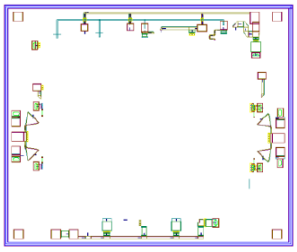
AMT1322

33 - 37GHz Transceiver Integrated Multi-Function Chip



Key Features :

- Receiver frequency range : 33 – 37GHz
- Receiver gain : 18dB
- Receiver noise figure : 3.6dB
- Receiver input/output standing wave : 1.3
- Transmitter frequency range : 33 – 37GHz
- Transmitter small signal gain : 17dB
- Transmitter output power at P-1 : 15dBm
- Transmitter input/output standing wave : 2
- Chip dimensions : 3mm x 2.5mm x 0.1mm
- Applications : wireless communication, transceiver module, radio telecommunication etc.

Description :

AMT1322 is a high performance transceiver multi-function chip, frequency range is 33 – 37GHz, receiver channel gain is 18dB, noise figure is 3.6dB, transmitter channel gain is 17dB, and transmitter output power at P-1 is 15dBm. 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
VD	Drain voltage	+7V	
Pin	Max. Input Signal Power	12dBm	
Tch	Operation Temperature	150°C	
Tm	Sintering Temperature	310°C	30s, N_2 protection
Tstg	Storage Temperature	-65 ~ +150°C	

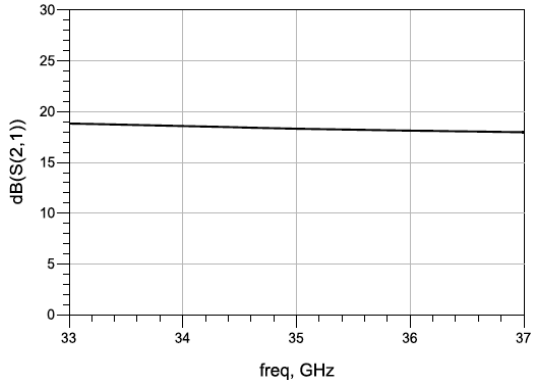
[1] Operation outside any of the Absolute Maximum Ratings may cause permanent device damage.

Electrical Characteristics (Ta = 25°C)

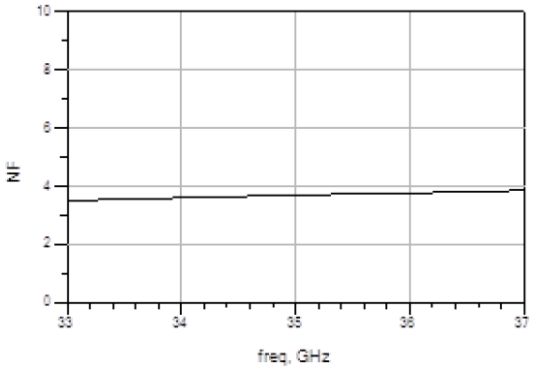
Symbol	Parameter	Test Conditions	Value			Unit
			Min	Typical	Max	
G_R	Receiver gain	Vd2 = +5V F : 33 ~ 37GHz SW1 = 0V SW2 = -5V	-	18	-	dB
NF	Receiver noise figure		-	3.6	-	dB
$VSWR_{RX}$	Receiver input standing wave		-	1.3	-	-
$VSWR_{RX}$	Receiver output standing wave		-	1.3	-	-
P_{R-1dB}	Receiver output power at P-1 point		-	2.5	-	dBm
I	Receiver current		-	32	-	mA
G_T	Transmitter power gain	Vd1 = +3V Vg = -0.5V F : 33 ~ 37GHz SW1 = -5V SW2 = 0V	-	17	-	dB
$VSWR_{TX}$	Transmitter input standing wave		-	2	-	-
$VSWR_{TX}$	Transmitter output standing wave		-	2	-	-
P_{T-1dB}	Transmitter output power at P-1 point		-	15	-	dBm
I	Transmitter static current		-	175	-	mA

Typical Performance

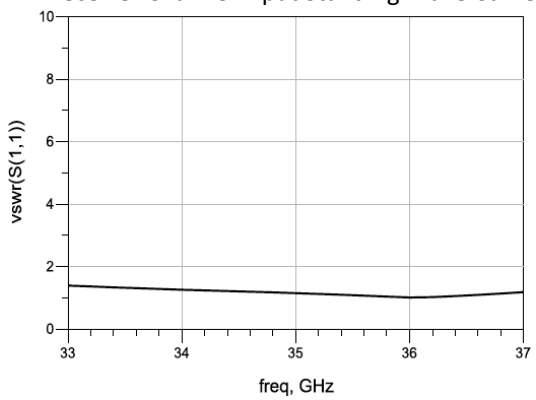
Receiver Channel Gain Curve



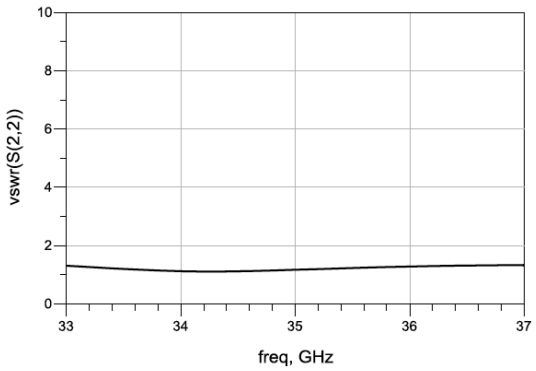
Receiver Channel Noise Figure Curve



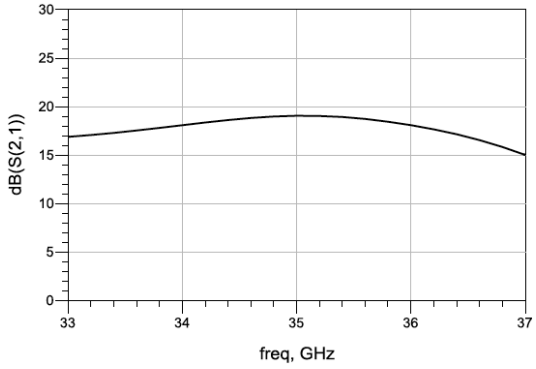
Receiver Channel Input Standing Wave Curve



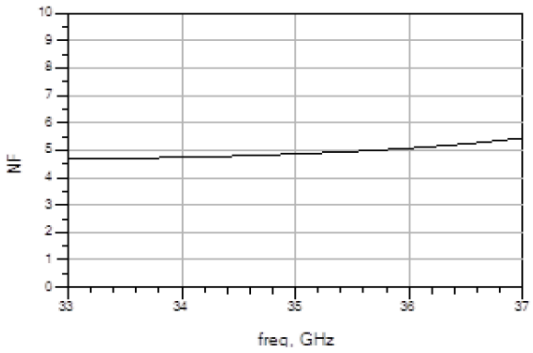
Receiver Channel Output Standing Wave Curve



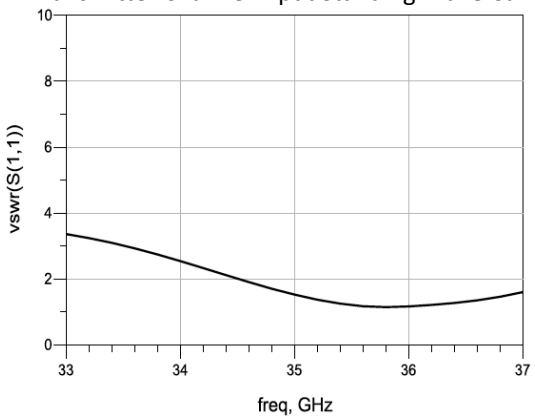
Transmitter Channel Gain Curve



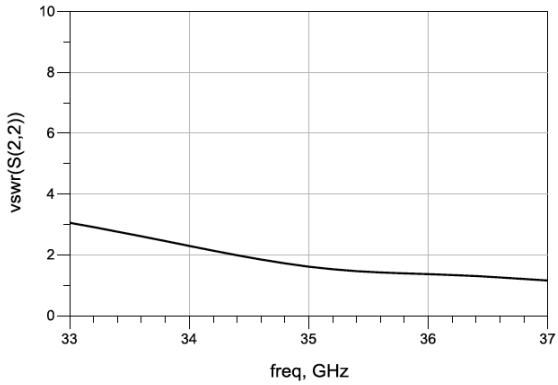
Transmitter Channel Noise Figure Curve



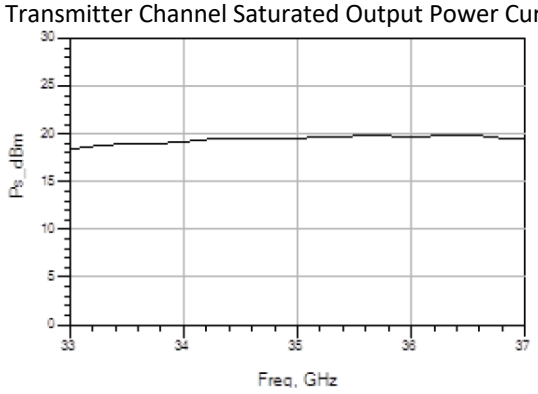
Transmitter Channel Input Standing Wave Curve



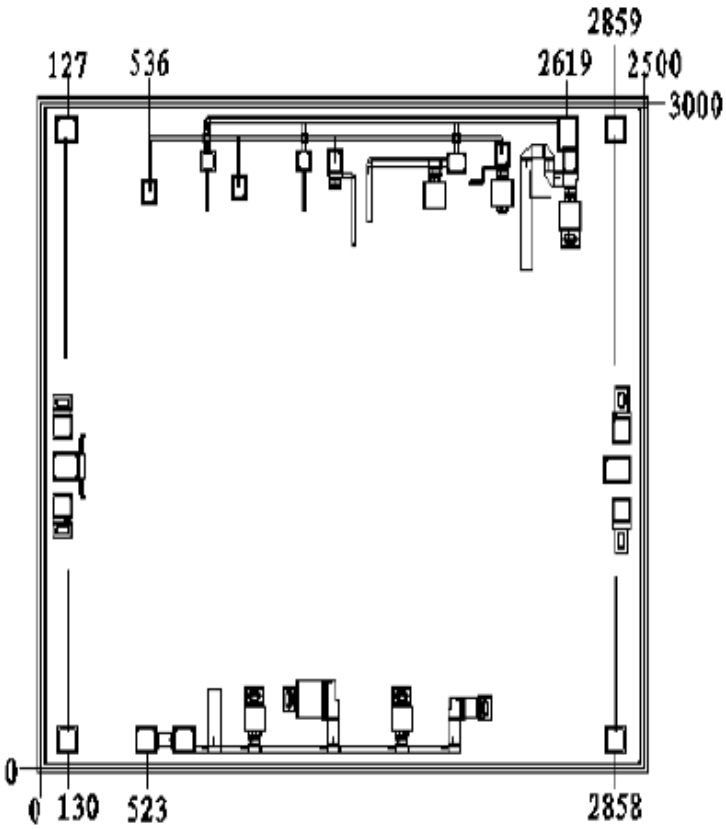
Transmitter Channel Output Standing Wave Curve



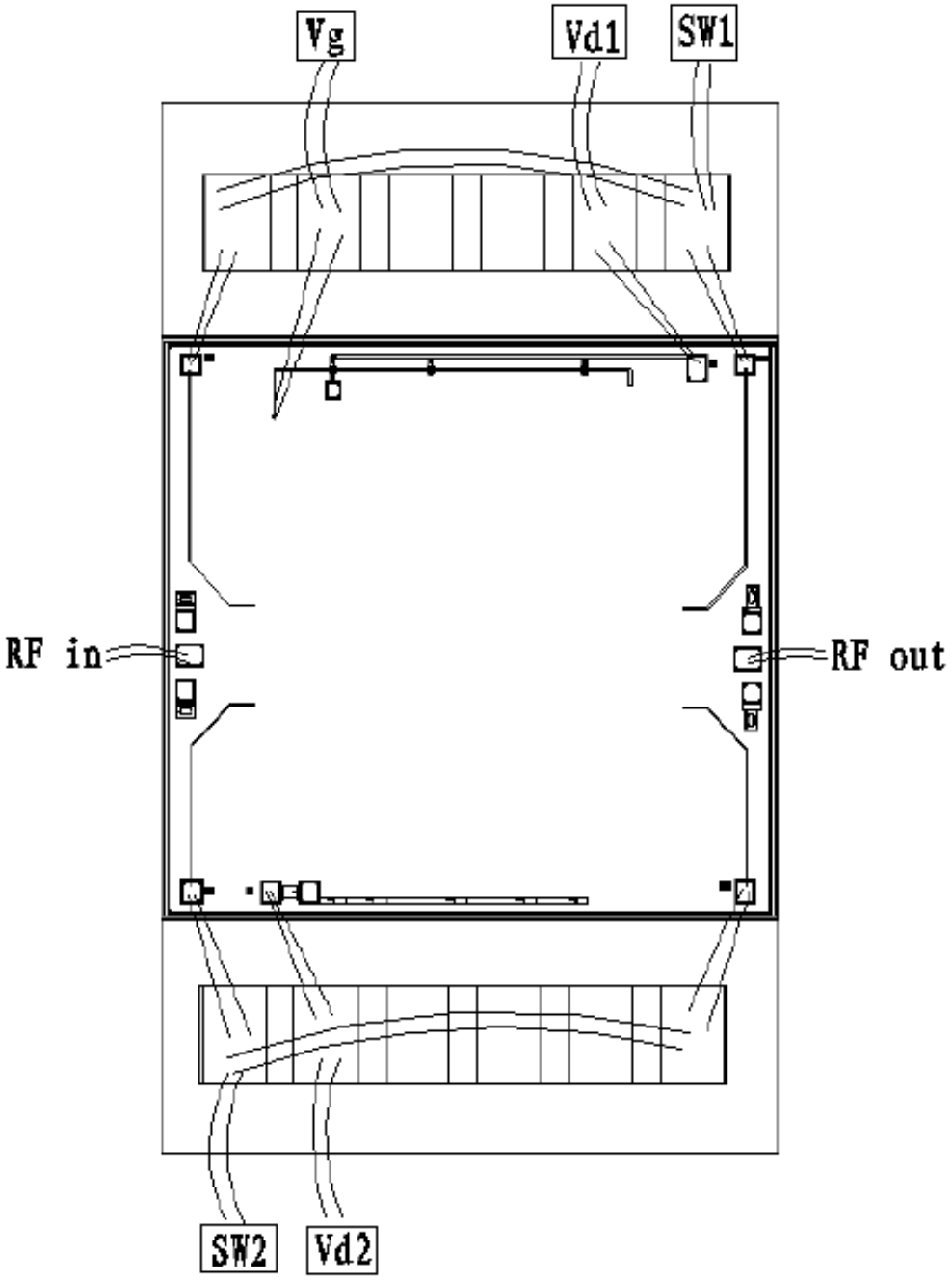
Transmitter Channel Saturated Output Power Curve



Chip Dimensions (Unit : μm)



Chip Layout Diagram



Usage Description

Operation State	Receive State	Transmit State
Voltage bias	Vd1 = 0V, Vg = 0V, Vd2 = 5V SW1 = 0V, SW2 = -5V	Vd1 = 3V, Vg = -0.5V, Vd2 = 0V SW1 = -5V, SW2 = 0V

Please see appendix A for details.