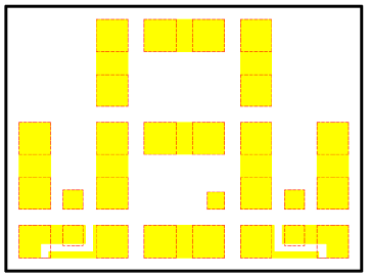
AMT3101

DC – 40GHz Adjustable Amplitude and Phase Modulator Chip



Key Features :

- Frequency range : DC – 40GHz
- Attenuation range : 0 – 3.5dB
- Phase shift range : 0 ~ 80°, each state phase shift is around 13° (@10GHz)
- Input standing wave ratio : 1.4 : 1
- Output standing wave ratio : 1.4 : 1
- Phase shift function can be realized simultaneously when each attenuation state attenuates.
- Attenuation function can be realized simultaneously when each phase shift state shifts.
- Chip dimensions : 1.35mm x 1mm x 0.127mm
- Applications : wireless communication, transceiver module, radio telecommunication etc.

Description :

AMT3101 is a high performance adjustable amplitude and phase modulator chip, this chip is designed with ground through metal vias on the back technology. No electric bias is required in DC – 40GHz; through gold wire bond, attenuation can be adjusted by 0.5dB per step between 0dB ~ 3.5dB; input standing wave ratio is 1.4 : 1, output standing wave ratio is 1.4 : 1.

Absolute Maximum Ratings (Ta = 25°C)

Symbol	Parameter	Value	Remark
Pin	Input power	+30dBm	
Ta	Operation Temperature	-55 ~ +85°C	
Tstg	Storage Temperature	-65 ~ +150°C	

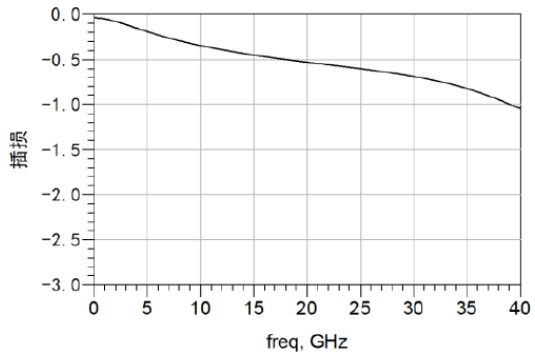
[1] Operation outside any of the Absolute Maximum Ratings may cause permanent device damage.

Electrical Characteristics (Ta = 25°C)

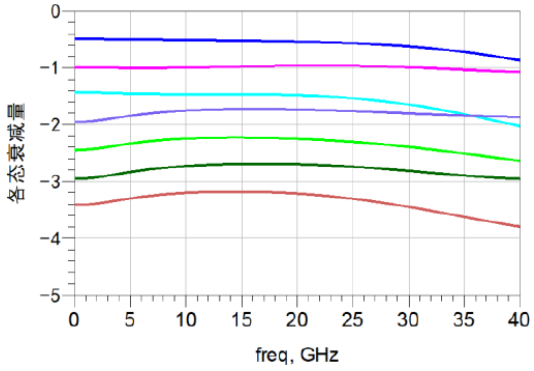
Symbol	Parameter	Value			Unit
		Min	Typical	Max	
IL	Insertion loss	-	0.3	0.5	dB
ΔAi	Attenuation resolution	-	± (0.2 + 5% Ai)	±(0.3 + 10% AI)	dB
VSWR	Input/output standing wave ratio	-	1.4	1.8	-

Typical Test Curve

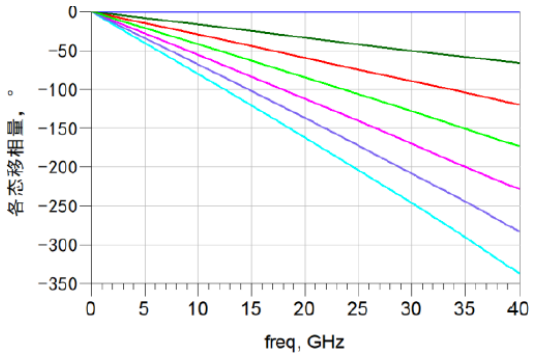
Insertion Loss Curve



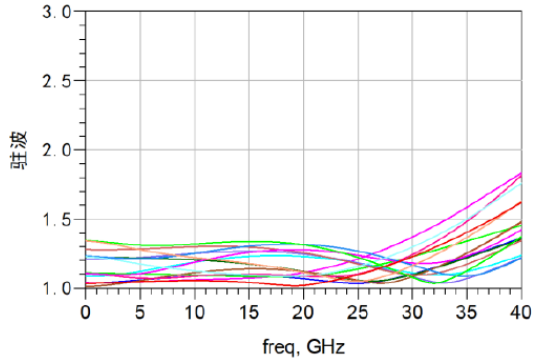
Each Attenuation State Curve



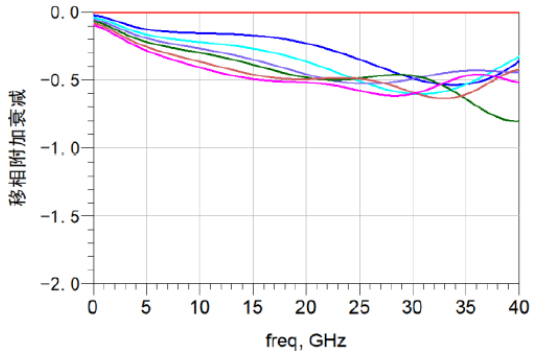
Each Phase Shift State Curve



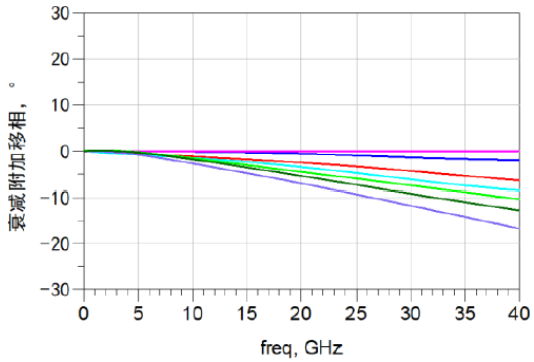
Input/Output Standing Wave Curve



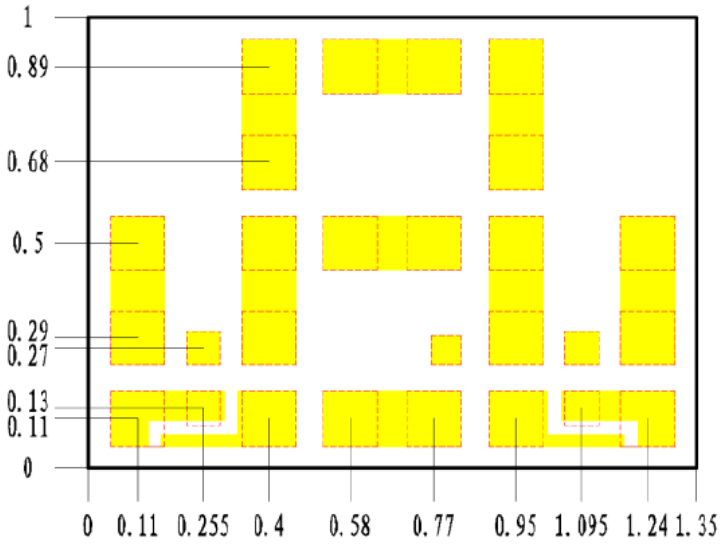
Phase Shift Additive Attenuation Curve



Attenuation Additive Phase Shirt Curve

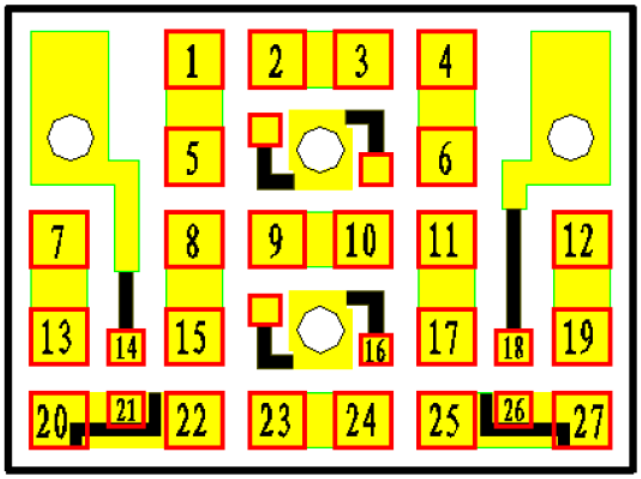


Chip Dimensions (Unit : μm)

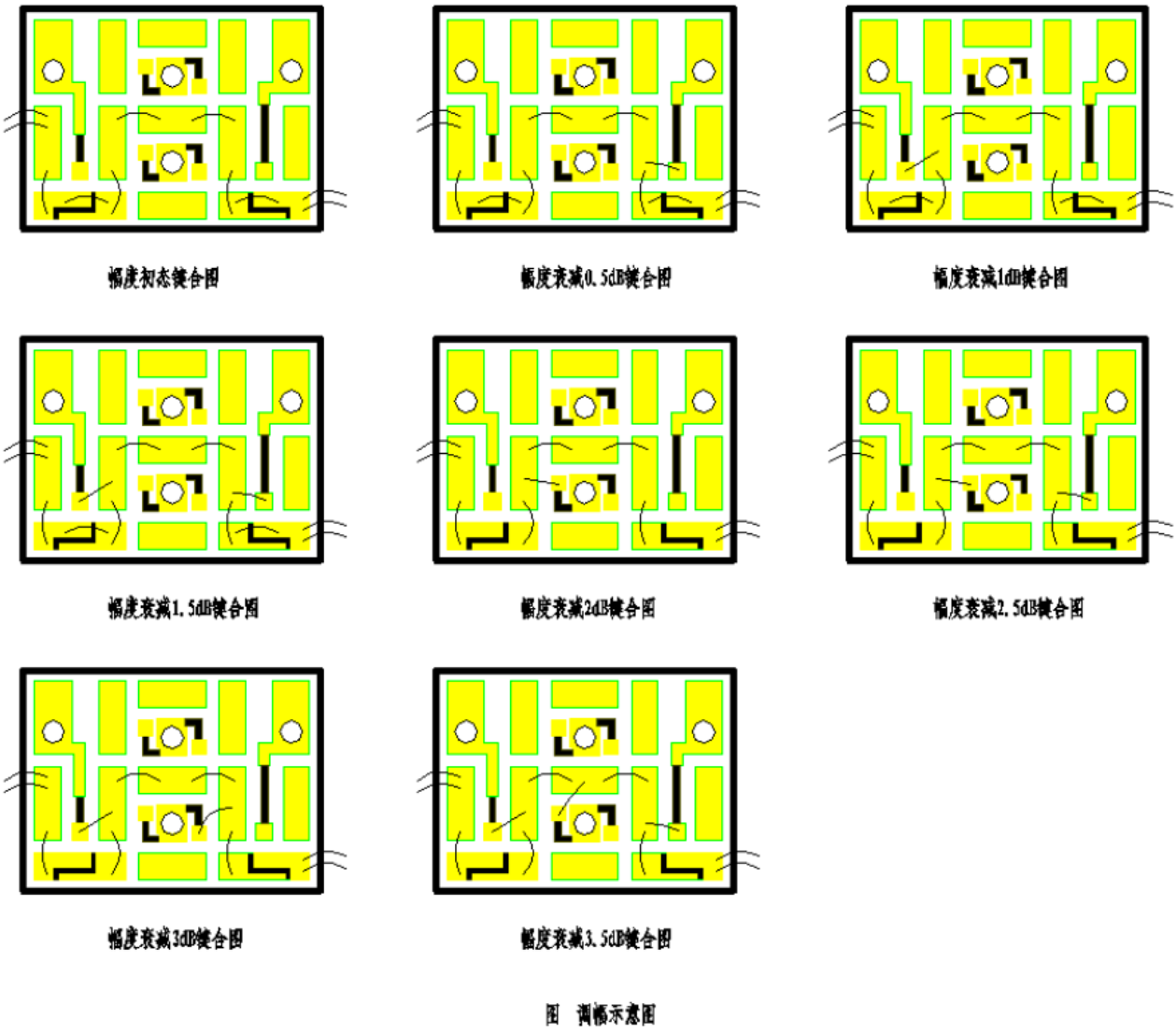


Chip Layout Diagram

Solder Pad Position Diagram



Assembly Connection Method



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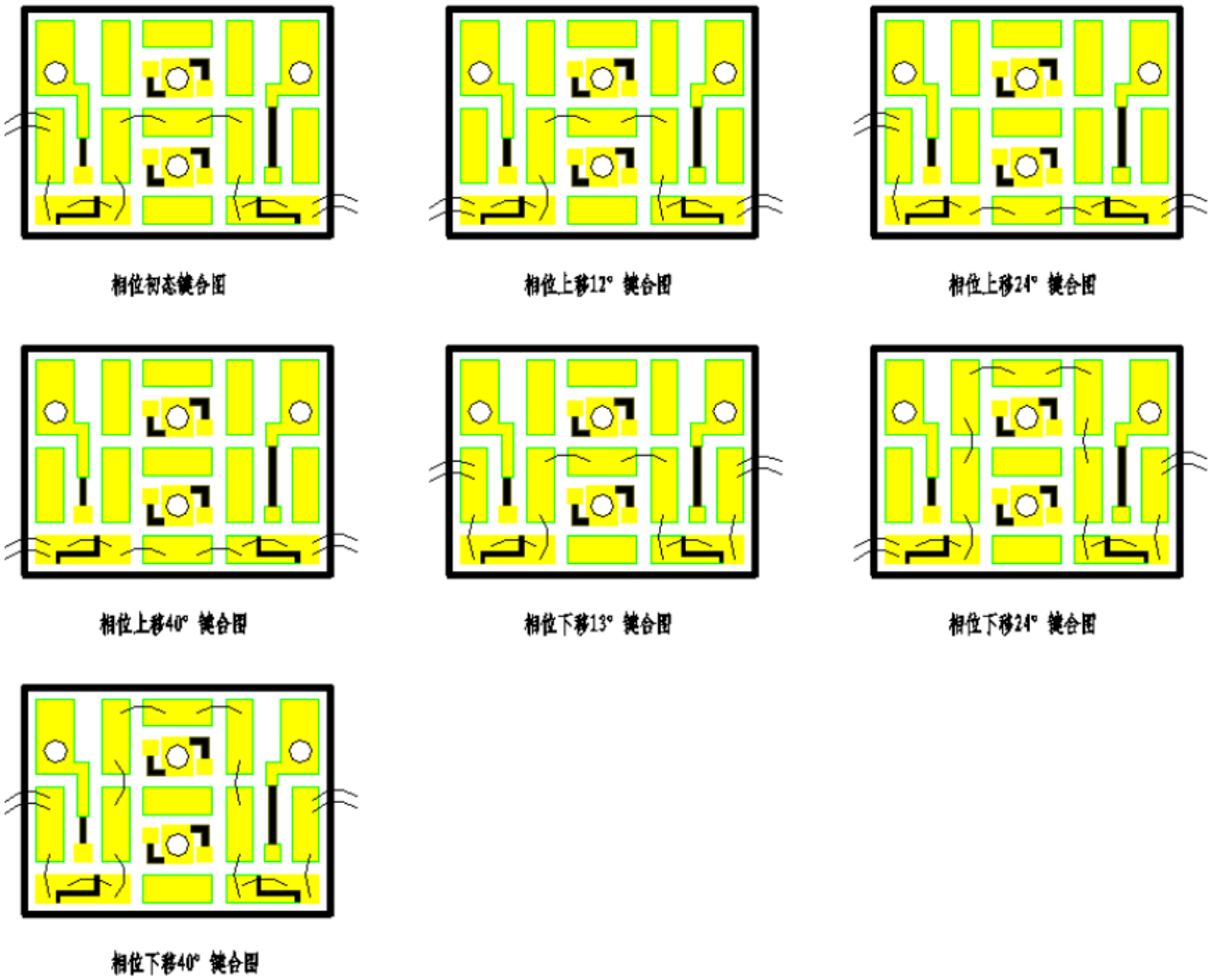
Amplitude Modulation Illustration



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Phase Modulation Illustration