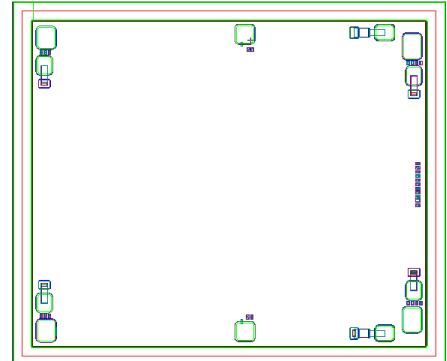


7 ~ 13GHz Balanced Type Limited Amplitude LNA Chip

Key Features :

- Frequency range : 7~13GHz
- Typical gain : 26dB
- Input/Output standing wave : 1.4/1.2
- Noise figure : 1.4dB
- Output at P-1 : 12dBm @ +5V/53mA
- Endurance power : 50W (CW)
- Chip dimensions: 2.4mm*2.0mm*0.1mm
- Application : microwave transceiver, wireless communication etc.



Description :

AMT1A02 is a GaAs high performance balanced type limited amplitude low noise amplifier chip, with operating frequency in 7~13GHz, 1.4dB noise figure, 26dB typical gain, it uses +5V single supply voltage. It is designed with ground through metal via on the back technology. All chip products are 100% RF tested.

Absolute Maximum Ratings (Ta = 25°C)

Symbol	Parameter	Value	Remark
Vd	Drain Voltage	+7V	
Pin	Input Signal Power	47dBm	
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

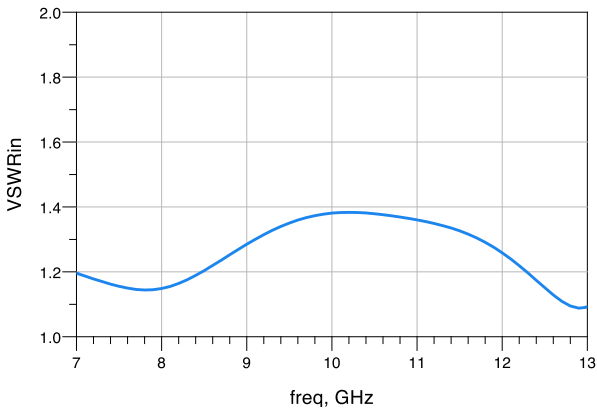
Electrical Characteristics (Ta = 25°C)

Symbol	Parameter	Test Condition	Value			Unit
			Min	Typical	Max	
Gain	Small signal gain	VDD = +5V F : 7 ~ 13GHz	-	26	27	dB
NF	Noise figure		-	1.4	1.5	dB
Id	Operating current		-	53	-	mA
VSWRin	Input standing wave		-	1.4	-	-
VSWRout	Output standing wave		-	1.2	-	-
P-1	1dB compression output		-	12	-	dBm

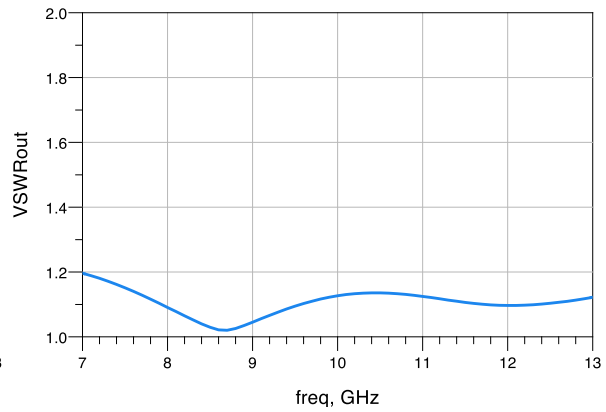
7 ~ 13GHz Balanced Type Limited Amplitude LNA Chip

Typical Performance

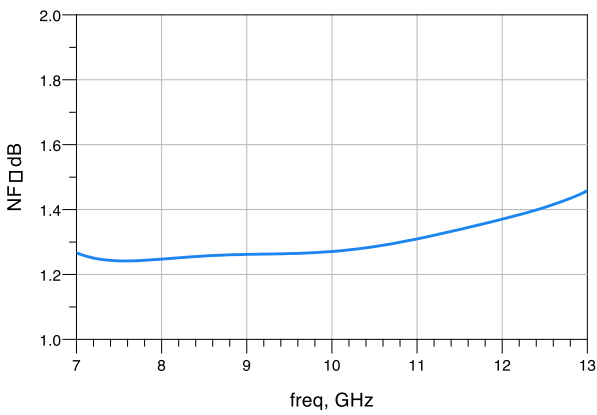
Input Standing Wave Curve



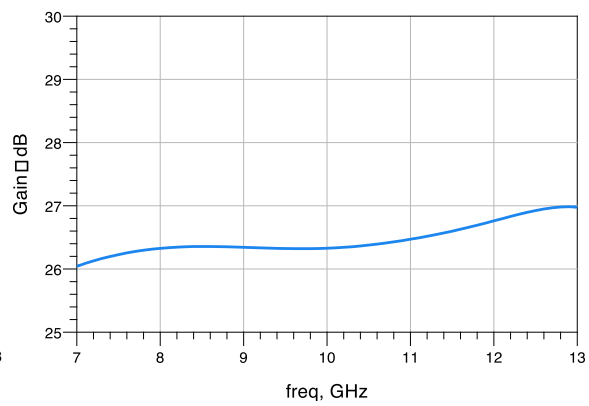
Output Standing Wave Curve



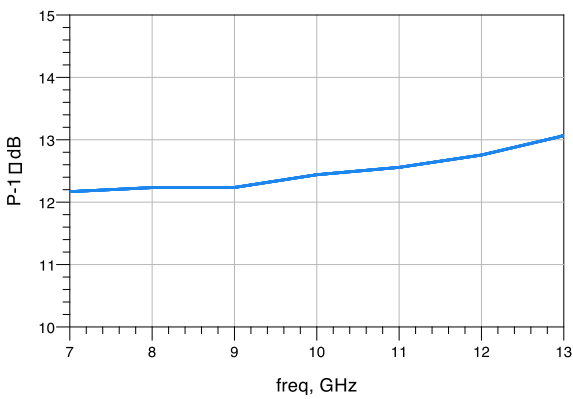
Noise Figure Curve



Gain Curve

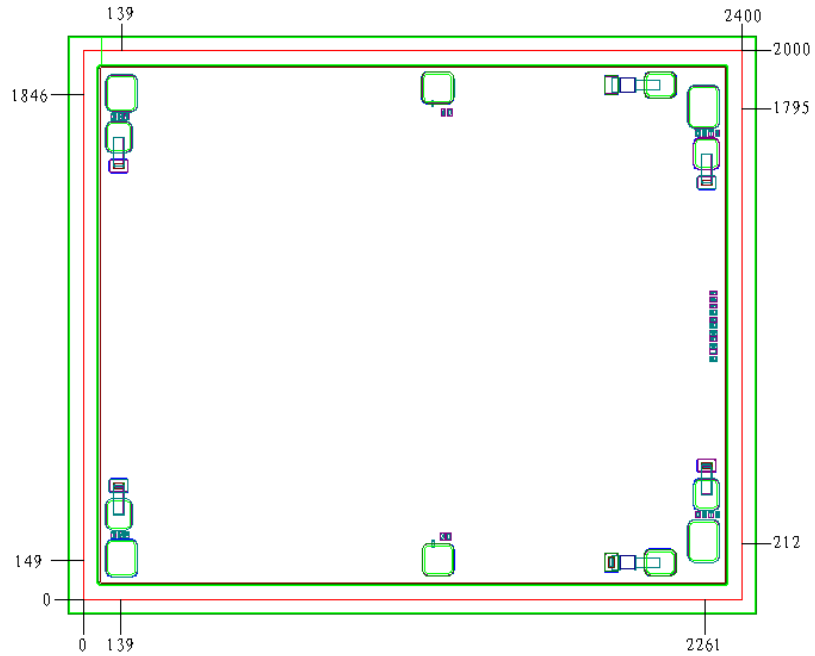


P-1 Output Curve

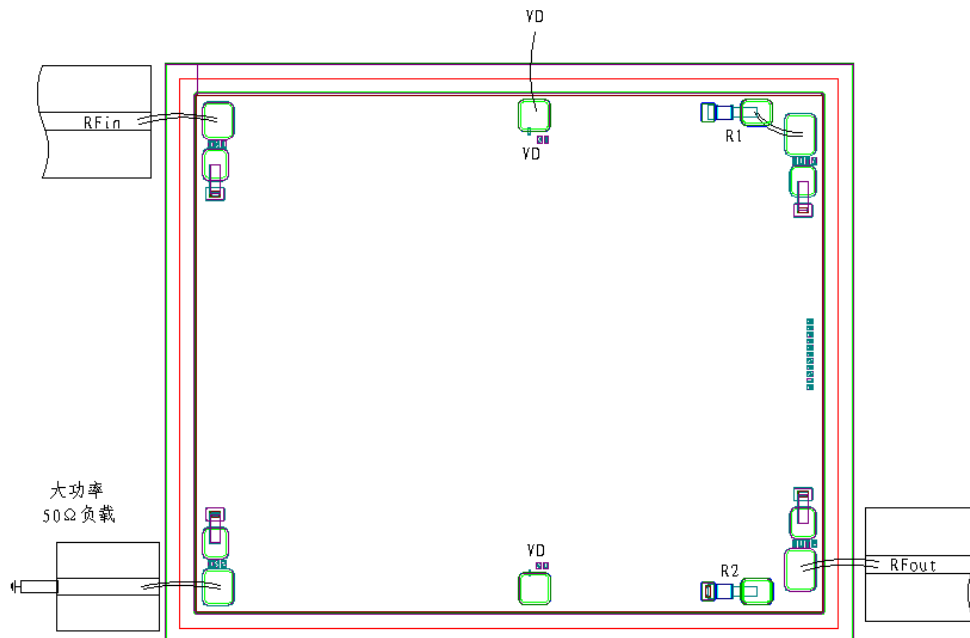


7 ~ 13GHz Balanced Type Limited Amplitude LNA Chip

Chip Dimension (Unit : μm)



Chip Layout Diagram



Note : R1, R2 are build-in 50Ω load resistors, this chip can be mirror used; either VD can be used.

7 ~ 13GHz Balanced Type Limited Amplitude LNA Chip**Pad Definition**

Symbol	Function	Dimension
RFin	RF signal input port, connecting to external 50Ω system, no need DC blocking capacitor.	100*120μm ²
RFout	RF signal output port, connecting to external 50Ω system, no need DC blocking capacitor.	100*140μm ²
VD	Amplifier bias, need to connect to external 100pF capacitor.	100*100μm ²
R	Built in 50Ω load resistor, connecting to RFout pad when using.	120*80μm ²

Please see Appendix A for details.