AMT1226 2 – 4GHz Low Noise Amplifier Chip

Key Features :

- Frequency range : 2 4GHz
- Typical gain : 22.5dB
- Input standing wave : 1.85
- Output standing wave : 1.8
- Noise figure : 0.6dB
- P-1 : 17.5dBm @ +5V/54mA
- Chip dimensions : 1.1mm x 1.1mm x 0.1mm
- Applications : wireless communication, transceiver module, radio telecommunication etc.

Description :

AMT1226 chip is a Gallium Arsenide (GaAs) high performance Low Noise Amplifier, it covers 2 – 4GHz frequency range. It uses +5V single voltage operation, noise figure is 0.6dB, and 22.5dB typical gain. This chip is designed with ground through metal vias on the back technology.

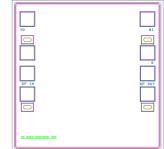
Absolute Maximum Ratings (Ta = 25°C)

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		-	22.5	-	dB
NF	Noise Figure		-	0.6	-	dB
Id	Static Current	Vd = +5V	-	54	-	mA
VSWR_in	Input Standing Wave	F : 2 ~ 4GHz	-	1.85	-	-
VSWR_out	Output Standing Wave		-	1.8	-	-
P-1	Output Power at 1dB point		-	17.5	-	dBm



¹

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Linear Gain Curve Input Standing Wave Curve 30 2.4 25 2.2 **뜅** ²⁰ ^{2.0} معراً 2.0 **.** 15 10 1.6 5 1.4 2.5 4.5 2.5 3.5 4.5 2 3 3.5 4 2 з 4 Freq, GHz Freq, GHz **Output Standing Wave Curve** Noise Figure Curve 2.4 1.0 2.2 0.8 ප ^{0.6} **t** ^{2.0} **й** 0.4 VSWL 1.8 1.6 0.2 1.4 0.0 2.5 3.5 2.5 4.5 2 3 4 4.5 3 3.5 2 4 Freq, GHz Freq, GHz P-1 Compression Characteristic Curve 22 20 18 **Б** 16 <u>-</u>1 14 12 10 8 2.5 3.5 4.5 2 4 3

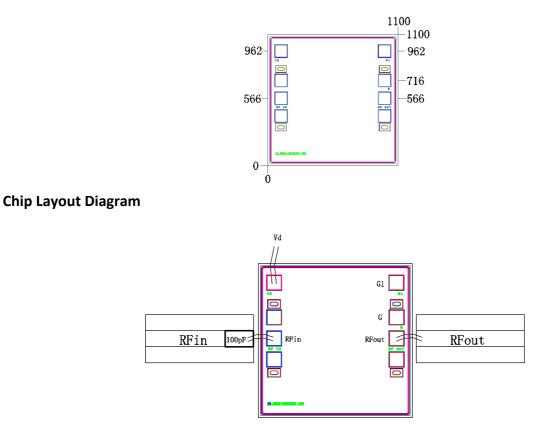
Typical Performance

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Freq, GHz

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Chip Dimensions (Unit : µm)



Pad Definition

Symbol	Function Description	Demensions	Equivalent Circuit
RFin	RF signal input port, connecting to external 50 Ω system, need to add DC blocking capacitor.	100µm*100µm	RF-in OH
RFout	RF signal output port, connecting to external 50 Ω system, need to add DC blocking capacitor.	100µm*100µm	−⊢⊢⊷ RF-out
Vd	Amplifier bias, need to connect 100pF external capacitor	100µm*100µm	

Please see Appendix A for details.

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