

AMT1201
1 – 20GHz Low Noise Amplifier Chip



Key Features :

- Frequency range : 1 – 20GHz
- Typical gain : 16dB
- Input standing wave : 1.2
- Output standing wave : 1.3
- Noise figure : 2.5dB
- P-1 : 14dBm @ +5V/64mA
- Chip dimensions : 3mm x 1.3mm x 0.1mm
- Applications : wireless communication, transceiver module, radio telecommunication etc.

Description :

AMT1201 chip is a Gallium Arsenide (GaAs) high performance Low Noise Amplifier, it covers 1-20GHz frequency range. AMLA0013S uses +5V single voltage operation, typical Noise Figure is 2.5dB, and 16dB 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)

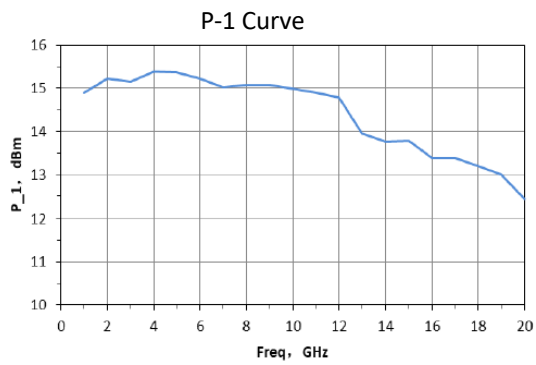
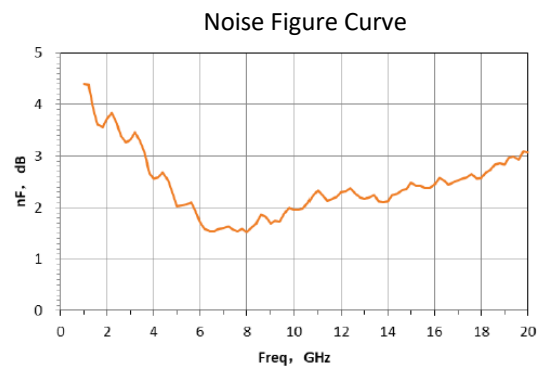
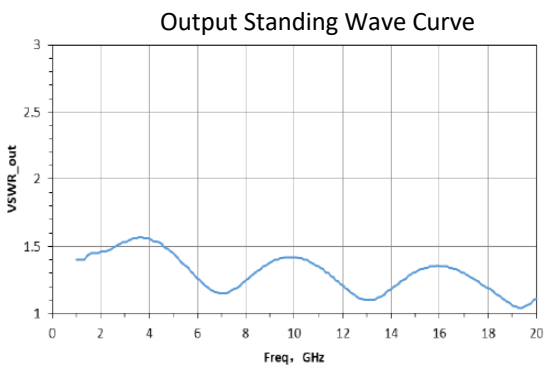
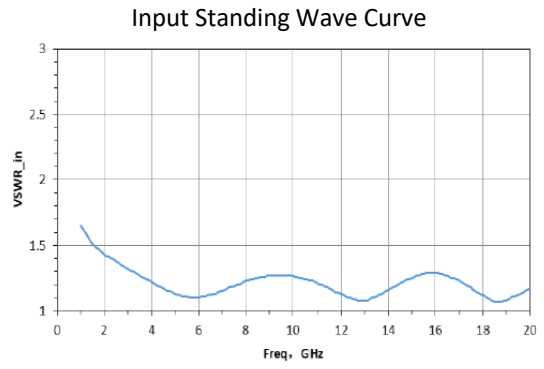
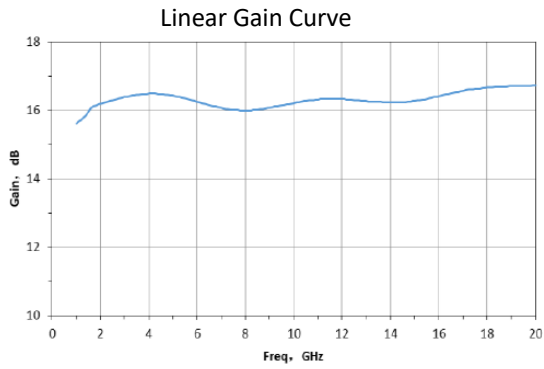
Symbol	Parameter	Value	Remark
Vd	Drain Voltage	7V	
Pin	Input Signal Power	17dBm	
Tch	Operating Temperature	150°C	
Tm	Sintering Temperature	310°C	30s, N ₂ protection
Tstg	Storage Temperature	-65 ~ +150°C	

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

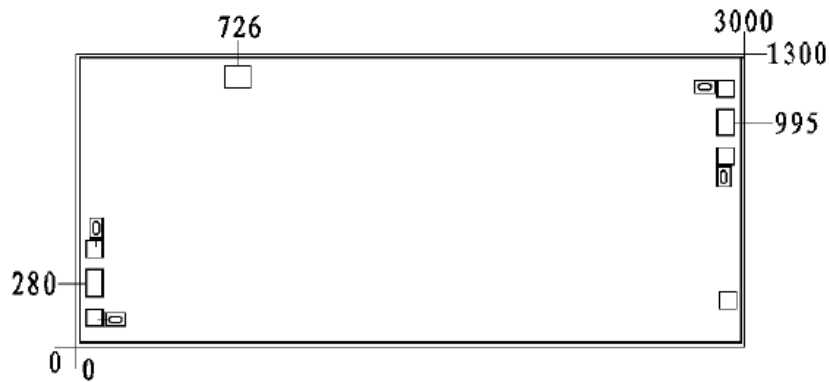
Electrical Characteristics (Ta = 25°C)

Symbol	Parameter	Test Conditions	Value			Unit
			Min	Typical	Max	
G	Gain	Vd = +5V F : 1 ~ 20GHz	-	16	-	dB
NF	Noise Figure		-	2.5	4.5	dB
Id	Drain Current		-	64	85	mA
VSWR_in	Input VSWR		-	1.2	1.5	
VSWR_out	Output VSWR		-	1.3	1.6	
P-1	Output compression at 1dB point		13	14	-	dBm

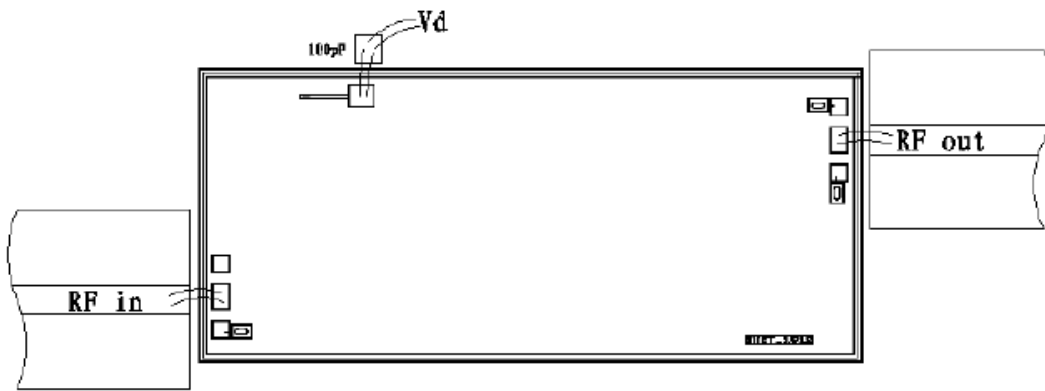
Typical Performance



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.	$100*100\mu\text{m}^2$	
RF_out	RF signal output port, connecting to external 50Ω system, no need to add DC blocking capacitor.	$100*100\mu\text{m}^2$	
Vd	Amplifier bias, need to connect external 100pF capacitor.	$100*100\mu\text{m}^2$	

Please see Appendix A for details.