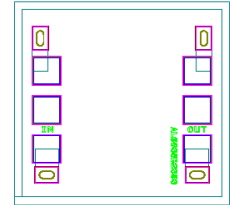


AMT1225
1 – 18GHz Low Noise Amplifier Chip

Key Features :

- Frequency range : 1 – 18GHz
- Typical gain : 15dB @ 38mA
- Input standing wave : 1.5
- Output standing wave : 1.4
- Noise figure : 1.8dB
- P-1 : 17dBm @ +5V/38mA
- Chip dimensions : 1.5mm x 0.95mm x 0.1mm
- Applications : wireless communication, transceiver module, radio telecommunication etc.



Description :

AMT1225 chip is a Gallium Arsenide (GaAs) high performance Low Noise Amplifier, it covers 1 – 18GHz frequency range. It uses +5V single voltage operation, noise figure is 1.8dB, and 15dB 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	

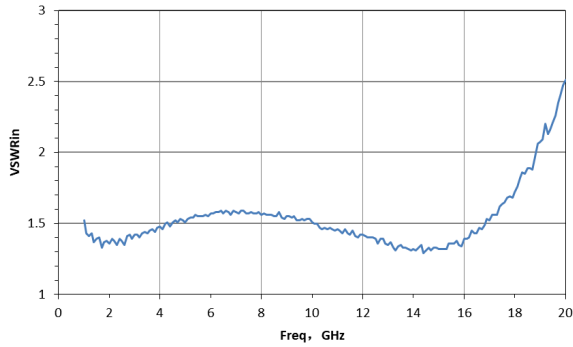
[1] Operation outside any of the Absolute Maximum Ratings may cause permanent device damage.

Electrical Characteristics (Ta = 25°C)

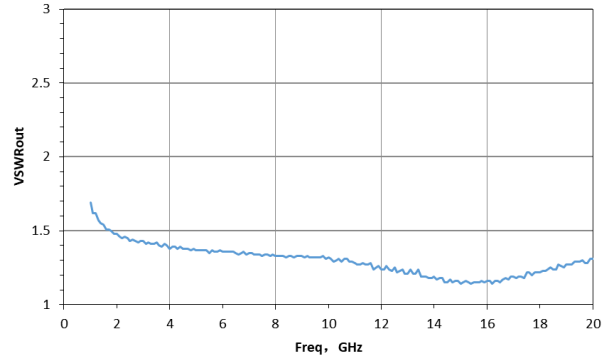
Symbol	Parameter	Test Conditions	Value			Unit
			Min	Typical	Max	
G	Gain	Vd = +5V F : 1 ~ 18GHz	-	15	-	dB
NF	Noise Figure		-	1.8	-	dB
Id	Static Current		-	38	-	mA
VSWR_in	Input Standing Wave		-	1.5	-	-
VSWR_out	Output Standing Wave		-	1.4	-	-
P-1	Output Power at 1dB point		-	17	-	dBm

Typical Performance

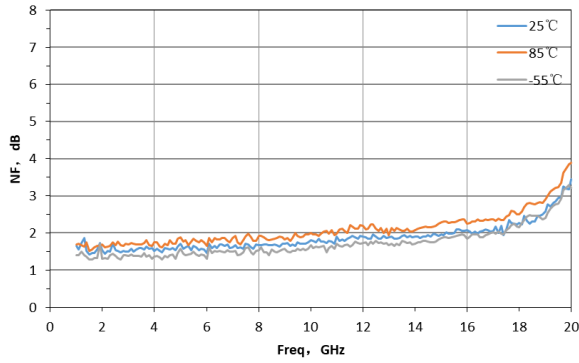
Input Standing Wave Curve



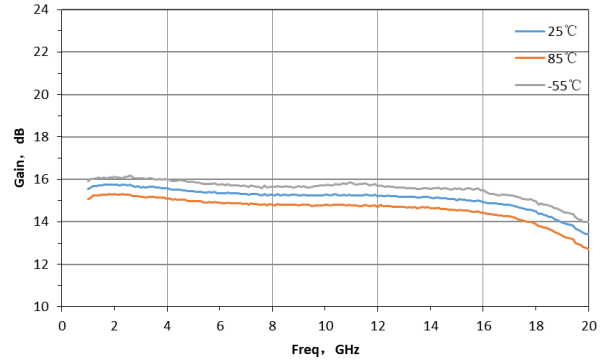
Output Standing Wave Curve



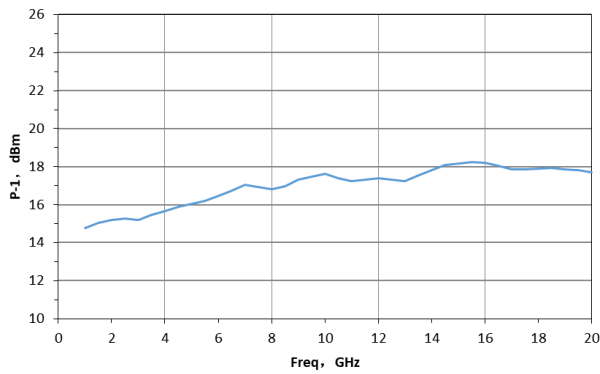
Noise Figure Curve



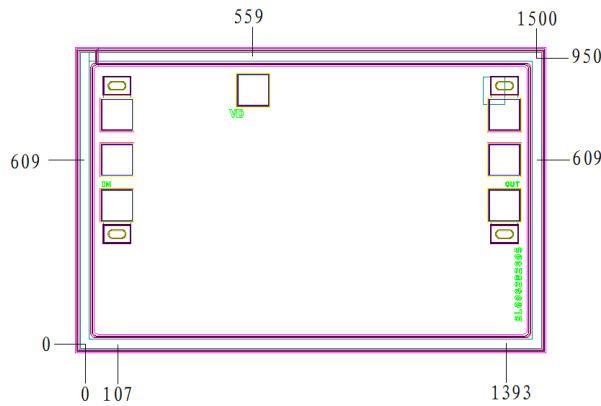
Gain Curve



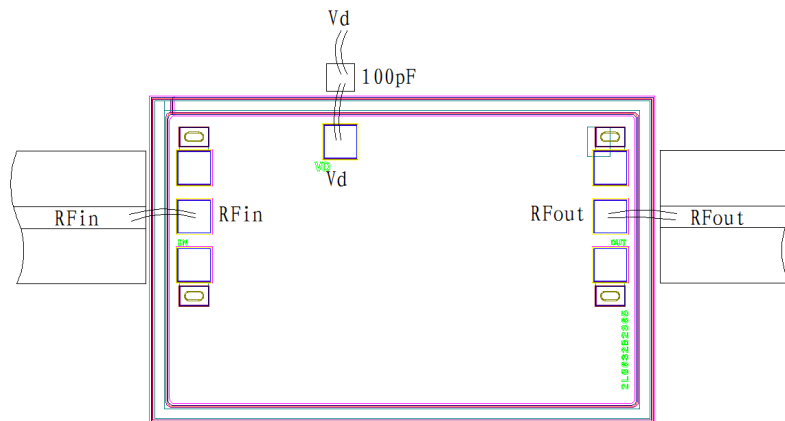
P-1 Compression Characteristic Curve



Chip Dimensions (Unit : μm)



Chip Layout Diagram



Pad Definition

Symbol	Function Description	Dimensions	Equivalent Circuit
RFin	RF signal input port, connecting to external 50Ω system, need to add DC blocking capacitor.	$100\mu\text{m} * 100\mu\text{m}$	
RFout	RF signal output port, connecting to external 50Ω system, need to add DC blocking capacitor.	$100\mu\text{m} * 100\mu\text{m}$	
VD	Amplifier bias, need to connect 100pF external capacitor	$100\mu\text{m} * 100\mu\text{m}$	

Please see Appendix A for details.