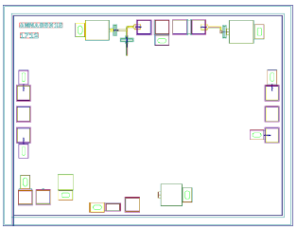
AMT1105
8 – 12GHz Power Amplifier Chip



Key Features :

- Frequency range : 8 – 12GHz
- Typical small signal Gain : 20dB
- Typical output power : 23dBm
- Voltage bias : 8V, 0.11A
- Chip dimensions : 1.5mm x 2.0mm x 0.1mm
- Applications : wireless communication, transceiver module, radio telecommunication etc.

Description :

AMT1105 chip is a Gallium Arsenide (GaAs) designed power amplifier chip, with a frequency range of 8 – 12GHz, single voltage operation, drain voltage Vds at 8V, linear gain of 20dB, saturated output power of 23dBm. This chip is designed with ground through metal vias on the back technology. All chip products p are 100% RF tested.

Absolute Maximum Ratings (Ta = 25°C)

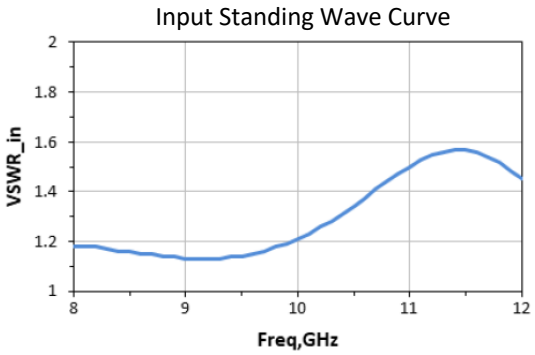
Symbol	Parameter	Value	Remark
Vd	Drain Voltage	+11V	
Pin	Input Signal Power	15dBm	
Tch	Operating Temperature	-55 ~ +125°C	
Tm	Sintering Temperature	310°c	30s, N_2 protection
Tstg	Storage Temperature	-65 ~ +150°c	

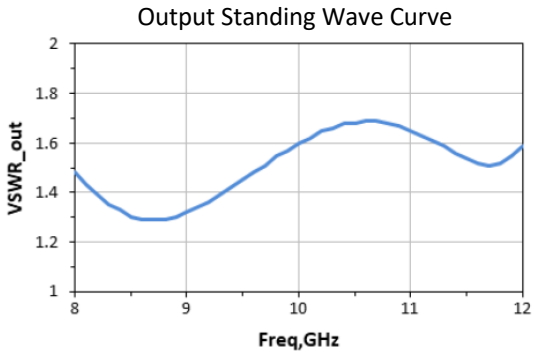
[1] Operation outside any of the Absolute Maximum Ratings may cause permanent device damage.

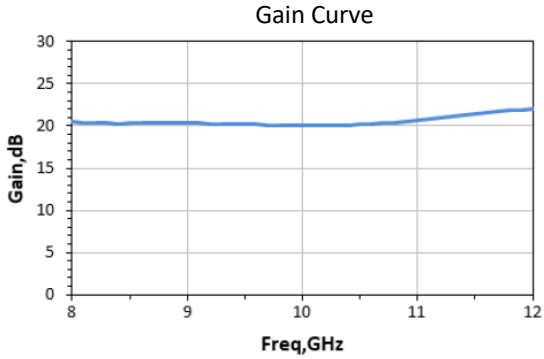
Electrical Characteristics (Ta = 25°C)

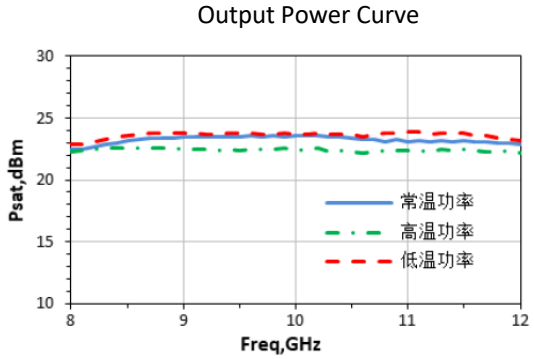
Symbol	Parameter	Test Condition	Value			Unit
			Min	Typical	Max	
G	Small Signal Gain	Vd = 8V F : 8 ~ 12GHz	19	20	21	dB
Id	Operating Current		-	110	-	mA
VSWR_in	Input SW		-	1.6	-	
VSWR_out	Output SW			1.5		
Gp	Power Gain	Vd = 8V F : 8 ~ 12GHz Duty Cycle : 20%		18	-	dB
Po(sat)	Saturated Output Power		-	23	-	dBm

Typical Performance

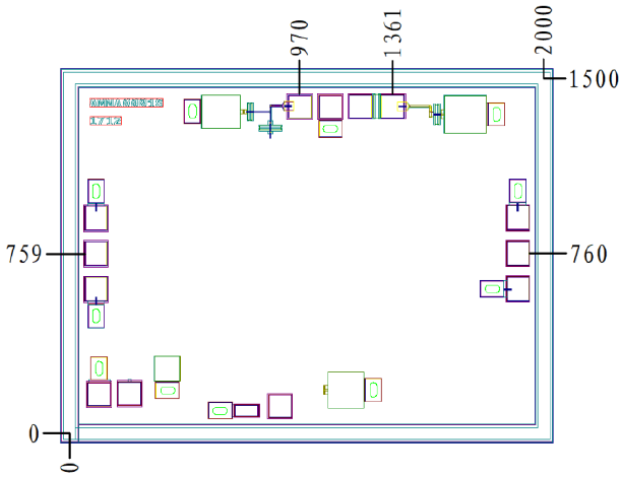




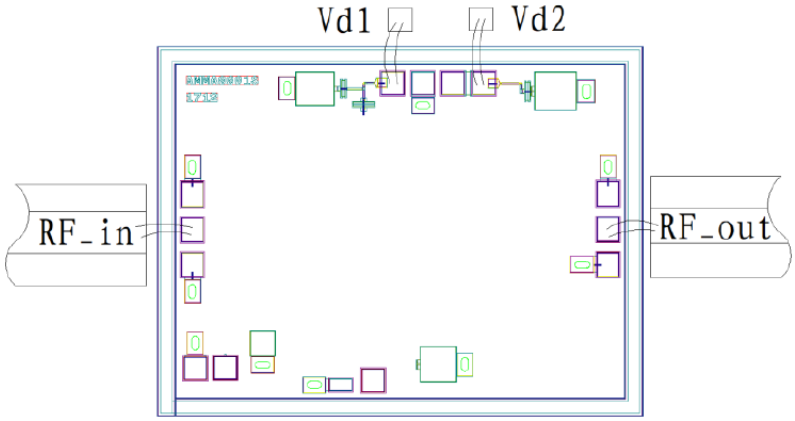




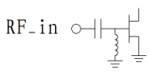
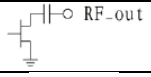
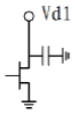
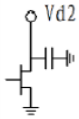
Chip Dimensions (Unit : μm)



Chip Layout Diagram



Pad Definition

Symbol	Function	Dimension	Equivalent Circuit
RF_in	RF signal input port, connecting to external 50Ω system. DC blocking capacitor is not needed, if external DC current is applied to this pad.	95*105μm^2	
RF_out	RF signal output port, connecting to external 50Ω system, no need to add DC blocking capacitor.	95*105μm^2	
Vd1	Amplifier drain bias, need external 100pF, 1000pF capacitor.	100*100μm^2	
Vd2	Amplifier drain bias, need external 100pF, 1000pF capacitor.	100*100μm^2	

Refer to Appendix A for details.