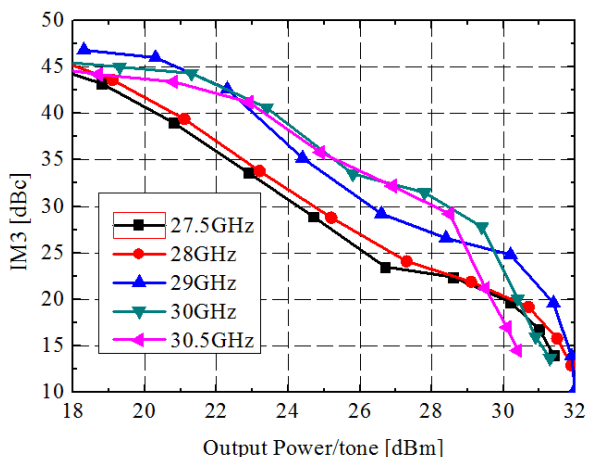
PAE VS. Frequency



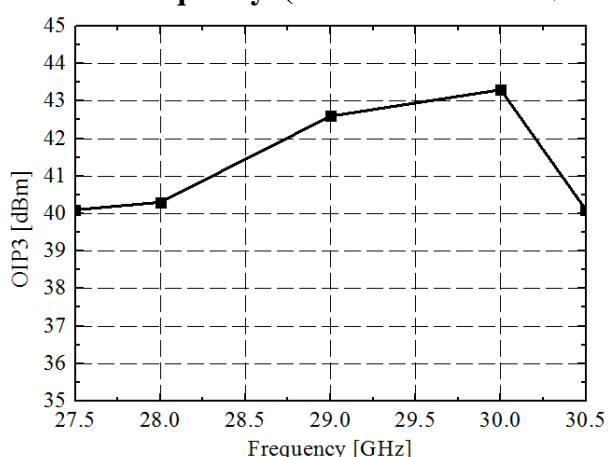
Gain & Pout PAE, Idd VS. Pin @29GHz



IMD3 VS. Pout



IP3 VS. Frequency (Pout/Tone=30dBm)



Absolute Maximum Ratings

Drain Bias Voltage (Vd)	+6.5 V
RF Input Power	+25 dBm
Channel Temperature	175 °C
Thermal Resistance	6 °C/W
Storage Temperature	-65 to +150 °C
Operating Temperature	-55 to +85 °C

Assembly Diagram

