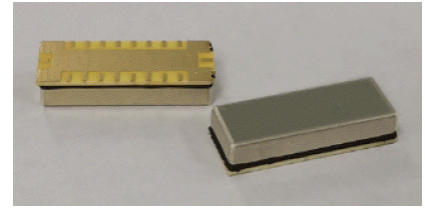


AMT5101 - X Band Receiver Front End SIP



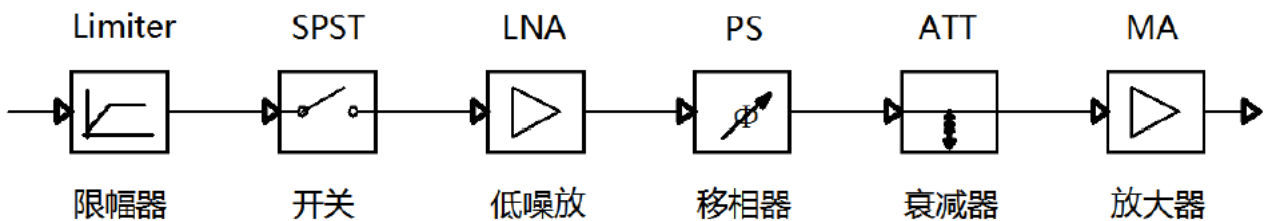
Key Features :

- Frequency range : X Band
- Typical linear gain : 31dB (integrated temperature compensated function)
- Receiver Noise figure : $\leq 3.3\text{dB}$
- P-1out $\geq 4\text{dBm}$
- Limiter bearing power : $\geq 40\text{dBm}$ (continuous wave)
- Switch isolation : $\geq 55\text{dB}$
- Phase shift bit : 6 bits, $0 \sim 360^\circ$
- Input/output standing wave : ≤ 1.5
- Supply : +5V ($\leq 35\text{mA}$), -5V ($\leq 8\text{mA}$)
- Control port : 3V3_TTL
- Operation temperature : $-40^\circ\text{C} \sim +85^\circ\text{C}$
- Weight : $\leq 3\text{g}$
- Chip dimensions : 18mm x 7mm x 4mm
- Applications : wireless communication, transceiver module, radio telecommunication etc.

Description :

AMT5101 is a X band radio frequency receiver module, it integrates clipper, switch, LNA, phase shifter, temperature compensation attenuator, amplifier etc. in QFN like package, to provide clipping, switching, LNA, 6-bit phase shift, temperature compensation etc. functions. Interface port uses 3V3 TTL control, low power consumption, small size.

Circuit Block Diagram :



Absolute Maximum Ratings (Ta = 25°C)

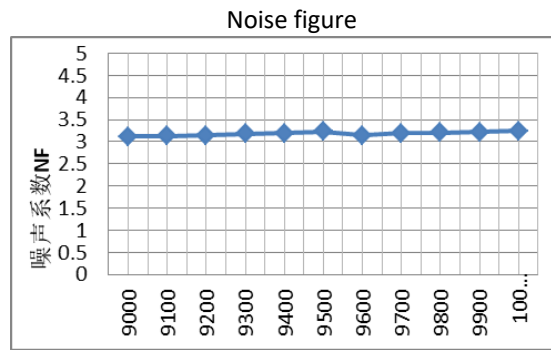
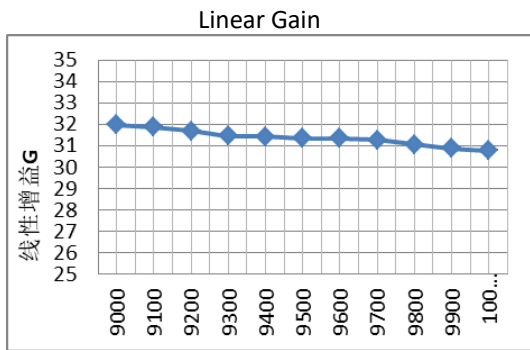
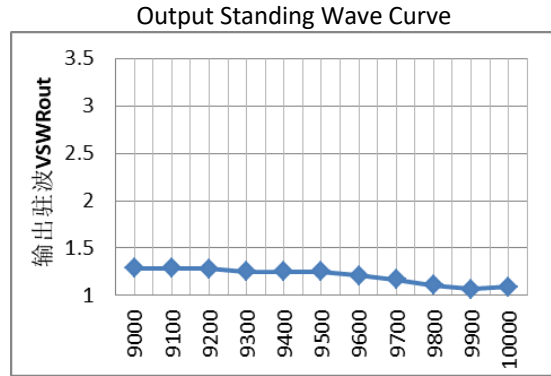
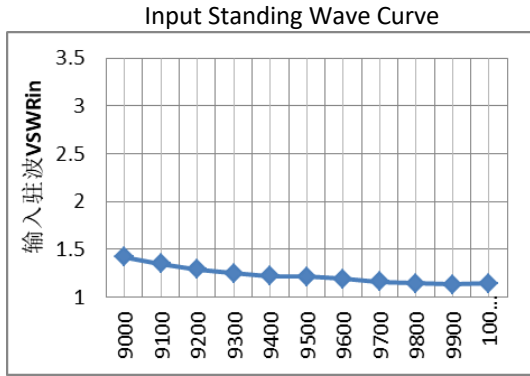
Symbol	Parameter	Value	Remark
Pin	Max input signal power	+41dBm	
Tch	Operation Temperature	105°C	
Tm	Solder Reflow Temperature	255°C	45s
Tstg	Storage Temperature	-55 ~ +150°C	

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

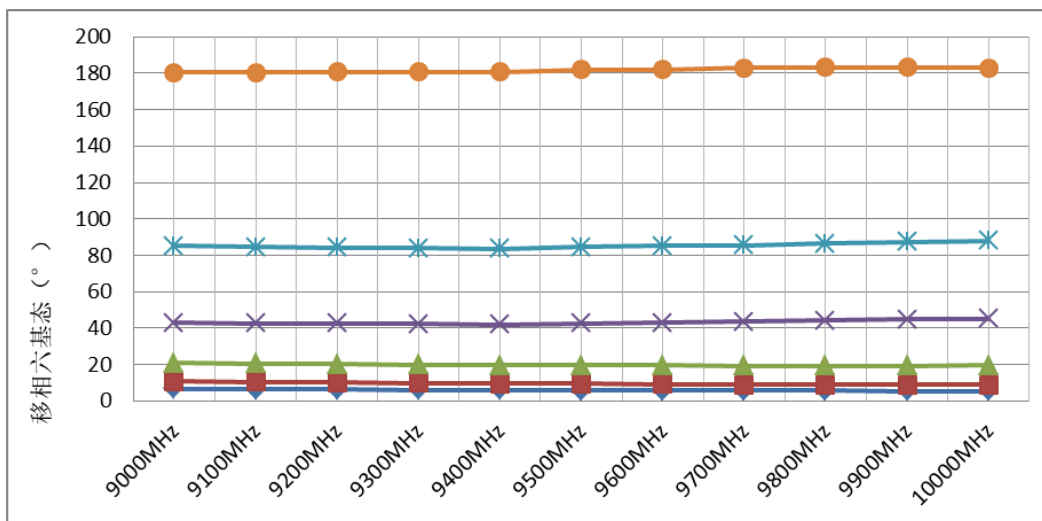
Electrical Characteristics (Ta = 25°C)

Symbol	Parameter	Value			Unit
		Min	Typical	Max	
F	Frequency range	-	9 ~ 10	-	GHz
G	Linear gain	-	31	-	dB
NF	Noise figure	-	3.2	3.4	dB
PL	Limiter bearing power	-	-	10	W
IS	Switch isolation	50	55	-	dB
PS _{RMS}	Phase shift RMS error	-	4	5	°
P _{1_OUT}	P ₁ output	4	-	-	dBm
I _{+5V}	+5V current	-	33	35	mA
I _{-5V}	-5V current	-	6	8	mA
VSWR _{in}	Input standing wave	-	1.4	1.5	-
VSWR _{out}	Output standing wave	-	1.3	1.5	-

Typical Test Curve



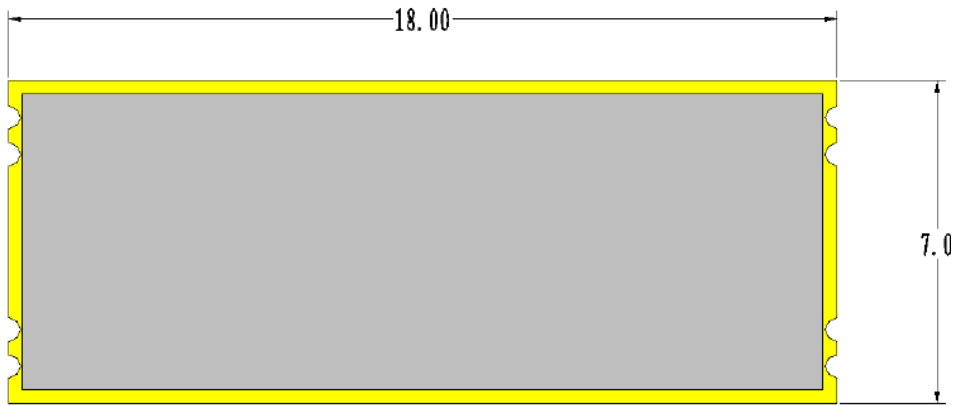
Phase Shift Six Basic State



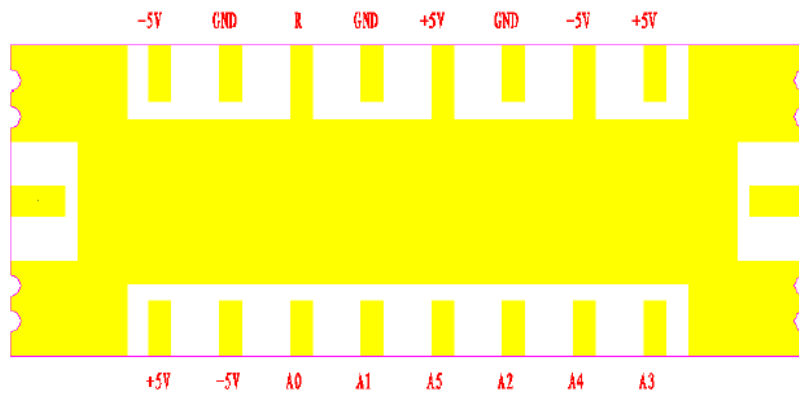
Phase Shift Control Truth Table

Control Port Phase Shift State	A0	A1	A2	A3	A4	A5
State	0V	0V	0V	0V	0V	0V
5.625 °	+3.3V	0V	0V	0V	0V	0V
11.25 °	0V	+3.3V	0V	0V	0V	0V
22.5 °	0V	0V	+3.3V	0V	0V	0V
45 °	0V	0V	0V	+3.3V	0V	0V
90 °	0V	0V	0V	0V	+3.3V	0V
180 °	0V	0V	0V	0V	0V	+3.3V
Max phase shift state	+3.3V	+3.3V	+3.3V	+3.3V	+3.3V	+3.3V

Module Dimensions (Unit : μm)



Front



Backside

Recommendation for PCB PAD Design

