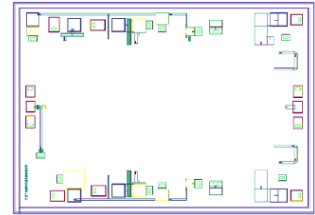


AMT1114
14 – 18GHz Power Amplifier Chip



Key Features :

- Frequency range : 14 – 18GHz
- Typical small signal gain : 24.5dB
- Typical output power : 37dBm
- Typical power added efficiency : 30%
- Voltage bias : +8V, -0.7V
- Chip dimensions : 3.5mm x 2.4mm x 0.1mm
- Applications : wireless communication, transceiver module, radio telecommunication etc.

Description :

AMT1114 chip is a Gallium Arsenide (GaAs) designed power amplifier, covering 14 - 18GHz frequency range. It uses single voltage operation, with drain voltage V_{ds} at 8.0V, it offers 37dBm output power. This chip is designed with ground through metal vias on the back technology. All chip products are 100% RF tested.

Absolute Maximum Ratings (Ta = 25°C)

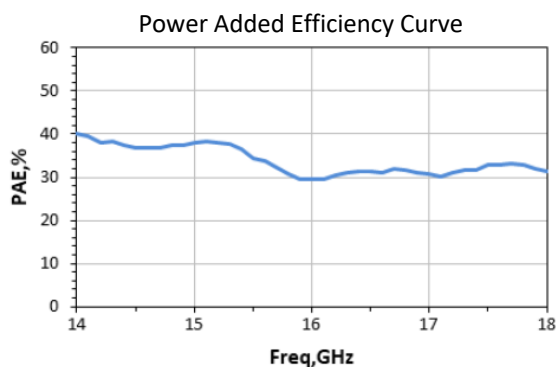
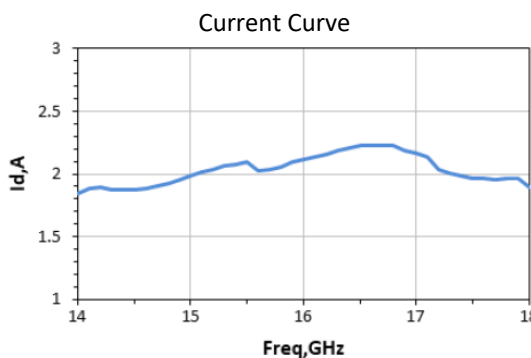
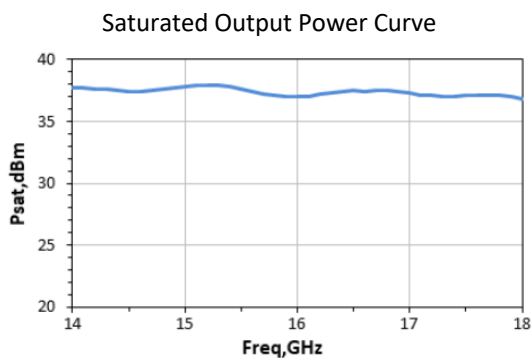
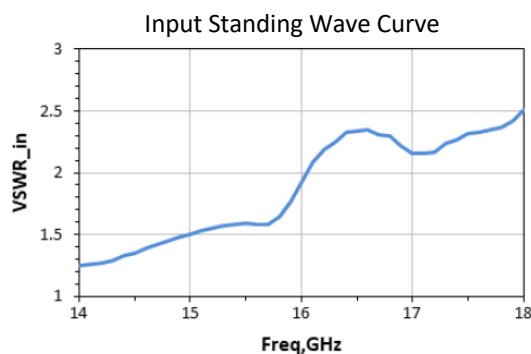
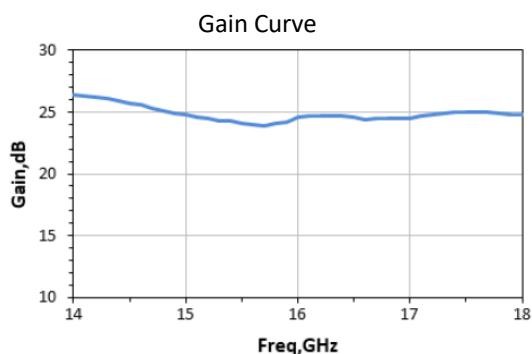
Symbol	Parameter	Value	Remark
Vd	Drain Voltage	9V	
Id	Drain Current	6A	
Vg	Gate Voltage	-0.45V	
Ig	Gate Current	100mA	
Pd	Power Dissipation	20W	
Pin	Input Signal Power	25dBm	
Tch	Operating Temperature	175°C	
Tm	Sintering Temperature	310°C	30s, N ₂ protection
Tstg	Storage Temperature	-65 ~ +150°C	

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

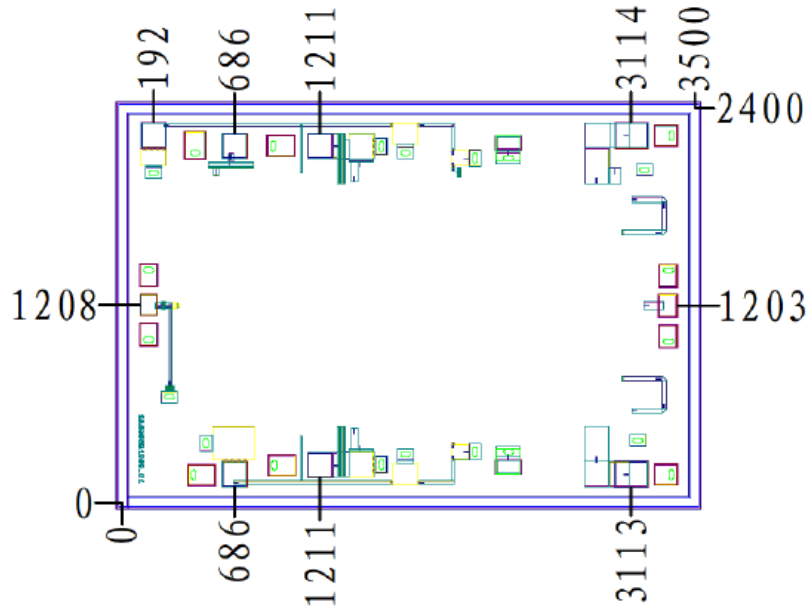
Electrical Characteristics (Ta = 25°C)

Symbol	Parameter	Test Condition	Value			Unit
			Min	Typical	Max	
G	Small Signal Gain	Vd = 8V Vg = -0.7V F : 14 ~ 18GHz	24	24.5	-	dB
VSWR_in	Input SW		-	1.8	2.8	
Po(sat)	Saturated Output Power		36.5	37	-	dBm
PAE	Power Added Efficiency		-	30	-	%

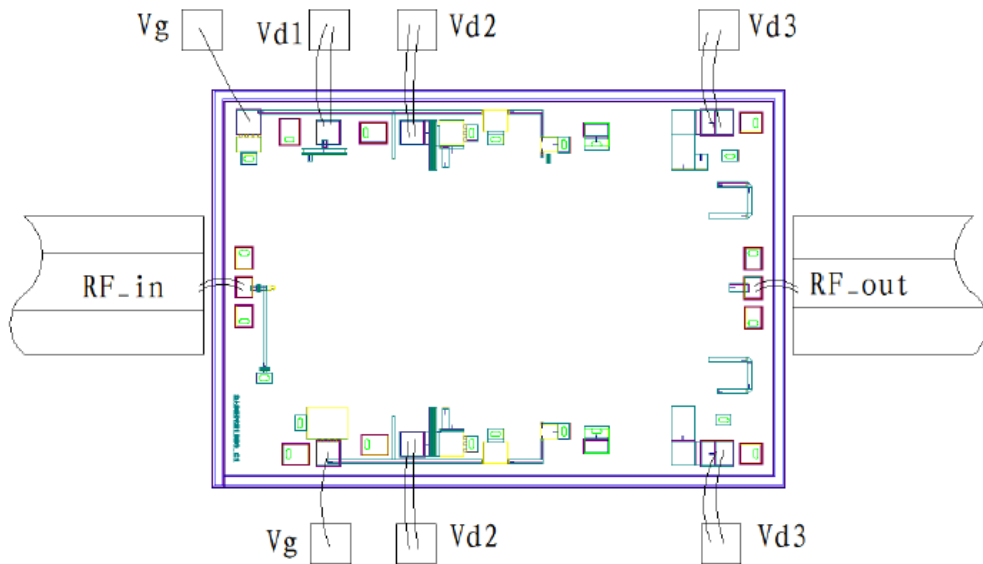
Typical Performance



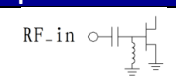
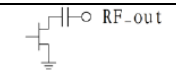
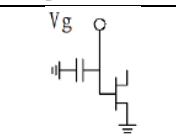
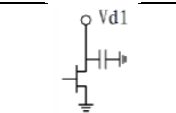
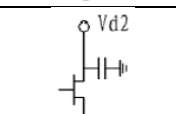
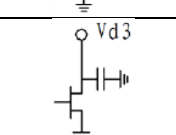
Chip Dimensions (Unit : μm)



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 needed, if external DC current is applied to this pad.	100*128μm ²	
RF_out	RF signal output port, connecting to external 50Ω system, no need to add DC blocking capacitor.	110*138μm ²	
Vg	Amplifier gate bias, need external 100pF, 1000pF capacitor.	150*150μm ²	
Vd1	Amplifier drain bias, need external 100pF, 1000pF capacitor.	150*150μm ²	
Vd2	Amplifier drain bias, need external 100pF, 1000pF capacitor.	150*150μm ²	
Vd3	Amplifier drain bias, need external 100pF, 1000pF capacitor.	200*153μm ²	

Please see Appendix A for details.