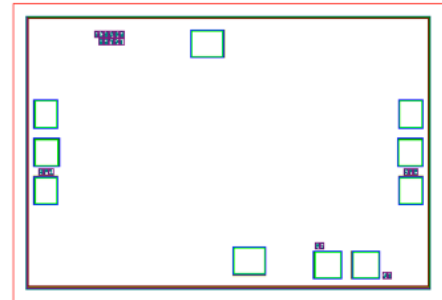


6 - 13GHz Transceiver Integrated Multi-Function Chip



**Key Features :**

- Frequency range : 6 – 13GHz
- Transceiver gain : 9.5dB
- Transceiver noise figure : 4.5dB
- Transceiver output power at P-1 : 12dBm
- Transceiver input standing wave : 1.8
- Transceiver output standing wave : 1.5
- Chip dimensions : 1.69mm x 1.17mm x 0.1mm
- Applications : wireless communication, transceiver module, radio telecommunication etc.

**Description :**

AMT1318 is a high performance transceiver by-directional power amplifier chip, receiver and transmitter have same circuit, frequency range is 6 – 13GHz, with transceiver gain at 9.5dB, transceiver noise figure is 4.5dB, and receive/transmit output power at P-1 is 12dBm. 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.

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

Symbol	Parameter	Value	Remark
Vd1, Vd2	Supplier voltage	+7V	
VS	Control voltage	-6V	
Pin	Max. Input Signal Power	20dBm	
Tch	Operation Temperature	150°C	
Tm	Sintering Temperature	310°C	30s, N <sub>2</sub> protection
Tstg	Storage Temperature	-65 ~ +150°C	

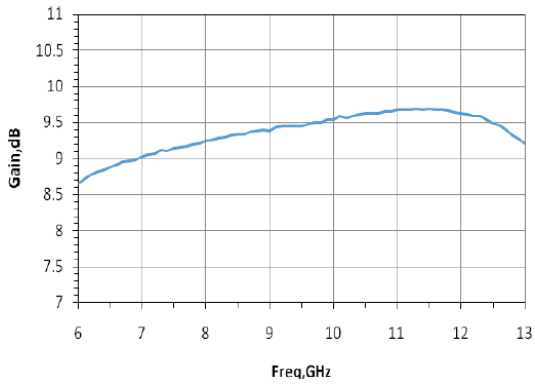
[1] Operation outside any of the Absolute Maximum Ratings may cause permanent device damage.

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

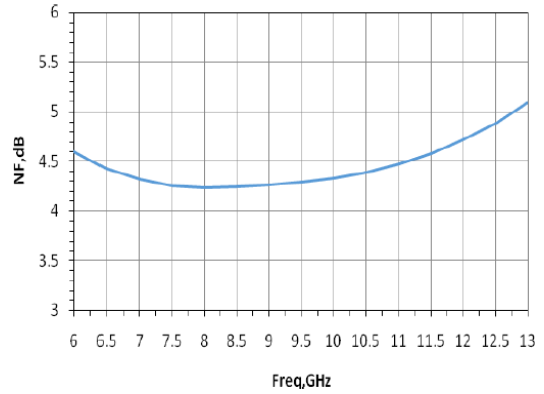
Symbol	Parameter	Test Conditions	Value			Unit
			Min	Typical	Max	
Gain	Receive/Transmit gain	F : 6 – 13GHz	-	9.5	-	dB
NF	Receive/Transmit noise figure		-	4.5	-	dB
VSWRin	Receive/Transmit input standing wave		-	1.8	-	-
VSWRout	Receive/Transmit output standing wave		-	1.5	-	-
P <sub>-1dB</sub>	Receive/Transmit output at P-1 point		-	12	-	dBm
I	Operation current		-	20	-	mA

### Typical Performance

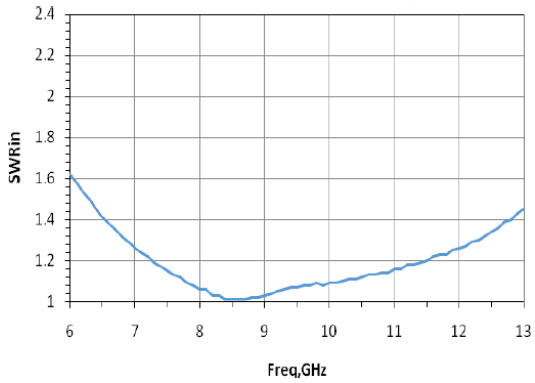
Receive/Transmit Gain Curve



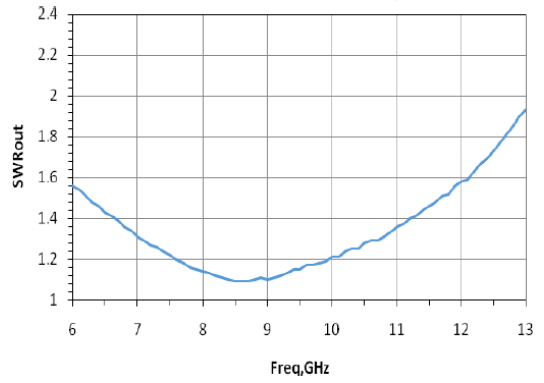
Receive/Transmit Noise Figure Curve



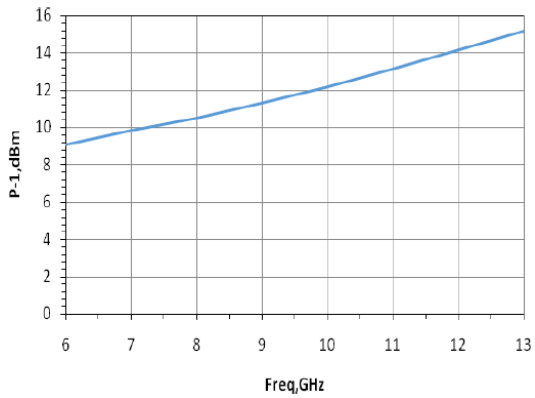
Receive/Transmit Input Standing Wave Curve



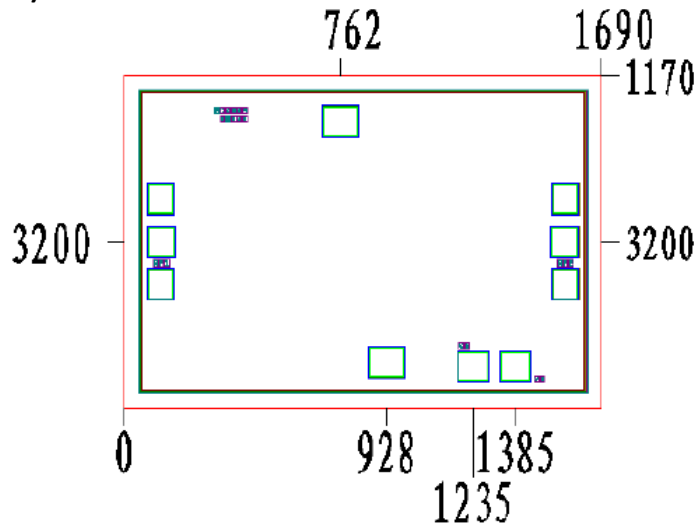
Receive/Transmit Output Standing Wave Curve



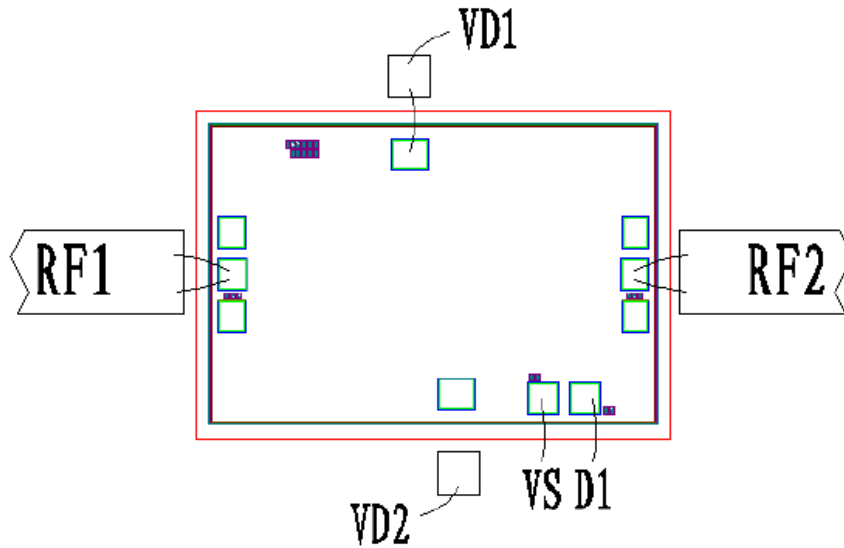
Receive/Transmit P-1 Curve



**Chip Dimensions (Unit :  $\mu\text{m}$ )**



**Chip Layout Diagram**



**Usage Description**

State	Conditions
RF1 Input, RF2 Output	VD1=5V, VD2=0V, VS=-5V, D1=H
RF2 Input, RF1 Output	VD1=0V, VD2=5V, VS=-5V, D1=L

Note, D1 uses TTL level control, for a 0/5V input signal, H represents 5V, L represents 0V.

Please see appendix A for details.