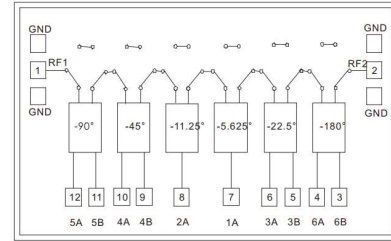


### Performance

- Frequency: 2.1-3.2GHz
- Insertion loss: 11.5dB
- Phase shift accuracy (RMS): 2°
- Amplitude Ripple: ±0.5dB
- Chip size: 4.6\*2.8\*0.1mm

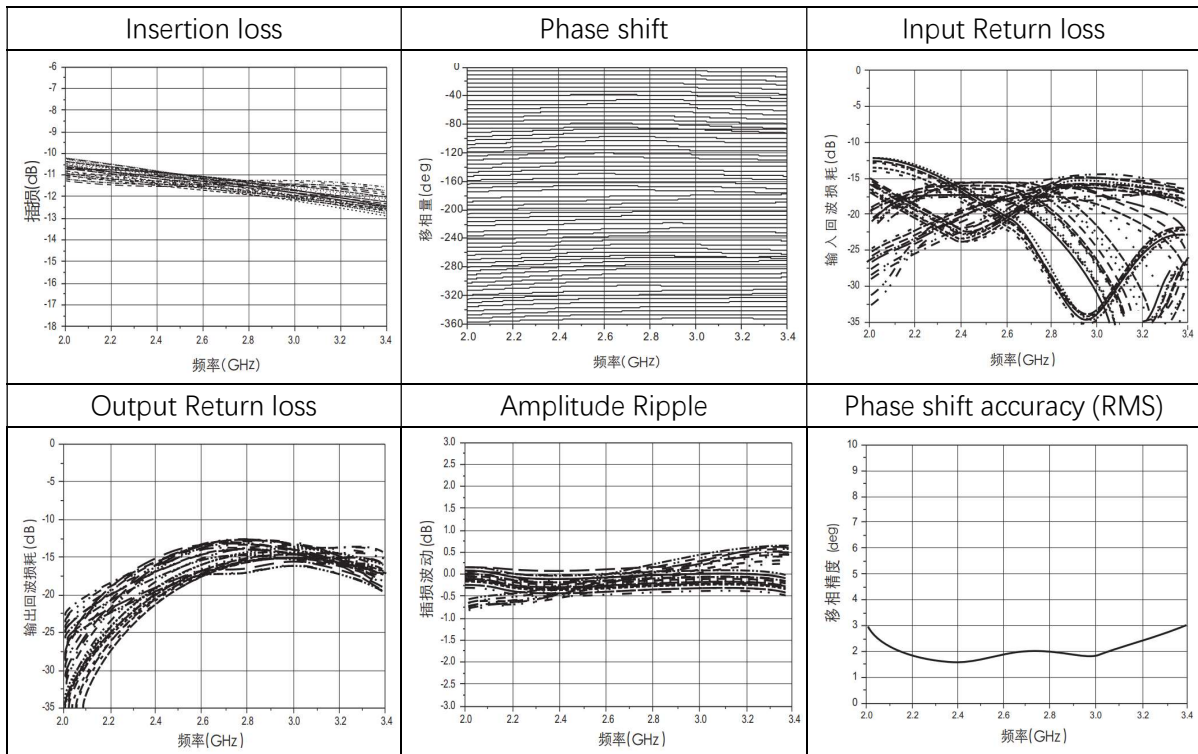
### Function Diagram



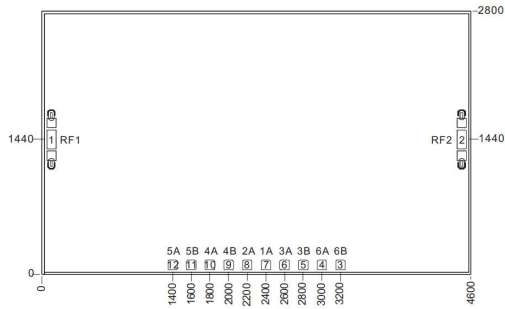
### Electrical Specifications (Ta=+25°C, 0/-5V control, 50Ω system)

| Parameter                  | Test Frequency | Min | Typical | Max  | Unit |
|----------------------------|----------------|-----|---------|------|------|
| Insertion Loss             | 2.1~3.2GHz     | -   | 11.5    | 12.5 | dB   |
| Amplitude Ripple           | 2.1~3.2GHz     | -   | ±0.5    | ±0.8 | dB   |
| Phase shift accuracy (RMS) | 2.1~3.2GHz     | -   | 2       | 2.5  | deg  |
| Return loss (RF1, RF2)     | 2.1~3.2GHz     | -   | 15      | -    | dB   |
| Input P1dB                 | 2.1~3.2GHz     | -   | 21      | -    | dBm  |
| Input IP3                  | 2.1~3.2GHz     | -   | 35      | -    | dBm  |
| Switch time                | -              | -   | 10      | -    | ns   |

### Test Curves



**Outline Size**



**Note:**

1. Unit:  $\mu\text{m}$
2. Bottom side is gold plated
3. Bottom side is GND
4. Bonding pads is gold plated, size:  
1,2:  $200 \times 100(\mu\text{m})$ ; 3-12:  $100 \times 100(\mu\text{m})$
5. Don't bonding on thru holds
6. Tolerance:  $\pm 50\mu\text{m}$

**Truth Table**

| -5.625° | -11.25° | -22.5° |    | -45° |    | -90° |    | -180° |    | Phase shift<br>Status |
|---------|---------|--------|----|------|----|------|----|-------|----|-----------------------|
| 1A      | 2A      | 3A     | 3B | 4A   | 4B | 5A   | 5B | 6A    | 6B |                       |
| 1       | 1       | 1      | 0  | 1    | 0  | 1    | 0  | 1     | 0  | Reference             |
| 0       | 1       | 1      | 0  | 1    | 0  | 1    | 0  | 1     | 0  | -5.625°               |
| 1       | 0       | 1      | 0  | 1    | 0  | 1    | 0  | 1     | 0  | -11.25°               |
| 1       | 1       | 0      | 1  | 1    | 0  | 1    | 0  | 1     | 0  | -22.5°                |
| 1       | 1       | 1      | 0  | 0    | 1  | 1    | 0  | 1     | 0  | -45°                  |
| 1       | 1       | 1      | 0  | 1    | 0  | 0    | 1  | 1     | 0  | -90°                  |
| 1       | 1       | 1      | 0  | 1    | 0  | 1    | 0  | 0     | 1  | -180°                 |

**Bonding Pads Definition**

| Number        | Symbol   | Description        |
|---------------|----------|--------------------|
| 1,2           | RF1, RF2 | RF port, 50ohm     |
| 4,6,7,8,10,12 | CTRL A   | Control Port       |
| 3,5,9,11      | CTRL B   | Control Port       |
| -             | GND      | Bottom must be GND |

**Control Voltage**

| Status   | Bias    |
|----------|---------|
| Low (0)  | 0~-0.2V |
| High (1) | -3~-5V  |



**Absolute Max Ratings**

|                         |              |
|-------------------------|--------------|
| Input Power             | +24dBm       |
| CTRL Range (V1 to V6)   | +0.5V~-7V    |
| Junction Temperature    | 175°C        |
| Storage Temperature     | -65 ~ +150°C |
| Operating Temperature   | -55 ~ +125°C |
| Static Protection (HBM) | Class 1A     |

**Application**

