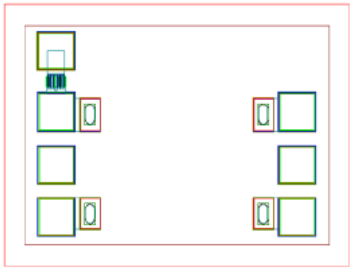
**AMT1617(L2)**

**DC - 40GHz Temperature Compensated Attenuator Chip**



**Key Features :**

- Frequency range : DC – 40GHz
- Input/output standing wave : 1.2/12.
- Room temperature insertion loss : 5.3dB@10GHz, 5.5dB@25GHz
- Phase consistency : ≤ |±2|°@10GHz, ≤ |±5|°@25GHz
- Chip dimensions : 1.0mm x 0.75mm x 0.1mm
- Applications : wireless communication, transceiver module, radio telecommunication etc.

**Description :**

AMT1617(L2) is a temperature compensated attenuator chip, it is designed by Gallium Arsenide (GaAs) pHEMT process. Its core device is an electrical controlled attenuator whose attenuation is adjustable by a linear voltage, its control signal is generated by thermosensitive device. This chip is to stabilize the temperature-depended gain of a microwave amplifier.

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

| Symbol | Parameter | Value | Remark |
|---|---|---|---|
| VSS | Operation voltage | -6V | |
| Pin | Input Power | 20dBm | |
| Tch | Operation Temperature | 150°C | |
| Tm | Sintering Temperature | 310°C | 30s, $N_2$ protection |
| Tstg | Storage Temperature | -65 ~ +150°C | |

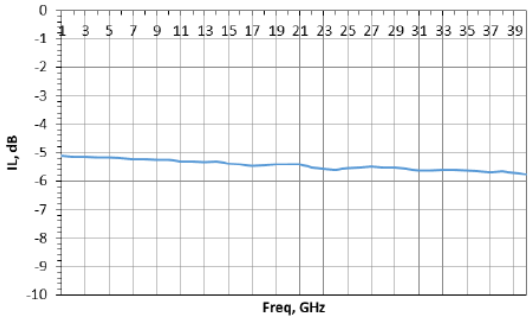
[1] Operation outside any of the Absolute Maximum Ratings may cause permanent device damage.

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

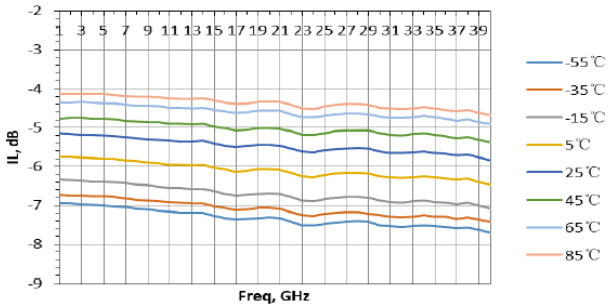
| Symbol | Parameter | | Value | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min | Typical | Max | |
| F | Frequency range | DC - 40 | | | | GHz |
| IL | Insertion Loss | F = 10GHz | - | 5.3 | 6.2 | dB |
| | | F = 25GHz | - | 5.5 | 6.5 | |
| ΔP | Phase consistency | F = 10GHz | -2 | - | 2 | ° |
| | | F = 25GHz | -5 | - | 5 | |
| VSWRin | Input Standing Wave | F = 1~40GHz | - | 1.2 | 1.3 | - |
| VSWRout | Output Standing Wave | F = 1~40GHz | - | 1.2 | 1.3 | - |

## Typical Performance

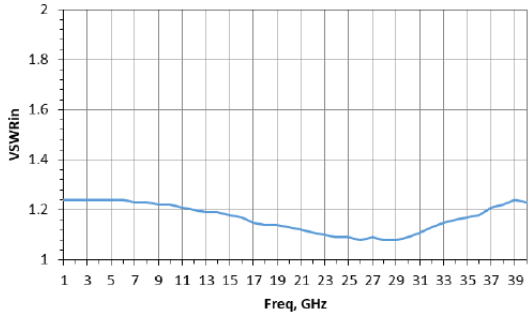
Insertion Loss Curve



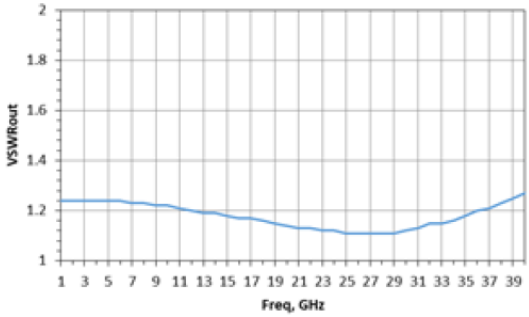

Full Temperature Insertion Loss Curve



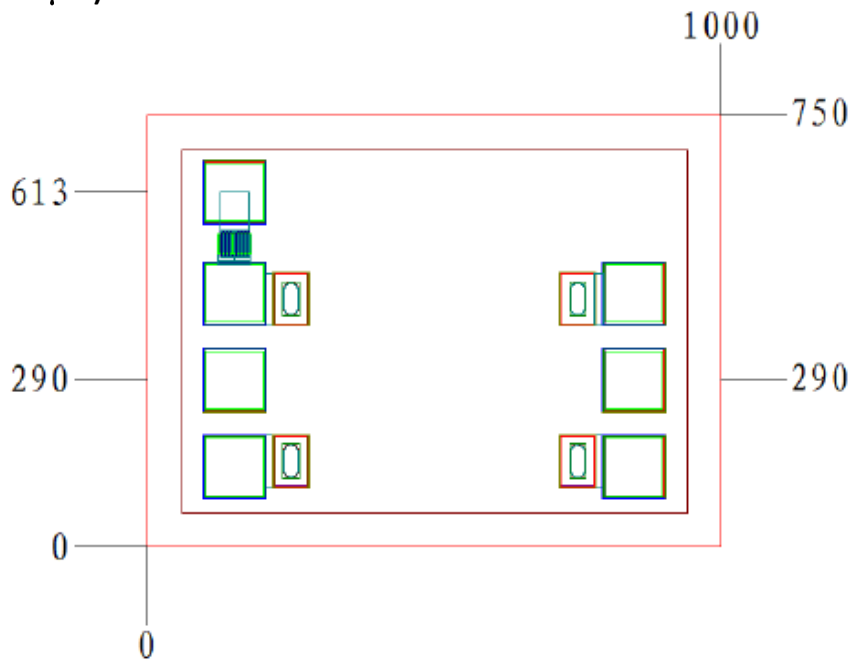

Input Standing Wave



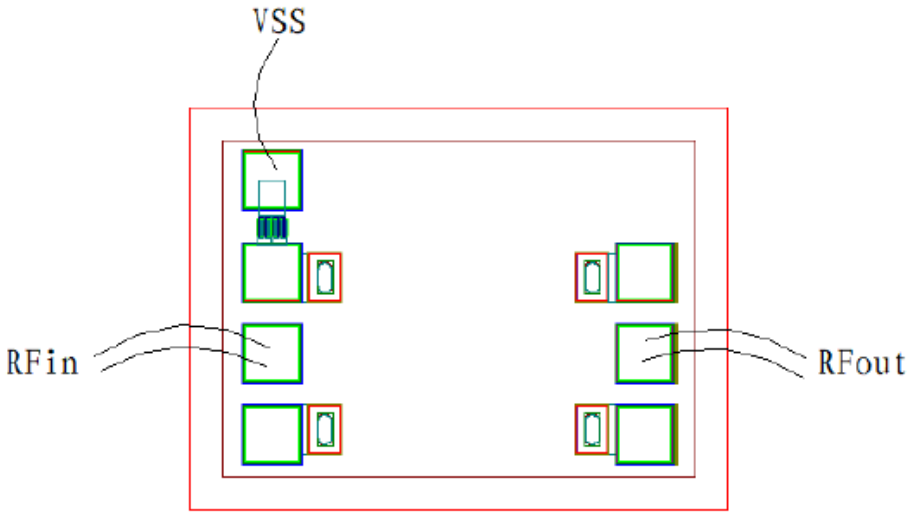

Output Standing Wave



## Chip Dimensions (Unit : µm)




## Chip Layout Diagram




### Pad Definition

| No. | Symbol | Function | Dimension |
|---|---|---|---|
| 1 | RF_in | RF input pad | 100µm*100µm |
| 2 | RF_out | RF output pad | 100µm*100µm |
| 3 | VSS | -5V power supply | 100µm*100µm |

Please see Appendix A for details.