AMT1108
16 – 28GHz Power Amplifier Chip

Key Features :

- Frequency range : 16 – 28GHz
- Typical small signal Gain : 21.5dB
- Typical P-1 output power : 16dBm
- Noise figure : 3db
- Voltage bias : 5V, 88mA
- Chip dimensions : 1.15mm x 1.95mm x 0.1mm
- Applications : wireless communication, transceiver module, radio telecommunication etc.

Description :

AMT1108 chip is a Gallium Arsenide (GaAs) designed power amplifier chip, with a frequency range of 16 – 28GHz, single voltage operation, drain voltage Vds at 5V, linear gain of 21.5dB, 1dB compression output power of 16dBm, noise figure 3dB. This chip is designed with ground through metal vias on the back technology. All chip products p are 100% RF tested.

Absolute Maximum Ratings (Ta = 25°C)

Symbol	Parameter	Value	Remark
Vd	Drain Voltage	+11V	
Pin	Input Signal Power	15dBm	
Tch	Operating Temperature	-55 ~ +125°C	
Tm	Sintering Temperature	310°C	30s, N_2 protection
Tstg	Storage Temperature	-65 ~ +150°C	

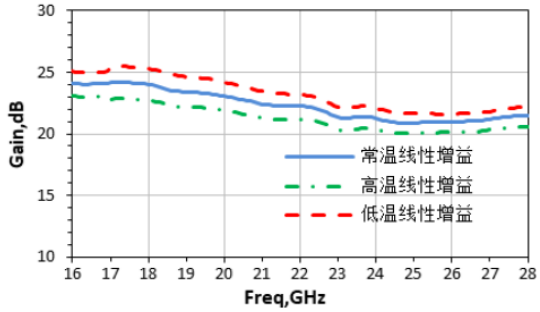
[1] Operation outside any of the Absolute Maximum Ratings may cause permanent device damage.

Electrical Characteristics (Ta = 25°C)

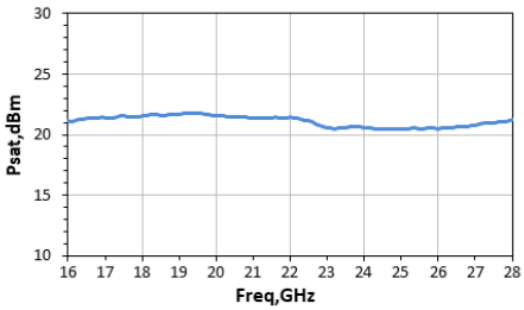
Symbol	Parameter	Test Condition	Value			Unit
			Min	Typical	Max	
G	Small Signal Gain	Vd = 5V F : 16 ~ 28GHz	21	21.5	24	dB
Id	Operating Current		-	88	-	mA
VSWR_in	Input SW		-	1.7	-	-
VSWR_out	Output SW		-	1.5	-	-
NF	Power Gain		-	3	-	dB
P-1	1dB Compression Output Power		-	16	-	dBm

Typical Performance

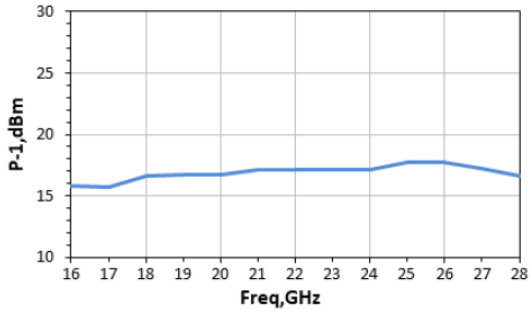
Linear Gain Curve



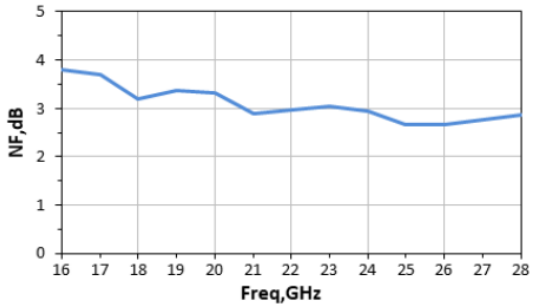
Saturated Output Power Curve



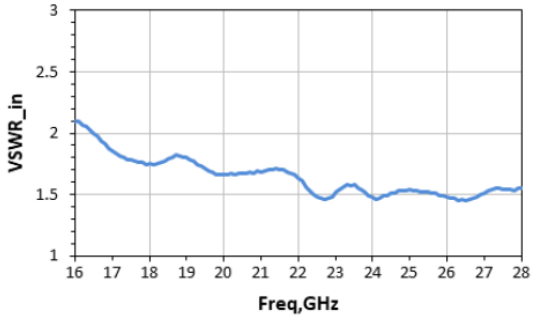
P-1 Curve



Noise Figure Curve

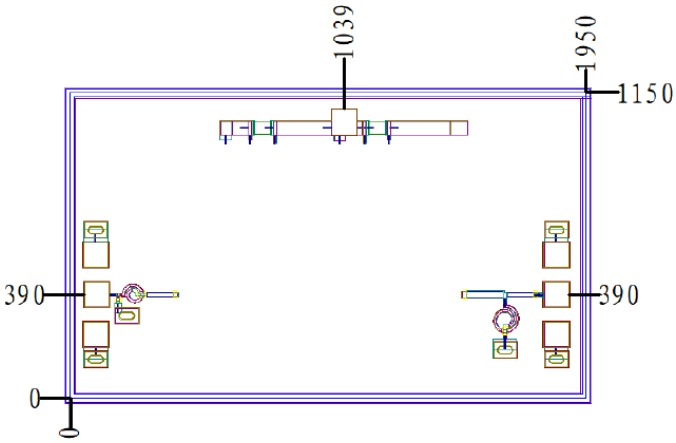


Input Standing Wave Curve

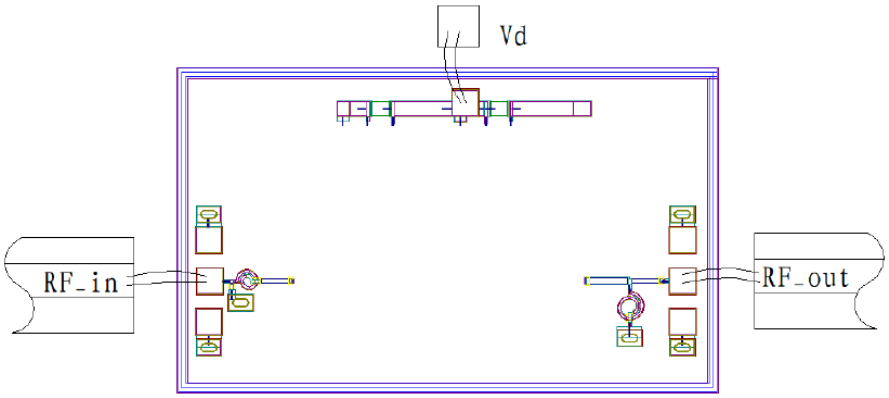


Output Standing Wave Curve

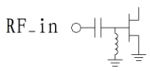
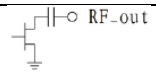
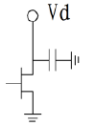
Chip Dimensions (Unit : μm)



Chip Layout Diagram



Pad Definition

Symbol	Function	Dimension	Equivalent Circuit
RF_in	RF signal input port, connecting to external 50Ω system. DC blocking capacitor is not needed, if external DC current is applied to this pad.	100*100μm²	
RF_out	RF signal output port, connecting to external 50Ω system, no need to add DC blocking capacitor.	100*100μm²	
Vd	Amplifier drain bias, need external 100pF, 1000pF capacitor.	100*100μm²	

Please see Appendix A for details.