AMT1809-03
6 - 18GHz 15dB Directional Coupler Chip

Key Features :

- Frequency range : 6 – 18GHz
- Input/output standing wave : 1.3
- Insertion loss : 0.5dB
- Coupling : 15dB
- Coupling flatness : 3dB
- Chip dimensions : 1.8mm x 1.3mm x 0.1mm
- Applications : wireless communication, transceiver module, radio telecommunication etc.

Description :

AMT1809-03 is a wideband directional coupler chip, it is designed by Gallium Arsenide (GaAs) process. This chip is designed with ground through metal vias on the back technology. All chip products p are 100% RF tested. It covers frequency range of 6 - 18GHz, port standing wave is smaller than 1.3, insertion loss less than 0.5dB, coupling is 15dB, and less than 3dB coupling flatness.

Absolute Maximum Ratings (Ta = 25°C)

Symbol	Parameter	Value	Remark
Pin	Input Power	30dBm	
Tch	Operation Temperature	150°C	
Tm	Sintering Temperature	310°C	30s, N_2 protection
Tstg	Storage Temperature	-65 ~ +150°C	

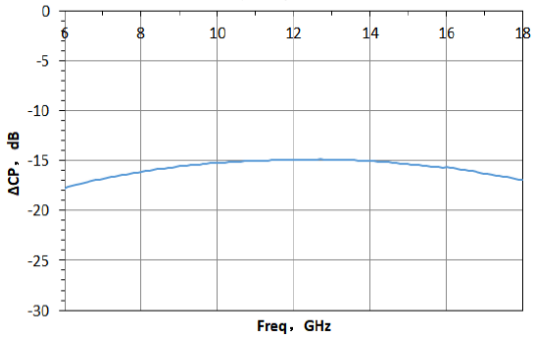
[1] Operation outside any of the Absolute Maximum Ratings may cause permanent device damage.

Electrical Characteristics (Ta = 25°C)

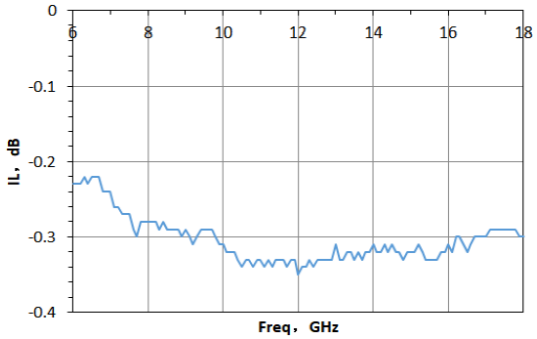
Symbol	Parameter	Test Condition	Value			Unit
			Min	Typical	Max	
VSWRin	Input standing wave	F : 6 ~ 18GHz	-	1.3	-	-
VSWRout1	Direct port output standing wave		-	1.3	-	-
VSWRout2	Coupling output standing wave		-	1.3	-	-
IL	Insertion Loss		-	0.3	-	dB
ΔCP	Coupling		-	15	-	dB

Typical Performance

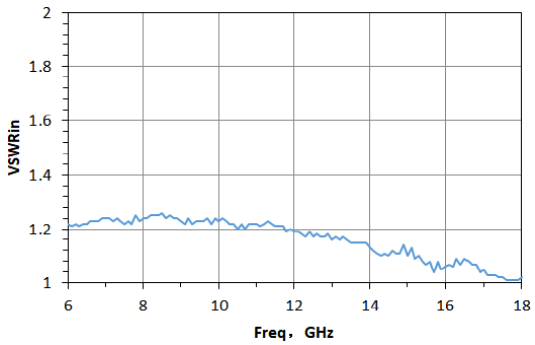
Coupling Curve



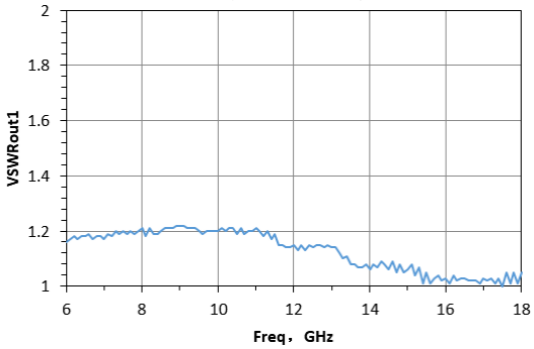
Insertion Loss Curve



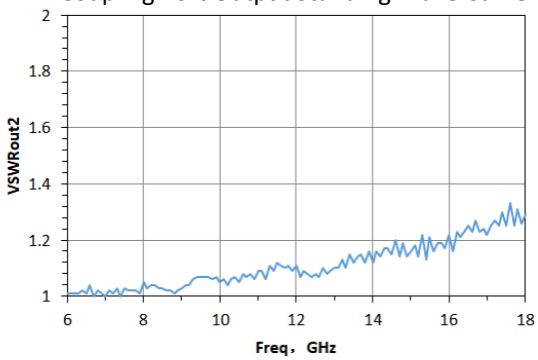
Input Standing Wave Curve



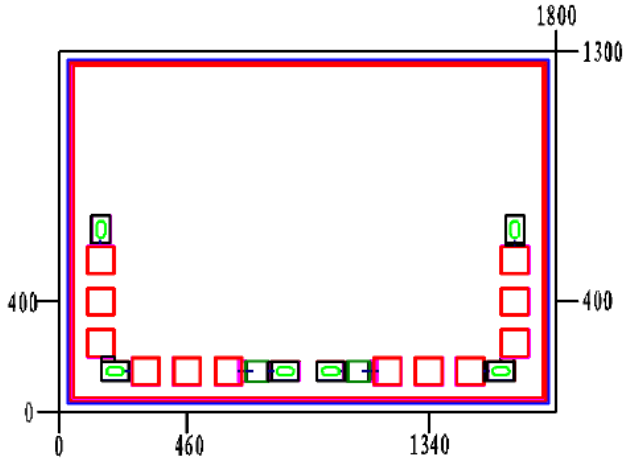
Direct Port Output Standing Wave Curve



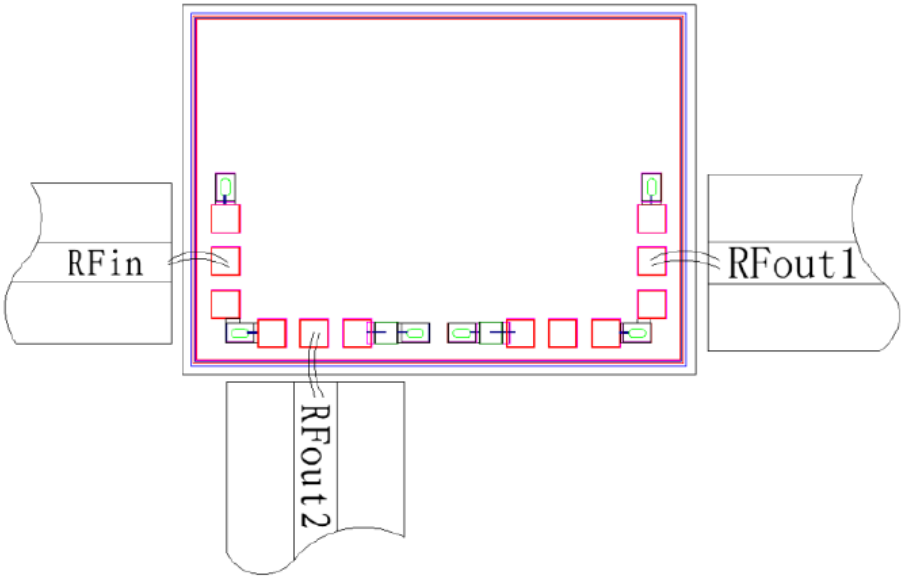
Coupling Port Output Standing Wave Curve



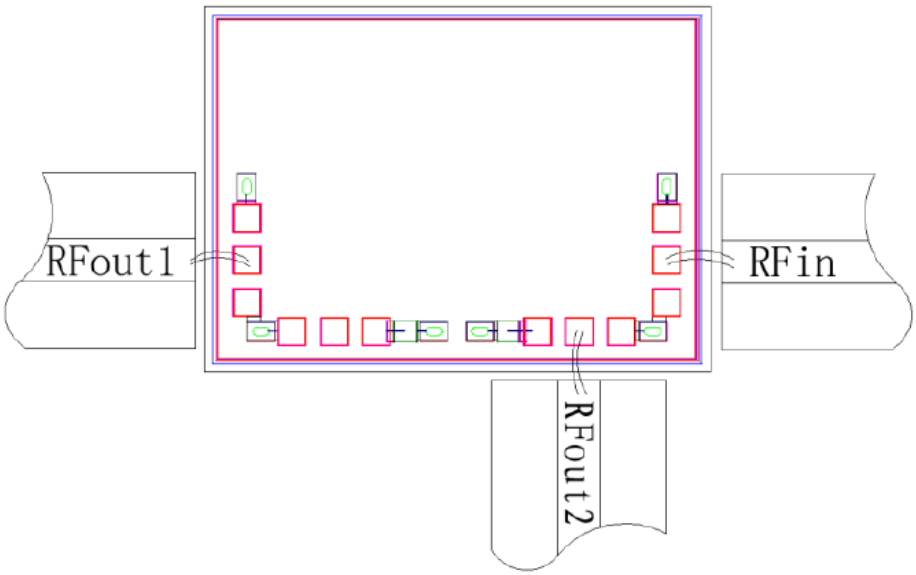
Chip Dimensions (Unit : µm)



Chip Layout Diagram



Recommended Assembly Option 1



Recommended Assembly Option 2

Note, customer can choose different coupling port, depending on different input and output direction, each coupling port has 50 Ω load.

Pad Definition

No.	Symbol	Function Description	Dimension
1	RFin	RF signal input port, external connect to 50Ω system	100μm*100μm
2	RFout1	RF signal direct output port, external connect to 50Ω system	100μm*100μm
3	RFout2	RF signal coupling output port , external connect to 50Ω system	100μm*100μm

Please see Appendix A for details