AMT1216

19 – 25GHz Low Noise Amplifier Chip

Key Features :

- Frequency range : 19 – 25GHz
- Typical gain : 26dB
- Input/output standing wave : 1.4/1.7
- Noise figure : 2dB
- P-1 : 15.5dBm @ +5V/40mA
- Chip dimensions : 1.875mm x 0.7mm x 0.1mm
- Applications : wireless communication, transceiver module, radio telecommunication etc.

Description :

AMT1216 chip is a Gallium Arsenide (GaAs) high performance Low Noise Amplifier, it covers 19 – 25GHz frequency range. It uses +5V single voltage operation, noise figure is 2dB, and 26dB typical gain. 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	+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	

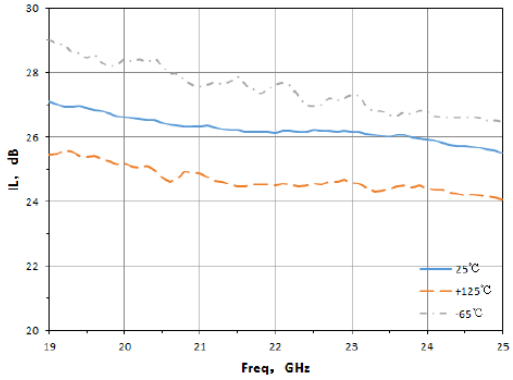
[1] Operation outside any of the Absolute Maximum Ratings may cause permanent device damage.

Electrical Characteristics (Ta = 25°C)

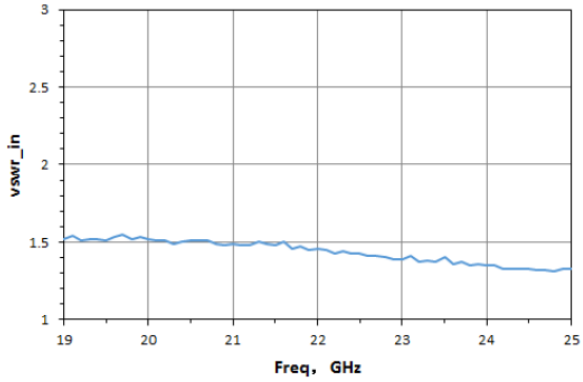
Symbol	Parameter	Test Conditions	Value			Unit
			Min	Typical	Max	
G	Gain	Vd = +5V F : 12 ~ 18GHz	25	26	-	dB
NF	Noise Figure		-	2	2.2	dB
Id	Static Current		-	40	-	mA
VSWR_in	Input Standing Wave		-	1.4	1.6	-
VSWR_out	Output Standing Wave		-	1.7	2.2	-
P-1	Output Power at 1dB point		15	15.5	-	dBm

Typical Performance

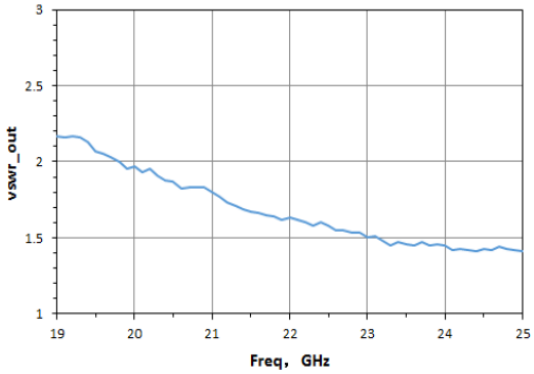
Gain Curve



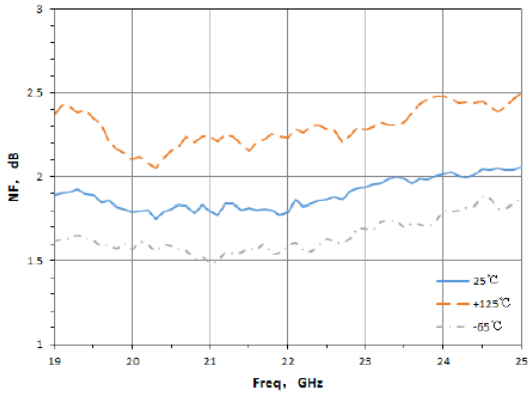
Input Standing Wave Curve



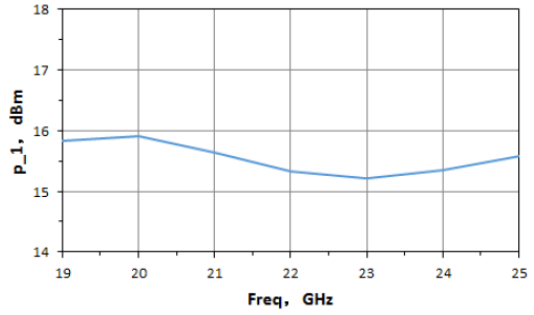
Output Standing Wave Curve



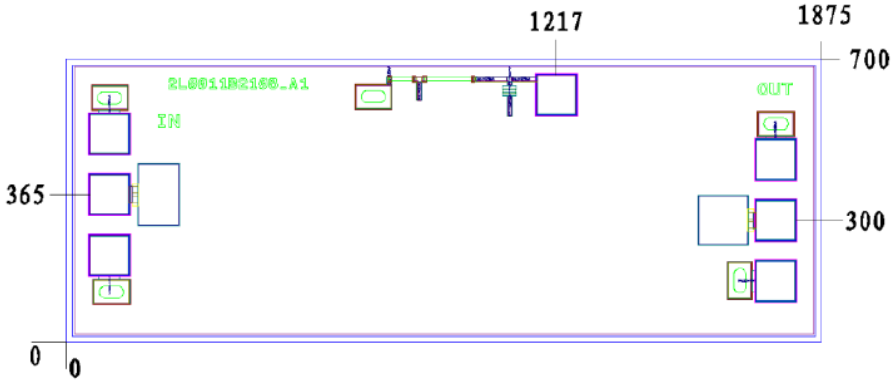
Noise Figure Curve



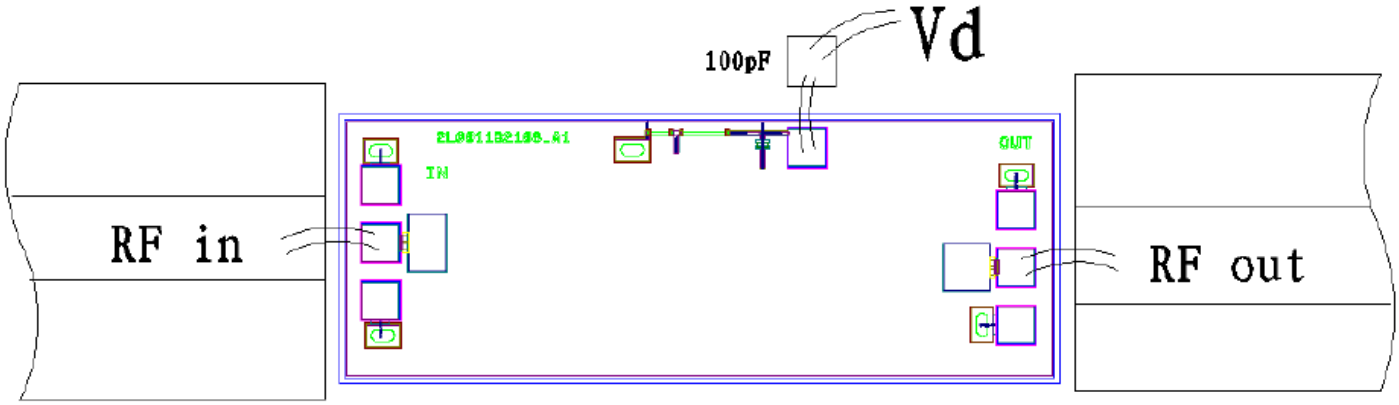
P-1 Compression Characteristic Curve



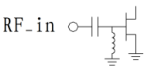
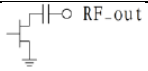
Chip Dimensions (Unit : μm)



Chip Layout Diagram



Pad Definition

Symbol	Function	Dimension	Equivalent Circuit
RF_in	RF signal input port, connecting to external 50Ω system. no need to add DC blocking capacitor.	100*100μm^2	
RF_out	RF signal output port, connecting to external 50Ω system, no need to add DC blocking capacitor.	100*100μm^2	
Vd	Amplifier bias, need to connect external 100pF capacitor.	100*100μm^2	

Please see Appendix A for details.