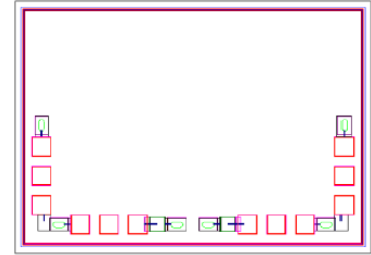


AMT1809-02
6 - 18GHz 20dB Directional Coupler Chip



Key Features :

- Frequency range : 6 – 18GHz
- Input/Output standing wave : 1.3
- Insertion loss : 0.4dB
- Coupling : 20dB
- Coupling flatness : 3dB
- Chip dimensions : 1.85mm x 1.3mm x 0.1mm
- Applications : wireless communication, transceiver module, radio telecommunication etc.

Description :

AMT1809-02 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 0.4dB, coupling is 25dB, and less than 3dB coupling flatness.

Absolute Maximum Ratings (Ta = 25°C)

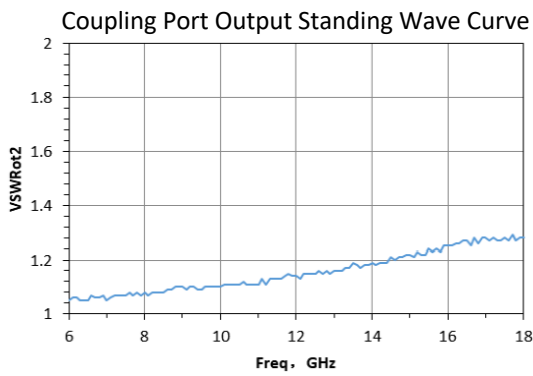
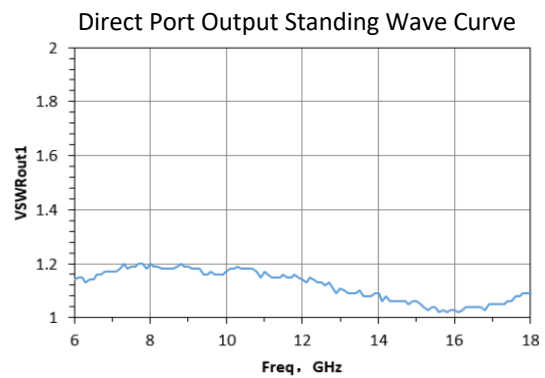
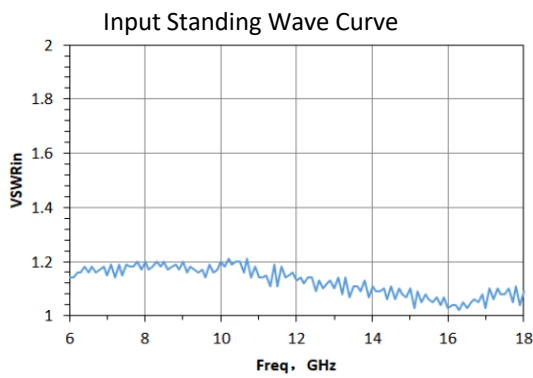
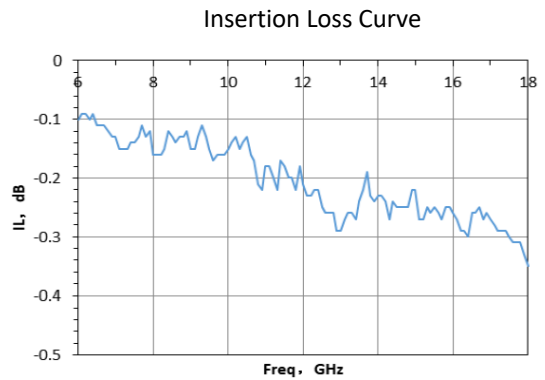
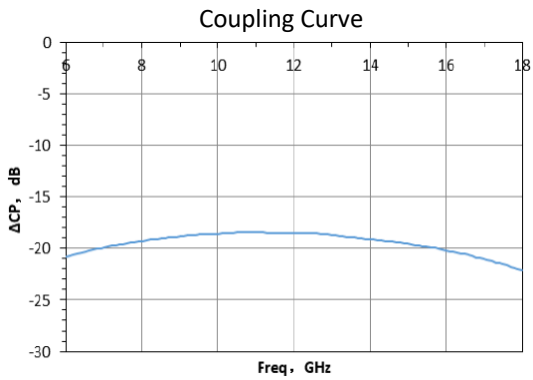
| Symbol | Parameter | Value | Remark |
|--------|-----------------------|--------------|--------------------------------|
| Pin | Input Power | 30dBm | |
| Tch | Operation Temperature | 150°C | |
| Tm | Sintering Temperature | 310°C | 30s, N ₂ protection |
| Tstg | Storage Temperature | -65 ~ +150°C | |

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

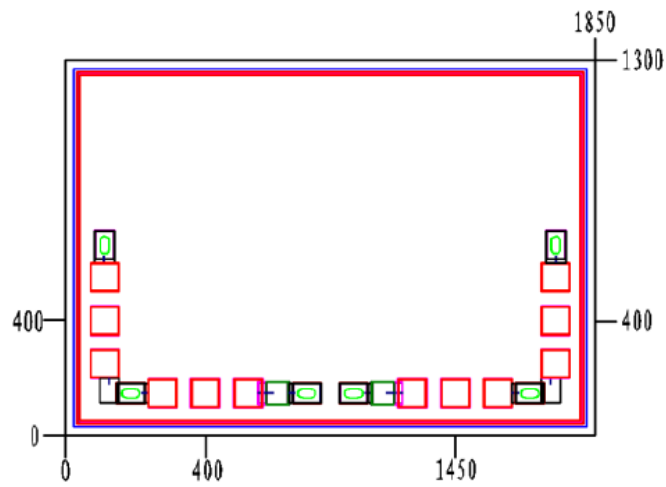
Electrical Characteristics (Ta = 25°C)

| 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 | | - | 0.4 | - | dB |
| ΔCP | Coupling | | - | 20 | - | dB |

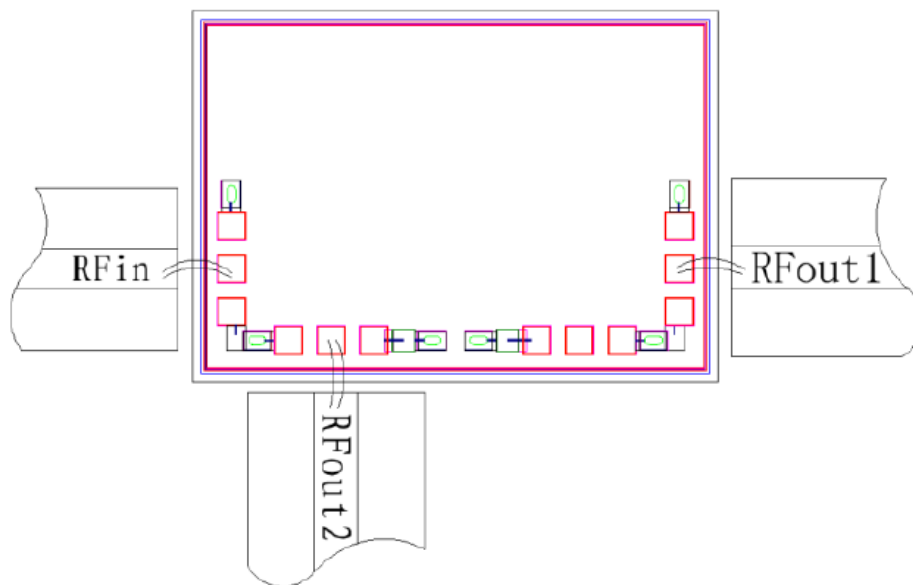
Typical Performance



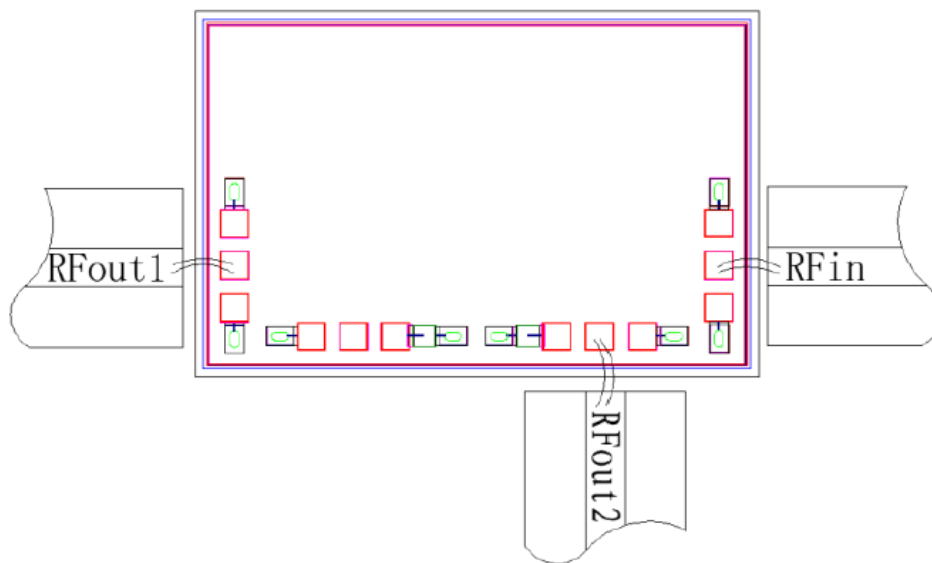
Chip Dimensions (Unit : μm)



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.