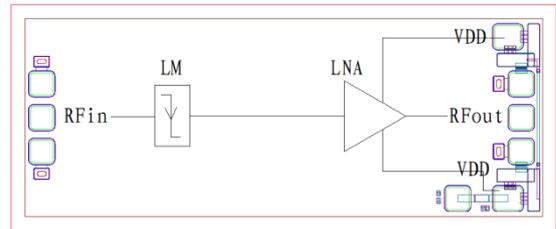


AMT1A03

8 ~ 20GHz Limited Amplitude LNA Chip

Key Features :

- Frequency range : 8~20GHz
- Typical gain : 27dB
- Gain flatness : $\pm 0.5\text{dB}$ @ 8GHz ~ 18GHz
 $\pm 1\text{dB}$ @ 18GHz ~ 20GHz
- Noise figure : 1.4dB
- Endurance power : 15W (CW)
- Output at P-1 : 6dBm @ +5V/22mA
- Input/Output standing wave : 1.3
- Chip dimensions: 2.4mm*1.0mm*0.1mm
- Application : microwave transceiver, wireless communication etc.



Description :

AMT1A03 is a GaAs high performance limited amplitude low noise amplifier chip, with operating frequency in 8 ~ 20GHz, 1.4dB noise figure, 27dB typical gain, it integrates limiter and LNA, supply can be applied to both sides. It is designed with ground through metal via on the back technology.

Absolute Maximum Ratings (Ta = 25°C)

Symbol	Parameter	Value	Remark
Vd	Drain Voltage	+7V	
Pin	Input Signal Power	42dBm	
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

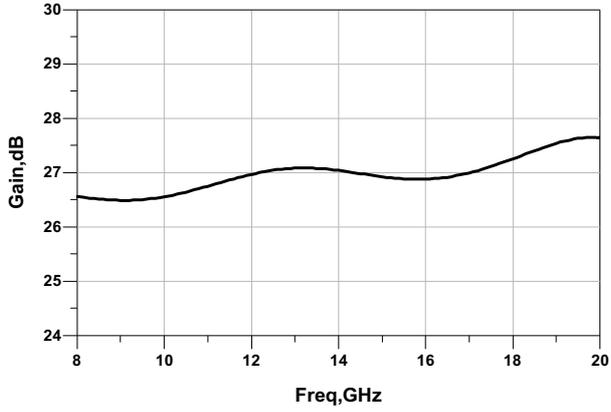
Electrical Characteristics (Ta = 25°C)

Symbol	Parameter	Test Condition	Value			Unit
			Min	Typical	Max	
Gain	Small signal gain	VDD = +5V F : 8 ~ 20GHz	-	27	-	dB
NF	Noise figure		-	1.4	-	dB
Id	Operating current		-	22	-	mA
VSWRin	Input standing wave		-	1.3	-	-
VSWRout	Output standing wave		-	1.3	-	-
P-1	1dB compression output		-	6	-	dBm

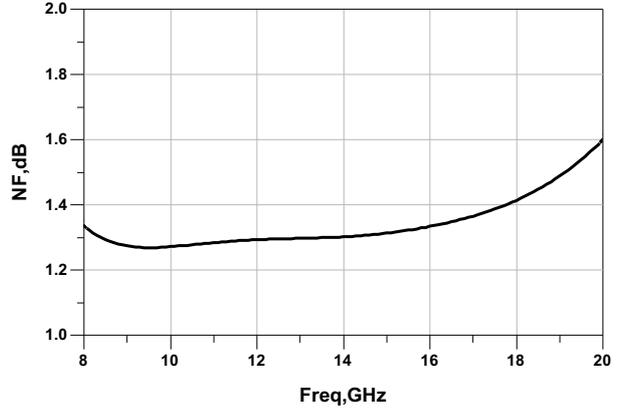
8 ~ 20GHz Limited Amplitude Low Noise Amplifier Chip

Typical Performance

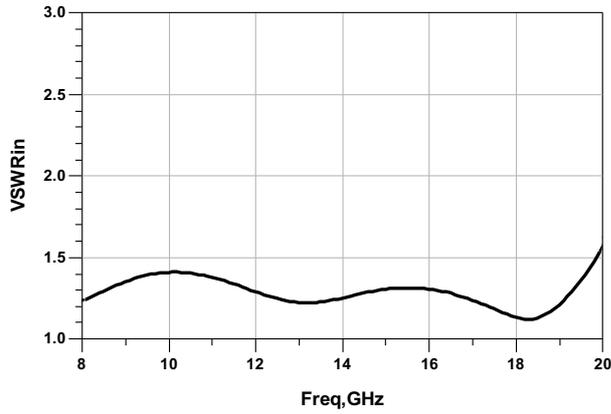
Linear Gain Curve



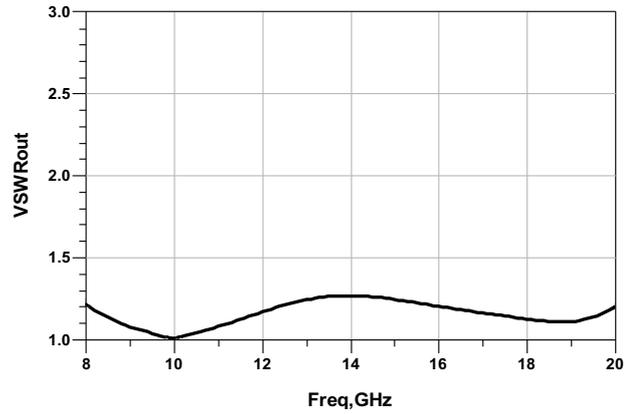
Noise Figure Curve



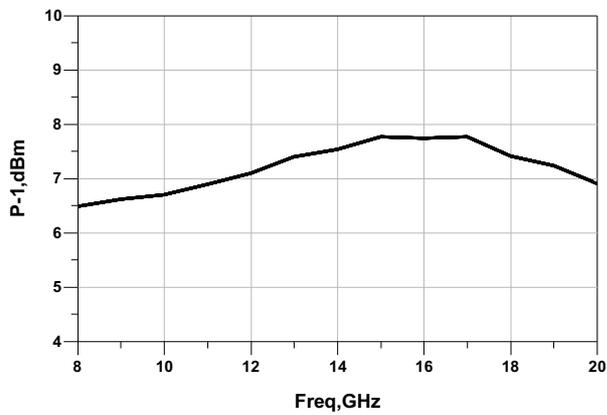
Input Standing Wave Curve



Output Standing Wave Curve



P-1 Output Curve

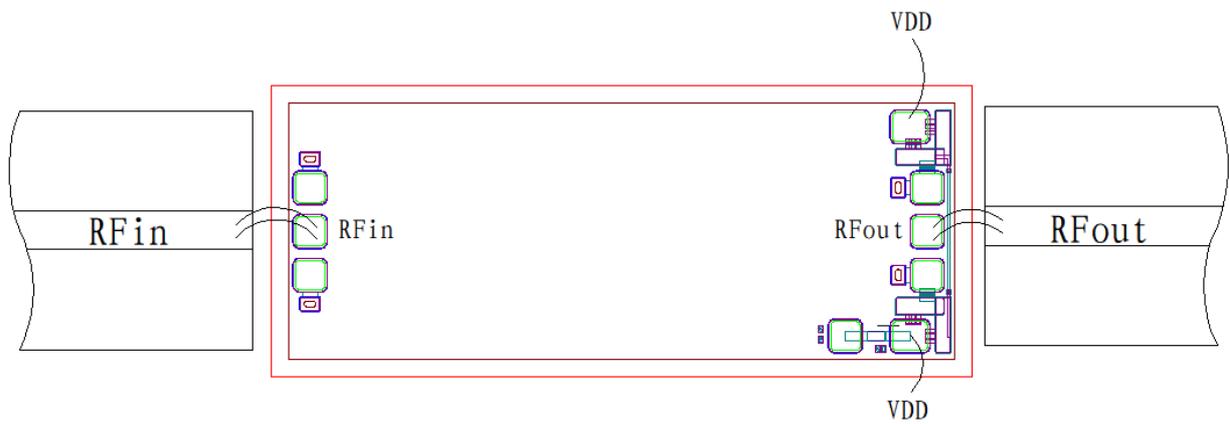


8 ~ 20GHz Limited Amplitude LNA Chip

Chip Dimension (Unit : μm)



Chip Layout Diagram



Pad Definition

Symbol	Function	Dimension
RFin	RF signal input port, connecting to external 50Ω system. Built in internal DC blocking capacitor.	$100*100\mu\text{m}^2$
RFout	RF signal output port, connecting to external 50Ω system. Built in internal DC blocking capacitor.	$100*100\mu\text{m}^2$
VDD	+5V supply voltage, both sides can be applied, choose either one, need to connect external 100pF capacitor.	$135*115\mu\text{m}^2$

Please see Appendix A for details.