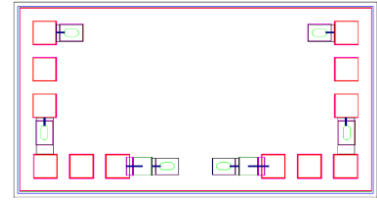


**AMT1809-04**  
**18 - 50GHz 20dB Directional Coupler Chip**



**Key Features :**

- Frequency range : 18 – 50GHz
- Input/output standing wave : 1.6
- Insertion loss : 0.6dB
- Coupling : 20dB
- Chip dimensions : 1.5mm x 0.8mm x 0.1mm
- Applications : wireless communication, transceiver module, radio telecommunication etc.

**Description :**

AMT1809-04 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 are 100% RF tested. It covers frequency range of 18 - 50GHz, port standing wave is smaller than 1.6, insertion loss less than 0.6dB, and coupling is 20dB.

**Absolute Maximum Ratings (Ta = 25°C)**

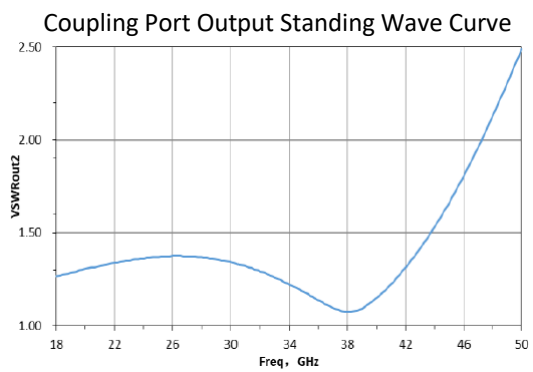
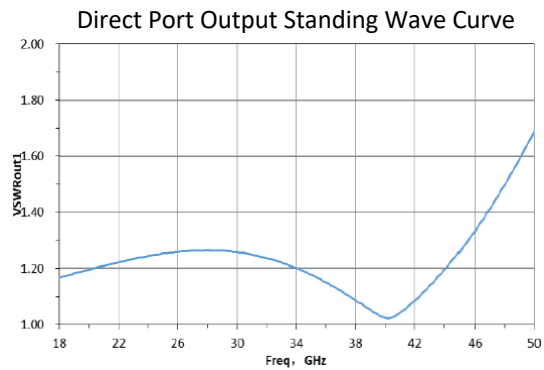
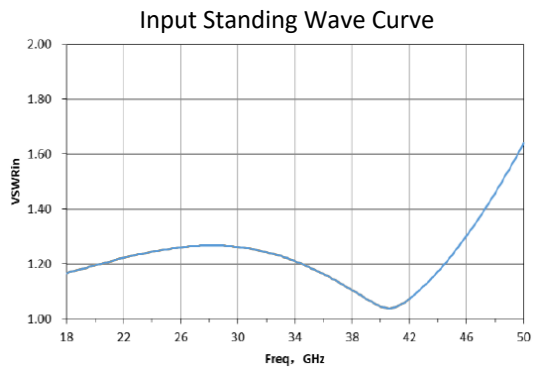
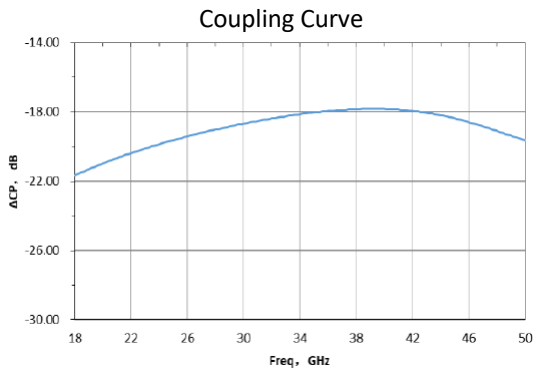
Symbol	Parameter	Value	Remark
Pin	Input Power	30dBm	
Tch	Operation Temperature	150°C	
Tm	Sintering Temperature	310°C	30s, N2 protection
Tstg	Storage Temperature	-65 ~ +150°C	

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

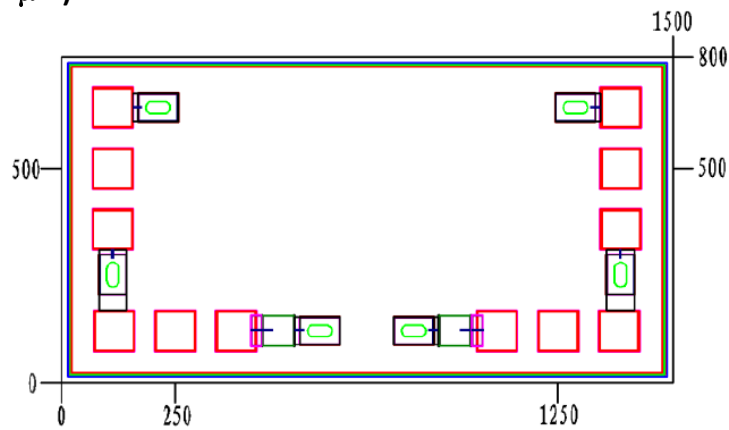
**Electrical Characteristics (Ta = 25°C)**

Symbol	Parameter	Test Condition	Value			Unit
			Min	Typical	Max	
VSWRin	Input standing wave	F : 18 ~ 50GHz	-	1.6	-	-
VSWRout1	Direct port output standing wave		-	1.6	-	-
VSWRout2	Coupling output standing wave		-	1.6	-	-
IL	Insertion Loss		-	0.6	-	dB
ΔCP	Coupling		-	20	-	dB

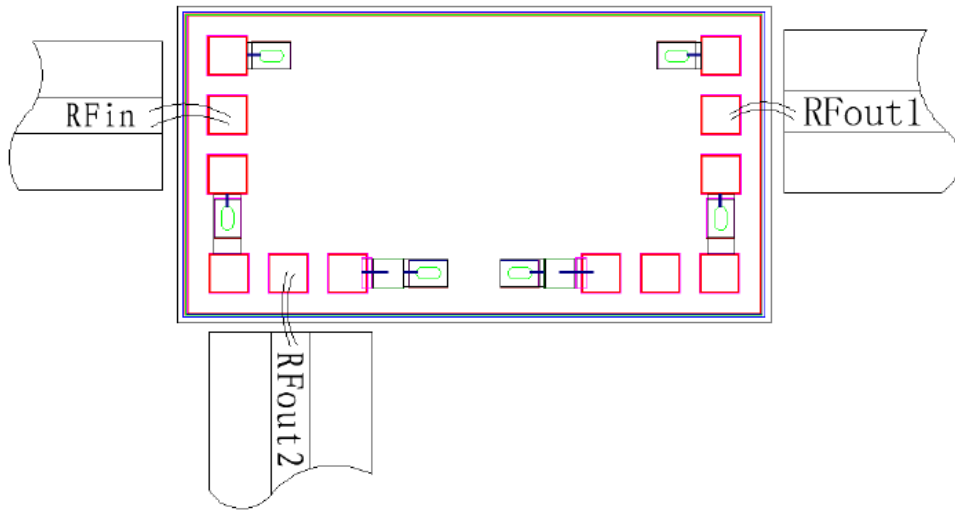
Typical Performance



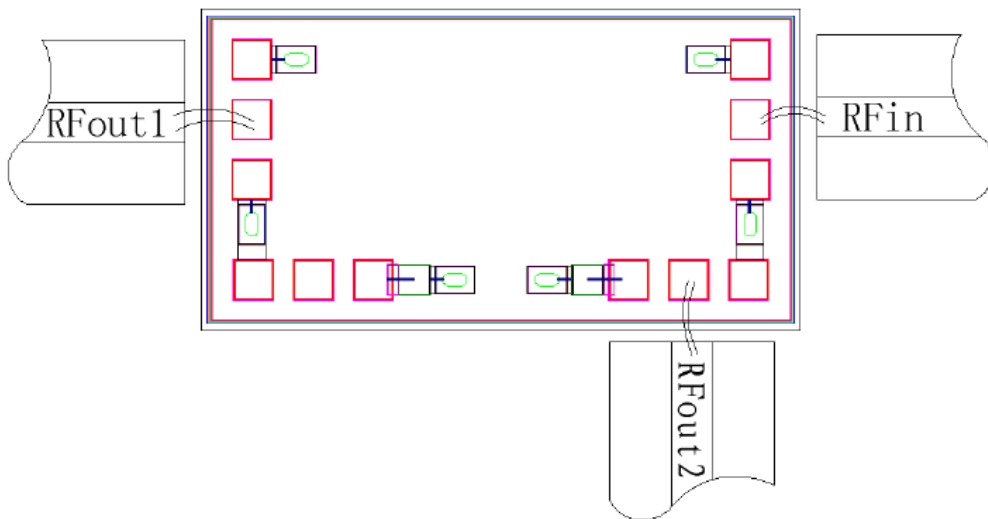
Chip Dimensions (Unit : μm)



**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 a 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.