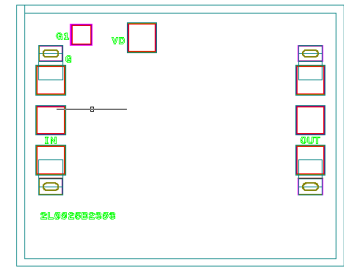


AMT1229
4 – 10GHz Low Noise Amplifier Chip

Key Features :

- Frequency range : 4 – 10GHz
- Typical gain : 23.5dB
- Input/Output standing wave : 1.4/1.4
- Noise figure : 0.7dB
- P-1 : 12dBm @ +5V/28mA
5dBm @ +5V/13mA (Low power mode)
- Chip dimensions : 1.2mm x 0.95mm x 0.1mm
- Applications : wireless communication, transceiver module, radio telecommunication etc.



Description :

AMT1229 chip is a Gallium Arsenide (GaAs) high performance Low Noise Amplifier, it covers 4 – 10GHz frequency range. It uses +5V single voltage operation, noise figure is 0.7dB, and 23.5dB typical gain. This chip is designed with ground through metal vias on the back technology.

Absolute Maximum Ratings (Ta = 25°C)

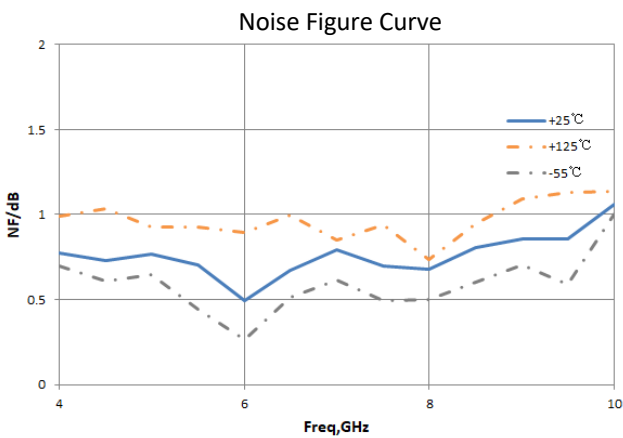
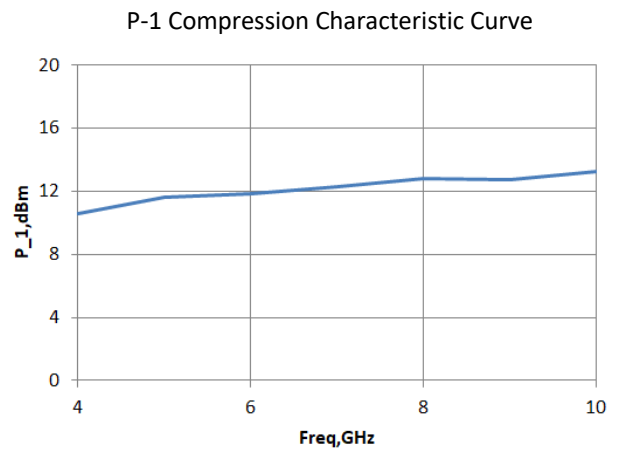
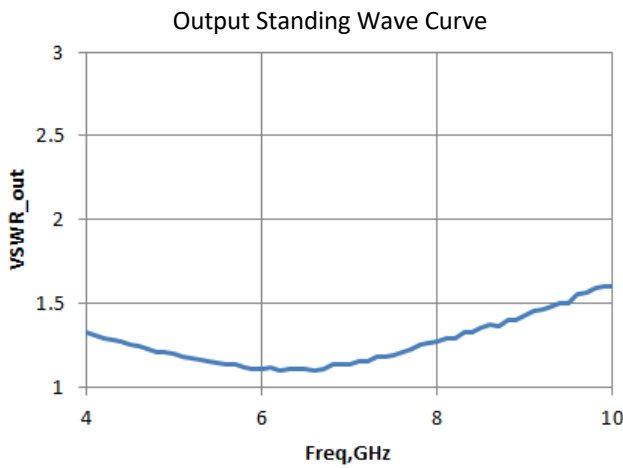
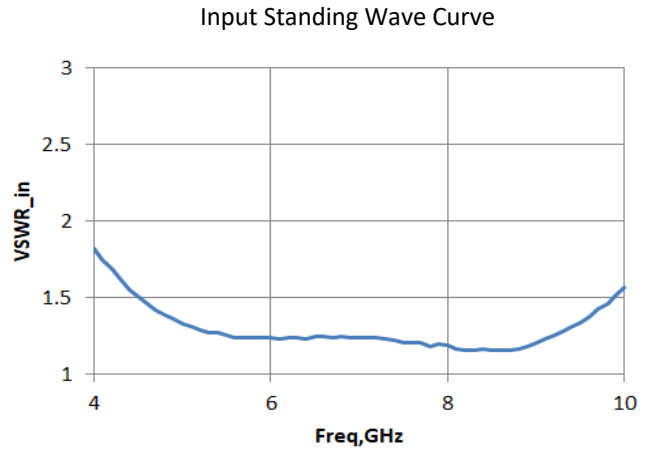
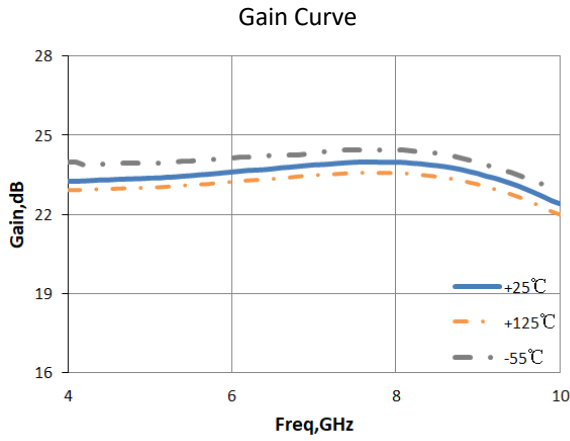
Symbol	Parameter	Value	Remark
Vd	Drain Voltage	+7V	
Pin	Input Signal Power	17dBm	
Tch	Operating Temperature	150°C	
Tm	Sintering Temperature	310°C	30s, N ₂ protection
Tstg	Storage Temperature	-65 ~ +150°C	

[1] Operation outside any of the Absolute Maximum Ratings may cause permanent device damage.

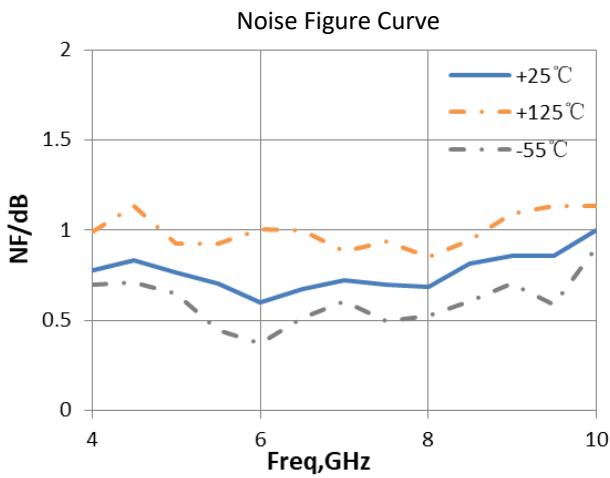
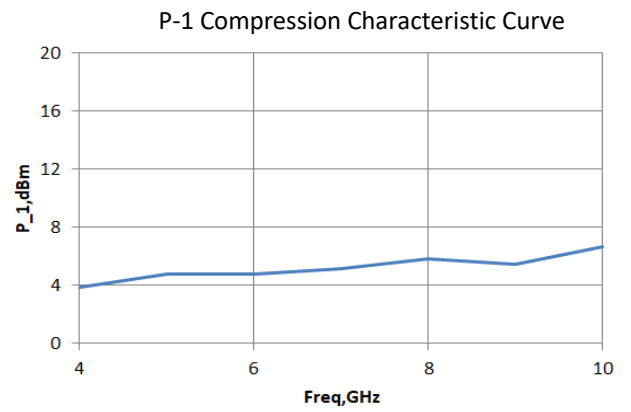
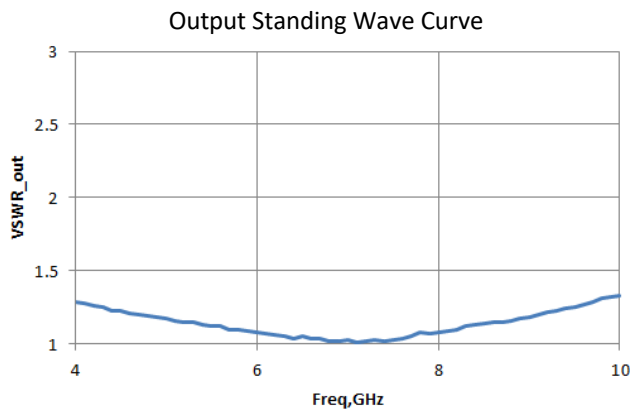
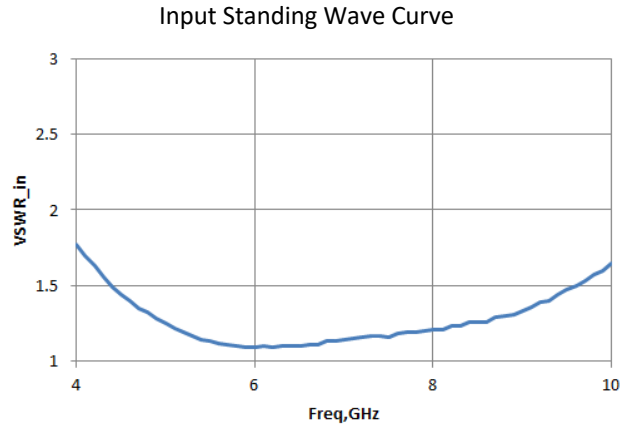
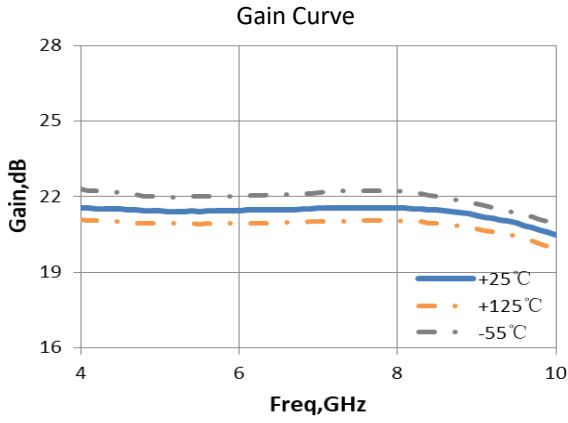
Electrical Characteristics (Ta = 25°C)

Symbol	Parameter	Test Conditions	Value			Unit
			Min	Typical	Max	
G	Gain	Vd = +5V F : 4 ~ 10GHz	-	23.5	-	dB
NF	Noise Figure		-	0.7	1.0	dB
Id	Static Current		-	30	-	mA
VSWR_in	Input Standing Wave		-	1.4	1.8	-
VSWR_out	Output Standing Wave		-	1.4	1.6	-
P-1	Output Power at 1dB point		10	12	-	dBm

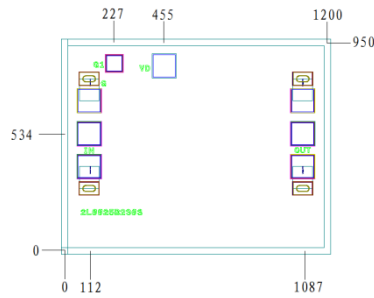
Typical Performance



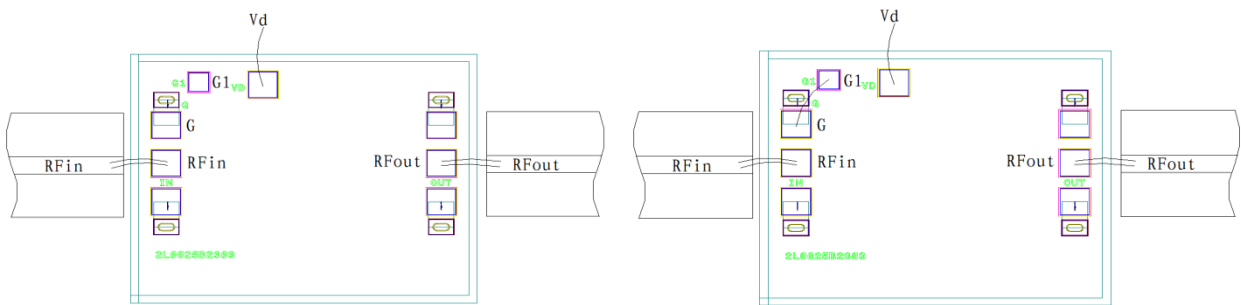
Typical Performance (Low Power Mode)



Chip Dimensions (Unit : μm)



Chip Layout Diagram



Normal Mode

Low Power Mode (G1 connected to G)

Pad Definition

Symbol	Function Description	Demensions	Equivalent Circuit
RFin	RF signal input port, connecting to external 50Ω system, no need to add DC blocking capacitor.	$100\mu\text{m} * 100\mu\text{m}$	
ROut	RF signal output port, connecting to external 50Ω system, no need to add DC blocking capacitor.	$100\mu\text{m} * 100\mu\text{m}$	
Vd	Amplifier bias, need to connect 100pF external capacitor	$100\mu\text{m} * 100\mu\text{m}$	
G	Ground	$100\mu\text{m} * 100\mu\text{m}$	-
G1	Low power mode when connected to G pad	$80\mu\text{m} * 80\mu\text{m}$	-

Please see Appendix A for details.