

AMT1212
7 – 13GHz Low Noise Amplifier Chip



Key Features :

- Frequency range : 7 – 13GHz
- Typical gain : 20dB
- Input/output standing wave : 1.5/1.3
- Noise figure : 0.9dB
- P-1 : 5dBm @ +5V/20mA
- Chip dimensions : 1.9mm x 1.05mm x 0.1mm
- Applications : wireless communication, transceiver module, radio telecommunication etc.

Description :

AMT1212 chip is a Gallium Arsenide (GaAs) high performance Low Noise Amplifier, it covers 7 – 13GHz frequency range. It uses +5V single voltage operation, Noise Figure is 0.9dB, and 20dB typical gain. This chip is designed with ground through metal vias on the back technology. All chip products are 100% RF tested.

Absolute Maximum Ratings (Ta = 25°C)

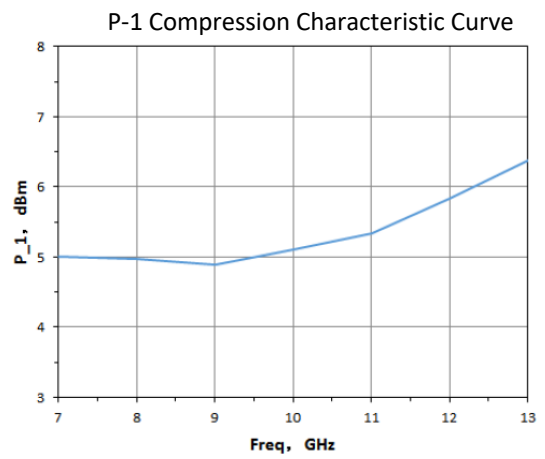
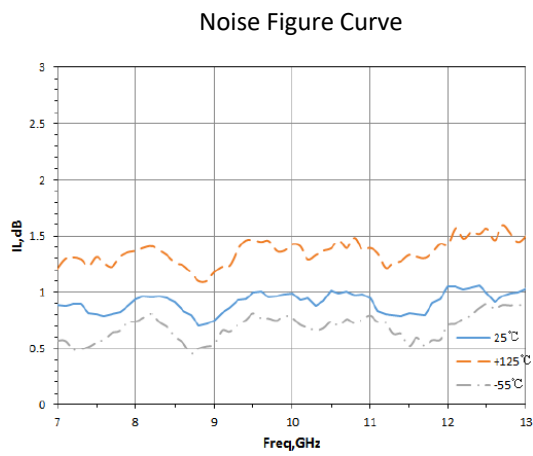
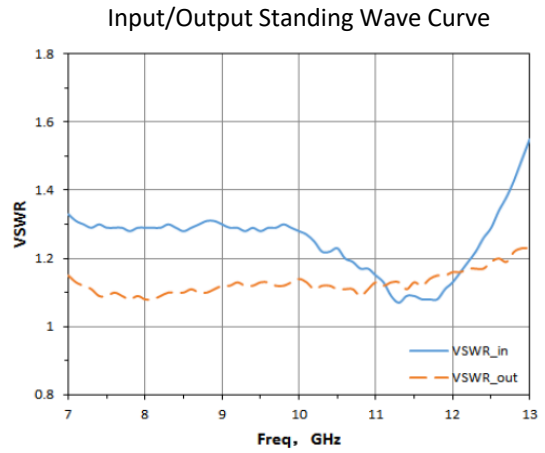
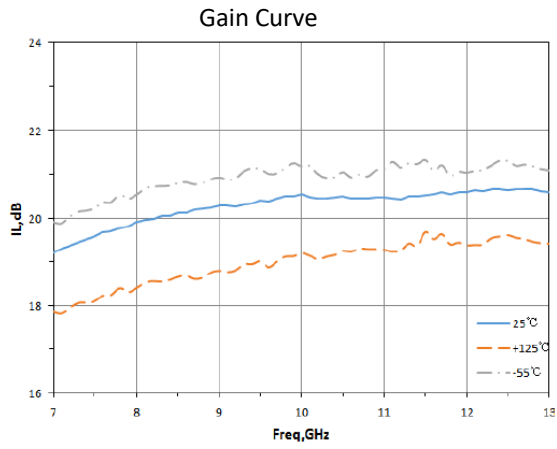
Symbol	Parameter	Value	Remark
Vd	Drain Voltage	+7V	
Pin	Input Signal Power	17dBm	
Tch	Operating Temperature	150°C	
Tm	Sintering Temperature	310°C	30s, N ₂ protection
Tstg	Storage Temperature	-65 ~ +150°C	

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

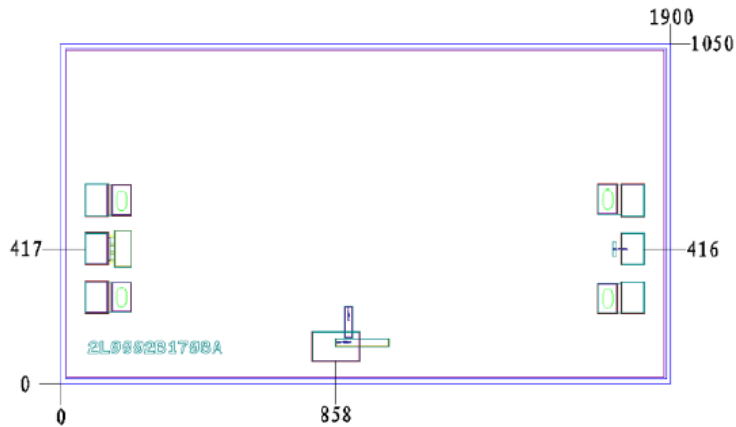
Electrical Characteristics (Ta = 25°C)

Symbol	Parameter	Test Conditions	Value			Unit
			Min	Typical	Max	
G	Gain	Vd = +5V F : 7 ~ 13GHz	-	20	-	dB
NF	Noise Figure		-	0.9	1	dB
Id	Static Current		-	16	-	mA
VSWR_in	Input Standing Wave		-	1.3	1.5	-
VSWR_out	Output Standing Wave		-	1.2	1.3	-
P-1	Output Power at 1dB point		4.5	5	-	dBm

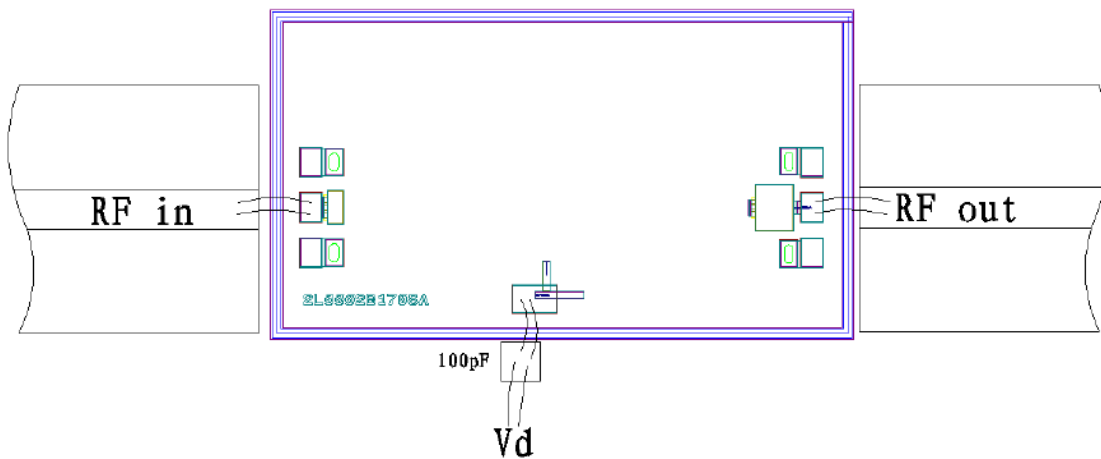
Typical Performance



Chip Dimensions (Unit : μm)



Chip Layout Diagram



Pad Definition

Symbol	Function	Dimension	Equivalent Circuit
RF_in	RF signal input port, connecting to external 50Ω system. no need to add DC blocking capacitor.	$100*75\mu\text{m}^2$	
RF_out	RF signal output port, connecting to external 50Ω system, no need to add DC blocking capacitor.	$100*75\mu\text{m}^2$	
Vd	Amplifier bias, need to connect external 100pF capacitor.	$150*95\mu\text{m}^2$	

Please see Appendix A for details.