

Features

- Freq: 4~12GHz
- Insertion Loss: 0.2dB
- Chip Size: 1.3mm×1.65mm×0.1mm

General Description

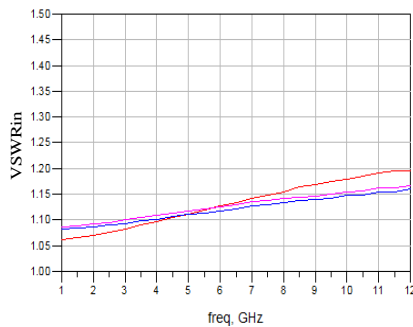
The HG125Y is a 2-bit GaAs pHEMT phase modulation chip which is rated from 4 to 12 GHz. The chip features extremely low insertion loss of 0.2 dB across all phase states. The input/output VSWR is 1.2/1.2.

Electrical Specifications($T_A=25^\circ\text{C}$)

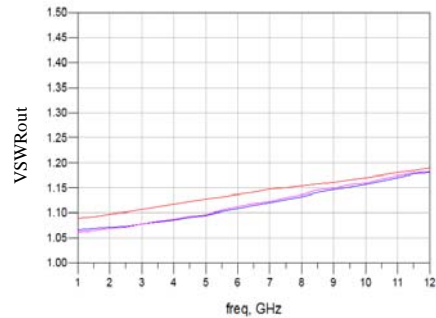
| Parameter | symbol | Min. | Typ. | Max. |
|-------------------------------------|---------------------|------|------|------|
| Frequency Range(GHz) | f | 4~12 | | |
| Input VSWR | VSWR _{in} | - | 1.2 | - |
| Output VSWR | VSWR _{out} | - | 1.2 | - |
| Insertion Loss(dB) | IL (4~8GHz) | - | 0.15 | - |
| | IL (8~12GHz) | - | 0.25 | - |
| Phase difference ($^\circ$)(8GHz) | $\Delta\Phi_1$ | - | -10 | - |
| | $\Delta\Phi_2$ | - | -20 | - |

Notes: The reference path is IN-OUT, $\Delta\Phi_1$ is the phase difference between IN1-OUT1 and reference path. $\Delta\Phi_2$ is the phase difference between IN2-OUT2 and reference path.

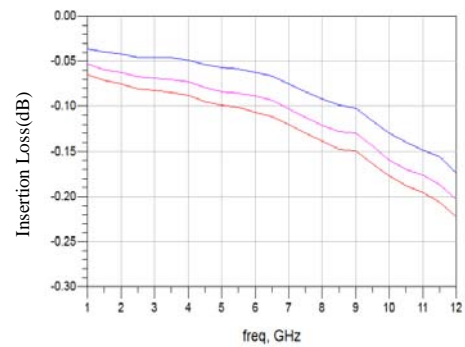
Input VSWR



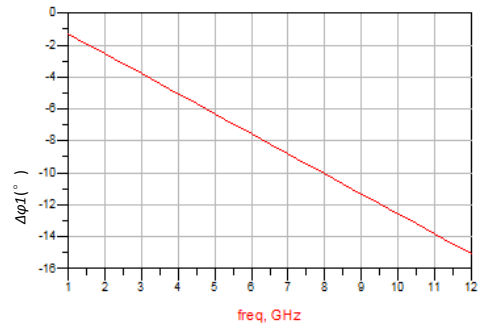
Output VSWR



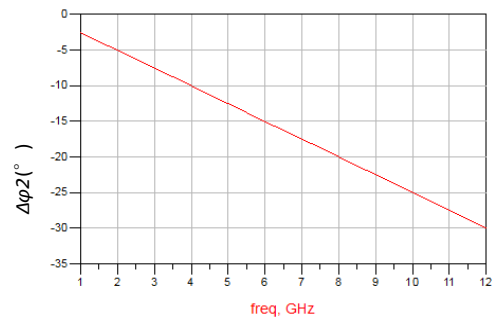
Insertion Loss



Fixed phase modulation unit 1(10°@8GHz)

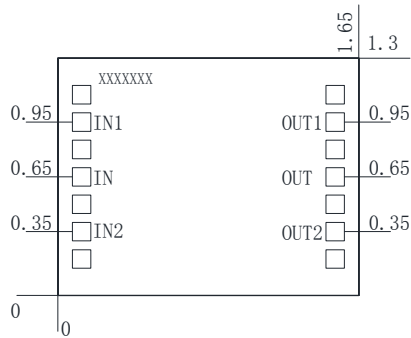


Fixed phase modulation unit 2(20°@8GHz)



| | 2GHz | 4GHz | 6GHz | 8GHz | 10GHz | 12GHz |
|----------------------------|------|------|------|------|-------|-------|
| phase modulation unit 1(°) | -2.5 | -5 | -7.5 | -10 | -12.5 | -15 |
| phase modulation unit 2(°) | -5 | -10 | -15 | -20 | -25 | -30 |

Outline Drawing (mm)



Notes:

1. The chip should be stored in a dry and nitrogen environment, and used in a clean environment.
2. GaAs material is brittle, can not touch the surface of the chip, must be careful when using.
3. The chip is welding with conductive adhesive or alloy (alloy temperature should not exceed 300°C, and no more than 30 sec.), and should make it fully grounded.
4. The chip microwave port and substrate gap is not exceeding 0.05mm, with $\Phi 25\mu\text{m}$ double gold wire bonding, suggested length of gold wire 250~400 μm .
5. Chip microwave port without DC blocking capacitor.
6. The chip is sensitive to static electricity, and should be protected against static electricity during storage and use.

Absolute Maximum Ratings

| | |
|-----------------------|---------------|
| RF Input Power | +27dBm |
| Operating Temperature | -55°C ~ 125°C |
| Storage Temperature | -65°C ~ 150°C |