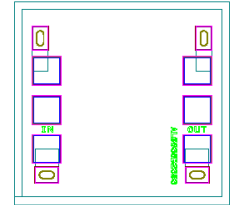


**AMT1224**  
**0.1 – 6GHz Low Noise Amplifier Chip**

**Key Features :**

- Frequency range : 0.1 – 6GHz
- Typical gain : 21dB
- Input standing wave : 1.5
- Output standing wave : 1.1
- Noise figure : 2.0dB
- P-1 : 17dBm @ +5V/65mA
- Chip dimensions : 0.75mm x 0.8mm x 0.1mm
- Applications : wireless communication, transceiver module, radio telecommunication etc.



**Description :**

AMT1224 chip is a Gallium Arsenide (GaAs) high performance Low Noise Amplifier, it covers 0.1 – 6GHz frequency range. It uses +5V single voltage operation, noise figure is 2.0dB, and 21dB typical gain. This chip is designed with ground through metal vias on the back technology.

**Absolute Maximum Ratings (Ta = 25°C)**

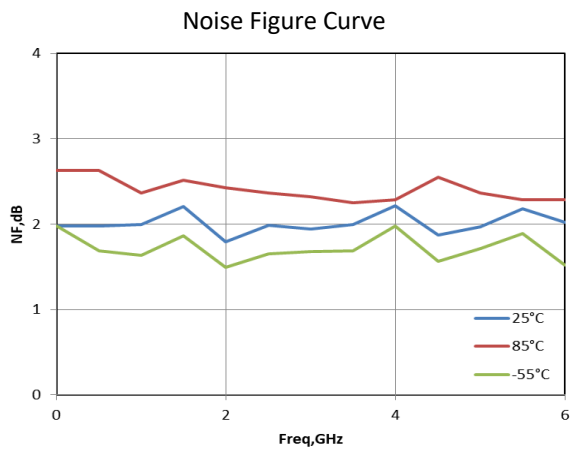
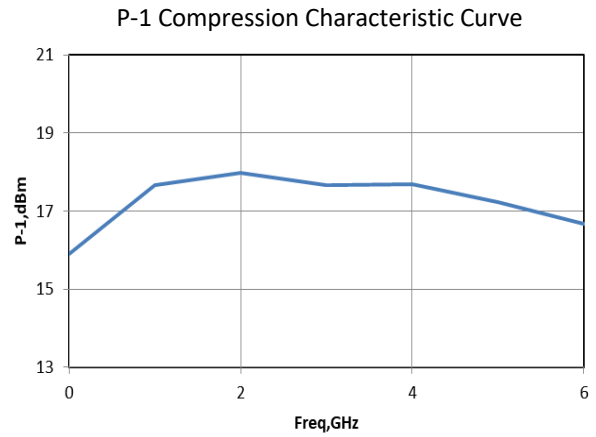
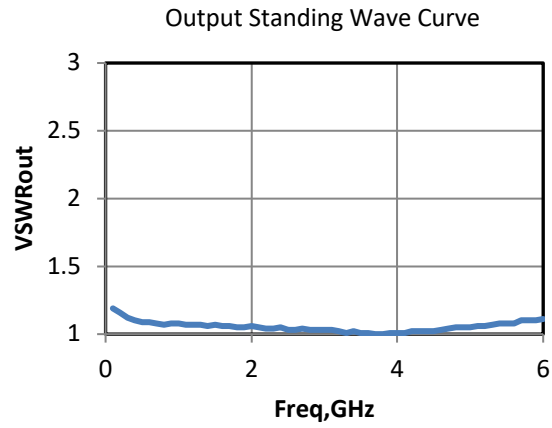
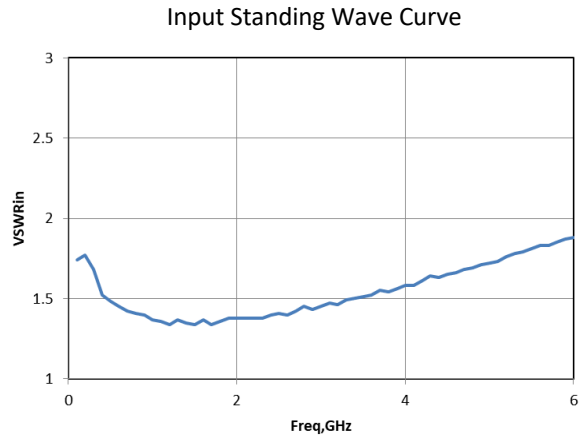
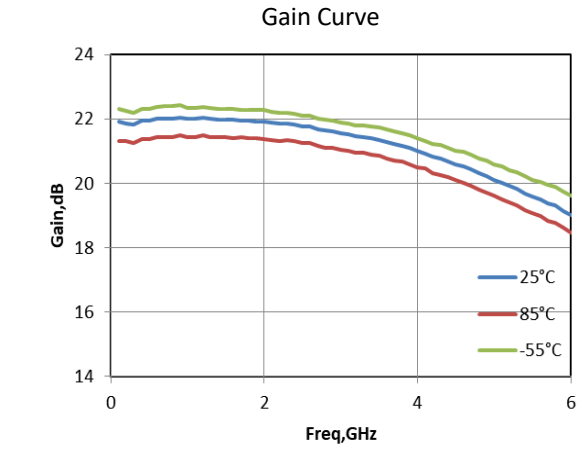
Symbol	Parameter	Value	Remark
Vd	Drain Voltage	+7V	
Pin	Input Signal Power	17dBm	
Tch	Operating Temperature	150°C	
Tm	Sintering Temperature	310°C	30s, N <sub>2</sub> protection
Tstg	Storage Temperature	-65 ~ +150°C	

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

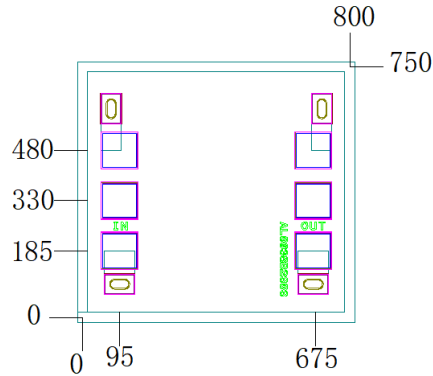
**Electrical Characteristics (Ta = 25°C)**

Symbol	Parameter	Test Conditions	Value			Unit
			Min	Typical	Max	
G	Gain	Vd = +5V F : 0.1 ~ 6GHz	-	21	-	dB
NF	Noise Figure		-	2	2.2	dB
Id	Static Current		-	65	-	mA
VSWR_in	Input Standing Wave		-	1.5	1.8	-
VSWR_out	Output Standing Wave		-	1.1	1.2	-
P-1	Output Power at 1dB point		15.8	17	-	dBm

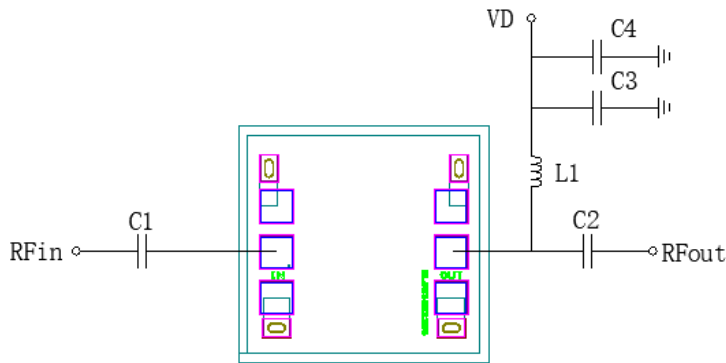
**Typical Performance**



**Chip Dimensions (Unit :  $\mu\text{m}$ )**



**Chip Layout Diagram**



Frequency	100MHz	1GHz	2GHz
L1(nH)	270	47	22
C1, C2 (pF)	200	20	10
C3/C4 ( $\mu\text{F}$ )	0.001/0.01		

**Pad Definition**

Symbol	Function Description	Demensions
RFIn	RF signal input port, connecting to external $50\Omega$ system, need to add DC blocking capacitor.	$100\mu\text{m} * 100\mu\text{m}$
RFout	RF signal output port, connecting to external $50\Omega$ system, need to add DC blocking capacitor.	$100\mu\text{m} * 100\mu\text{m}$
VD	+5V single operation voltage	

Please see Appendix A for details.