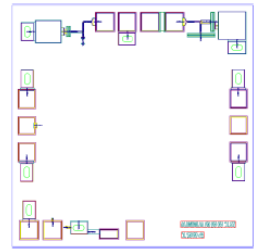


**AMT1103**  
**7 – 13GHz Power Amplifier Chip**



**Key Features :**

- Frequency range : 7 – 13GHz
- Small signal gain : 22.5dB
- Saturated output power : 22.5dBm
- Voltage bias : +5V, 120mA
- Chip dimensions : 1.35mm x 1.35mm x 0.1mm
- Applications : wireless communication, transceiver module, radio telecommunication etc.

**Description :**

AMT1103 chip is a Gallium Arsenide (GaAs) designed power amplifier chip, with a wide frequency range of 7 – 13GHz, single voltage operation, drain voltage Vds at 5V, linear gain of 22.5dB, saturated output power of 22.5dBm. 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)**

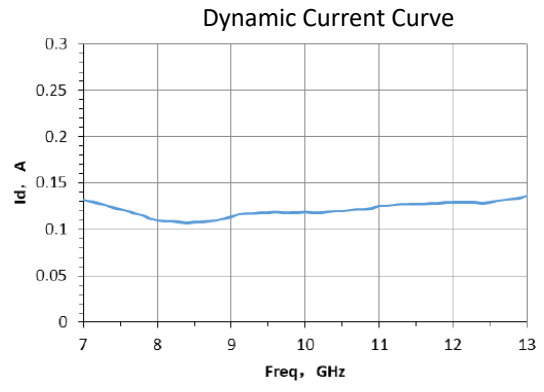
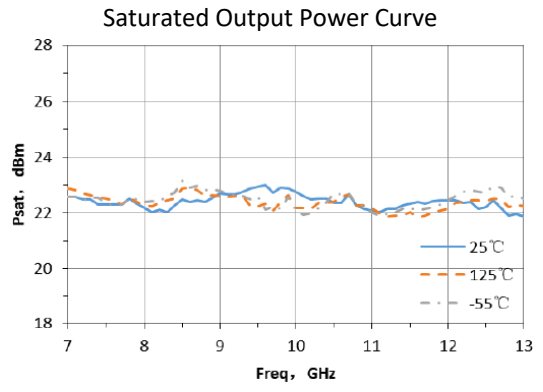
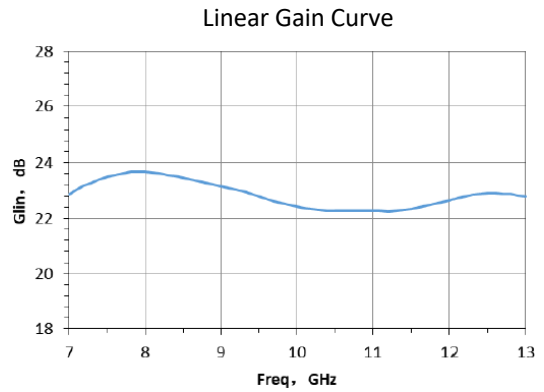
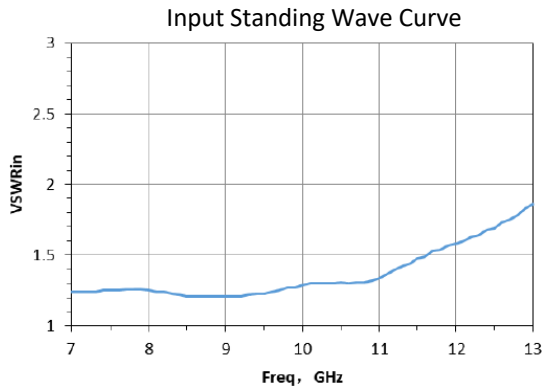
Symbol	Parameter	Value	Remark
Vd	Drain Voltage	+11V	
Pin	Input Signal Power	15dBm	
Tch	Operating Temperature	-55 ~ +125°C	
Tm	Sintering Temperature	310°C	30s, N <sub>2</sub> protection
Tstg	Storage Temperature	-65 ~ +150°C	

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

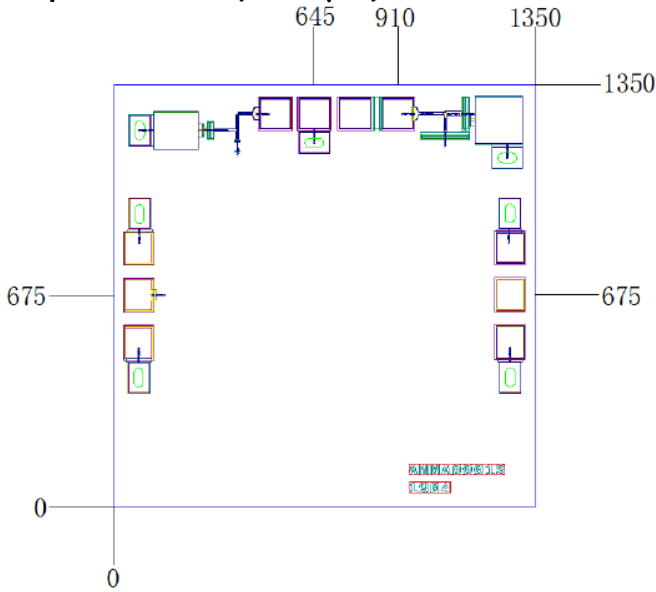
**Electrical Characteristics (Ta = 25°C)**

Symbol	Parameter	Test Condition	Value			Unit
			Min	Typical	Max	
G	Small Signal Gain	Vd = 5V F : 7-13GHz	-	22.5	24	dB
Id	Operating Current		-	120	-	mA
VSWR_in	Input SW		-	1.5	-	
Gp	Power Gain	Vd = 5V F : 7-13GHz Duty Cycle : 10%	-	18.5	-	dB
Po(sat)	Saturated Output Power		-	22.5	-	dBm

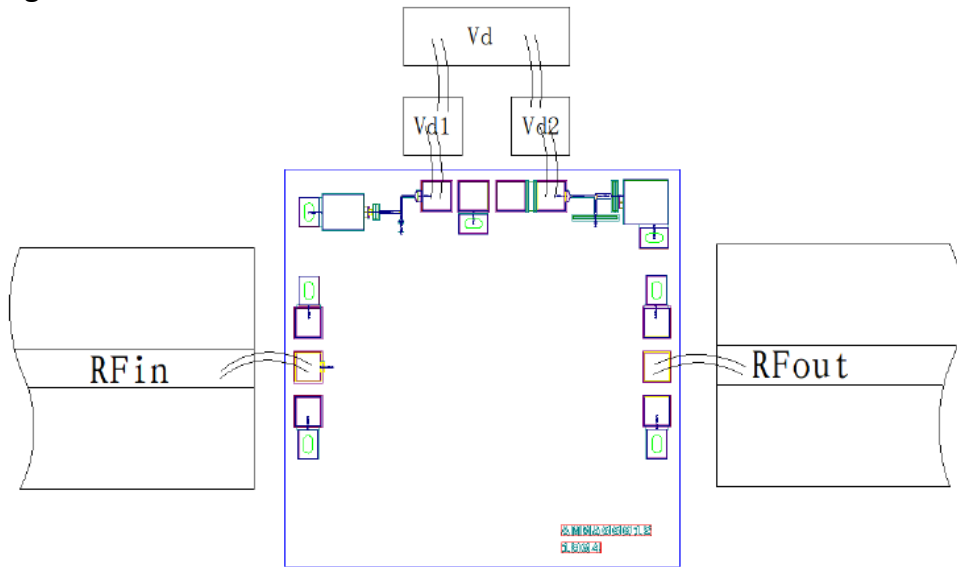
### Typical Performance



**Chip Dimensions (Unit :  $\mu\text{m}$ )**



**Chip Layout Diagram**



**Pad Definition**

Symbol	Function	Dimension	Equivalent Circuit
RF_in	RF signal input port, connecting to external $50\Omega$ system. Built in internal DC blocking capacitor.	$90*100\mu\text{m}^2$	
RF_out	RF signal output port, connecting to external $50\Omega$ system, Built in internal DC blocking capacitor.	$90*100\mu\text{m}^2$	
Vd1	Amplifier drain bias, need external 100pF, 1000pF capacitor.	$100*100\mu\text{m}^2$	
Vd2	Amplifier drain bias, need external 100pF, 1000pF capacitor.	$106*100\mu\text{m}^2$	

Please see Appendix A for details.