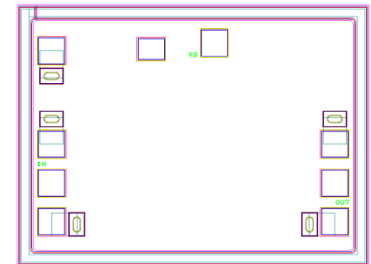


AMT1230
7 – 13GHz Low Noise Amplifier Chip

Key Features :



- Frequency range : 7 – 13GHz
- Typical gain : 26dB @ 28mA
23dB @ 13mA
- Input/Output standing wave : 2/1.3
- Noise figure : 0.8dB
- P-1 : 9dBm @ +5V/28mA
3dBm @ +5V/13mA (Low power mode)
- Chip dimensions : 1.3mm x 0.95mm x 0.1mm
- Applications : wireless communication, transceiver module, radio telecommunication etc.

Description :

AMT1230 chip is a Gallium Arsenide (GaAs) high performance Low Noise Amplifier, it covers 7 – 13GHz frequency range. It uses +5V single voltage operation, noise figure is 0.8dB, and 26dB typical gain. This chip is designed with ground through metal vias on the back technology.

Absolute Maximum Ratings (Ta = 25°C)

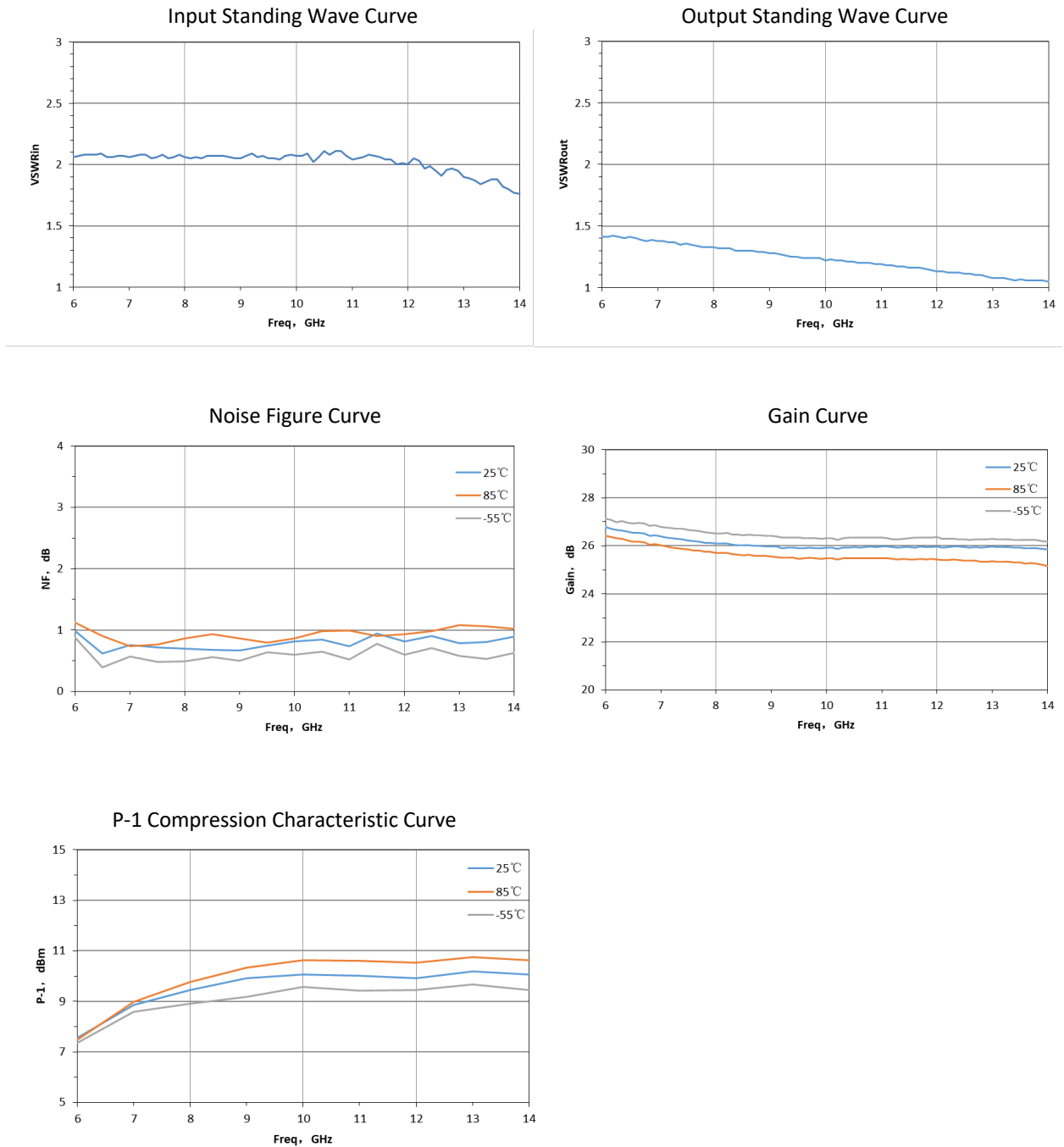
Symbol	Parameter	Value	Remark
Vd	Drain Voltage	+7V	
Pin	Input Signal Power	17dBm	
Tch	Operating Temperature	150°C	
Tm	Sintering Temperature	310°C	30s, N ₂ protection
Tstg	Storage Temperature	-65 ~ +150°C	

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

Electrical Characteristics (Ta = 25°C)

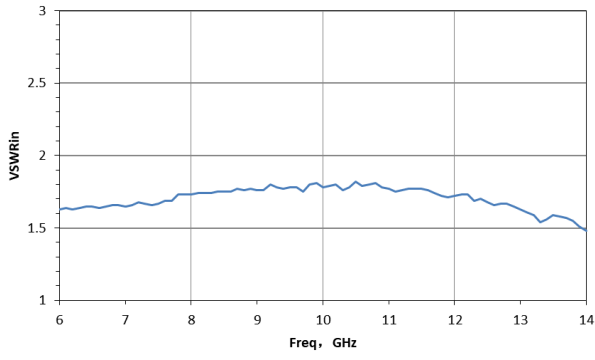
Symbol	Parameter	Test Conditions	Value			Unit
			Min	Typical	Max	
G	Gain	Vd = +5V F : 7 ~ 13GHz	-	26	-	dB
NF	Noise Figure		-	0.8	-	dB
Id	Static Current		-	28	-	mA
VSWR_in	Input Standing Wave		-	2.1	-	-
VSWR_out	Output Standing Wave		-	1.3	-	-
P-1	Output Power at 1dB point		-	9	-	dBm

Typical Performance

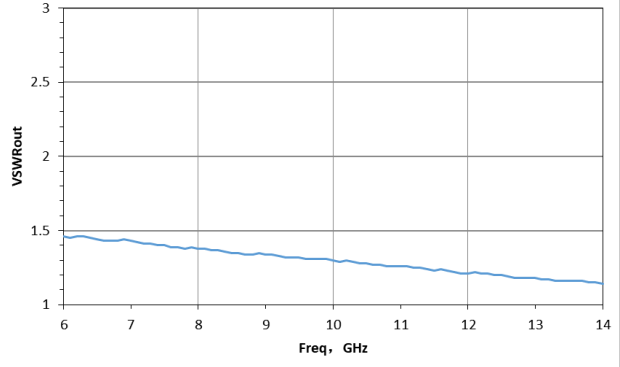


Typical Performance (Low Power Mode)

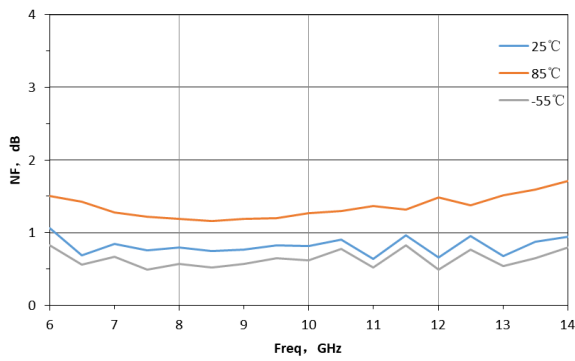
Input Standing Wave Curve



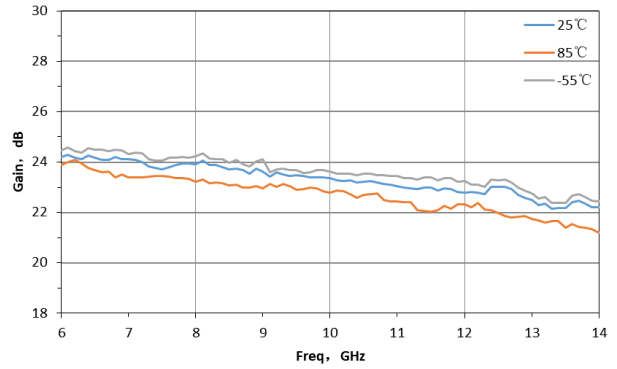
Output Standing Wave Curve



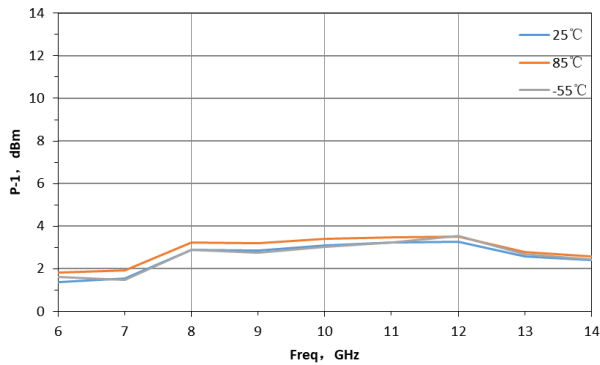
Noise Figure Curve



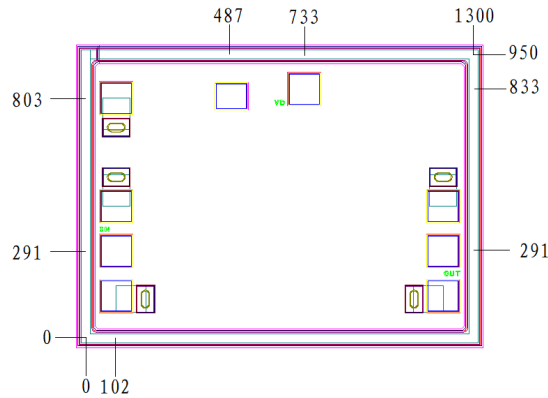
Gain Curve



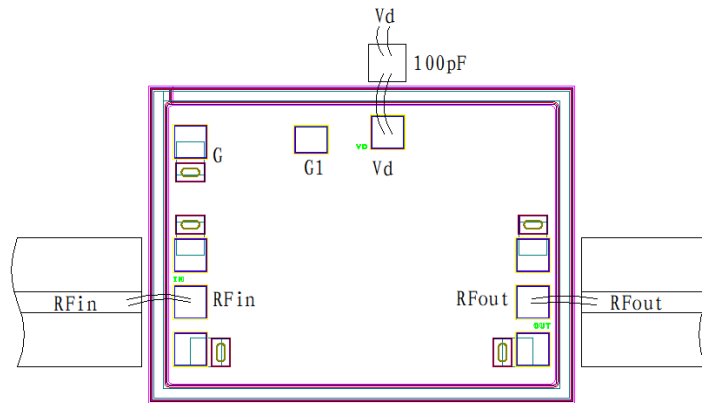
P-1 Compression Characteristic Curve



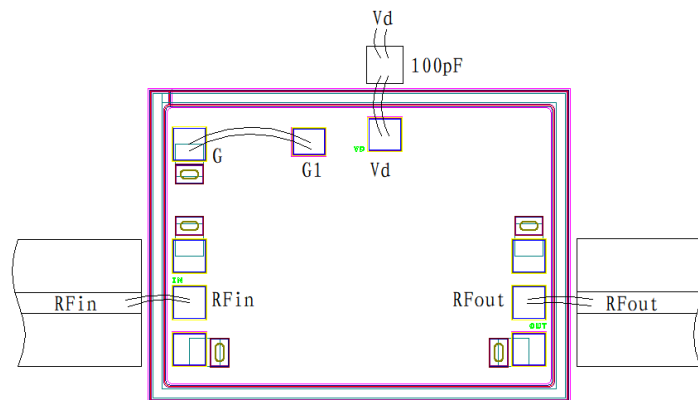
Chip Dimensions (Unit : μm)



Chip Layout Diagram



Normal Mode



Low Power Mode (G1 connected to G)

Pad Definition

Symbol	Function Description	Demensions
RFin	RF signal input port, connecting to external 50Ω system, no need to add DC blocking capacitor.	100μm*100μm
RFout	RF signal output port, connecting to external 50Ω system, no need to add DC blocking capacitor.	100μm*100μm
Vd	Amplifier bias, need to connect 100pF external capacitor	100μm*100μm
G1	Low power mode when connected to G pad	100μm*80μm
G	Ground	100μm*100μm

Please see Appendix A for details.