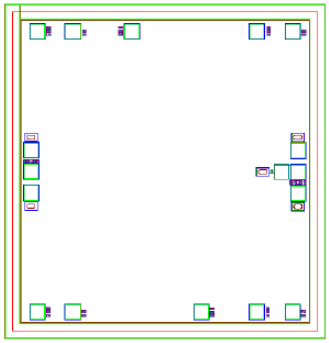
AMT1320

8.5 - 10.5GHz Transceiver Integrated Multi-Function Chip



Key Features :

- Frequency range : 8.5 – 10.5GHz
- Receiver gain : 10.5dB
- Receiver noise figure : 3dB
- Receive input/output standing wave : 1.5/1.5
- Receiver output power at P-1 : 9dBm
- Receiver power dissipation : 5V/14mA
- Transmitter gain : 7dB
- Transmit input/output standing wave : 1.5/1.5
- Transceiver output power at P-1 : 20.5dBm
- Transceiver power dissipation : 5V/100mA
- Switch control method : TTL
- Chip dimensions : 2.15mm x 2.25mm x 0.1mm
- Applications : wireless communication, transceiver module, radio telecommunication etc.

Description :

AMT1320 is a high performance transceiver multi-function chip, frequency range is 8.5 – 10.5GHz, it integrates switch and bi-directional power amplifier, receiver gain is 10.5dB, noise figure is 3dB, transmitter gain is 7dB, and transmitter output power at P-1 is 20.5dBm. 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	
VEE	Driver supply voltage	-6V	
Pin	Max. Input Signal Power	25dBm	
Tch	Operation Temperature	150°C	
Tm	Sintering Temperature	310°C	30s, N_2 protection
Tstg	Storage Temperature	-65 ~ +150°C	

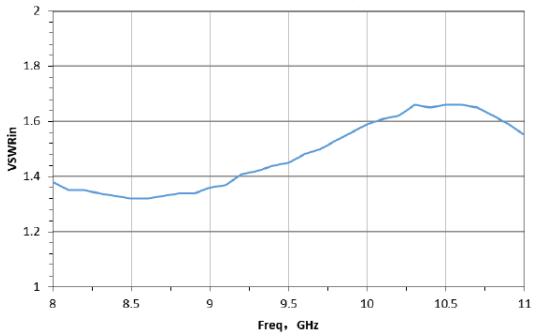
[1] Operation outside any of the Absolute Maximum Ratings may cause permanent device damage.

Electrical Characteristics (Ta = 25°C)

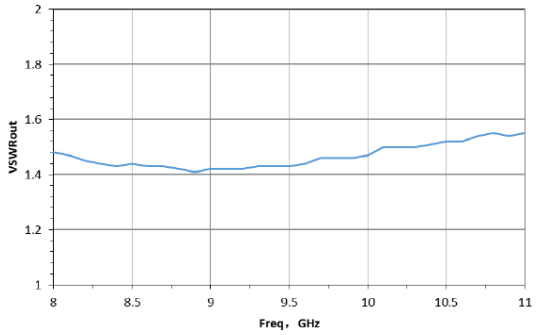
Symbol	Parameter	Test Conditions	Value			Unit
			Min	Typical	Max	
G_R	Receiver gain	F : 8.5 ~ 10.5GHz VD1 = 0V VD2 = +5V VEE = -5V SW = 0V	-	10.5	-	dB
NF	Receiver noise figure		-	3	-	dB
$VSWR_{RX}$	Receiver input standing wave		-	1.5	-	-
$VSWR_{RX}$	Receiver output standing wave		-	1.5	-	-
$P_{R\text{-}1dB}$	Receiver output power at P-1 point		-	9	-	dBm
G_T	Transmitter gain	F : 8.5 ~ 10.5GHz VD1 = +5V VD2 = 0V VEE = -5V SW = +5V	-	7	-	dB
$VSWR_{TX}$	Transmitter input standing wave		-	1.5	-	-
$VSWR_{TX}$	Transmitter output standing wave		-	1.5	-	-
$P_{T\text{-}1dB}$	Transmitter output power at P-1 point		-	20.5	-	dBm

Typical Performance

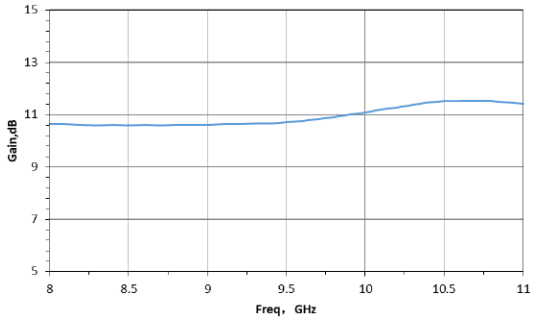
Receiver Input Standing Wave Curve



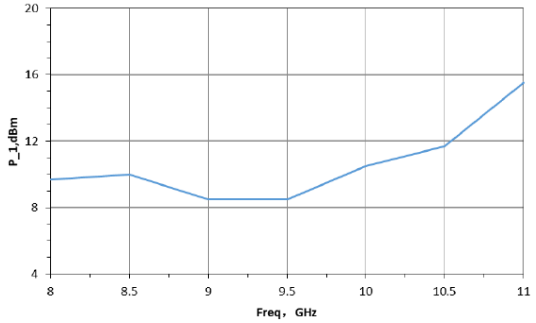
Receiver Output Standing Wave Curve



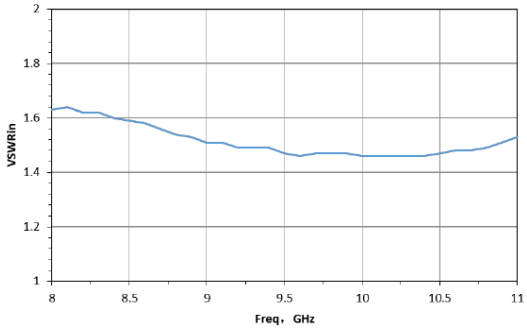
Receiver Gain Curve



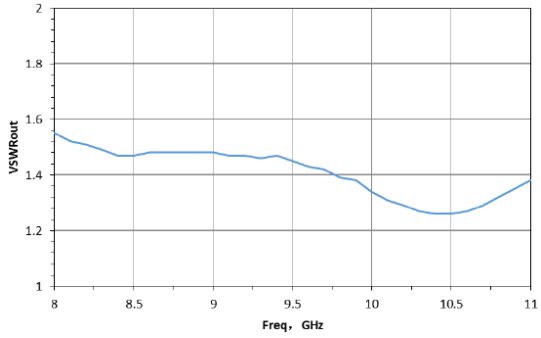
Receiver Output Power at P-1 Curve



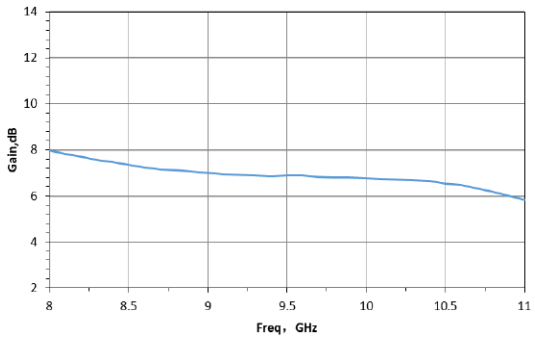
Transmitter Input Standing Wave Curve



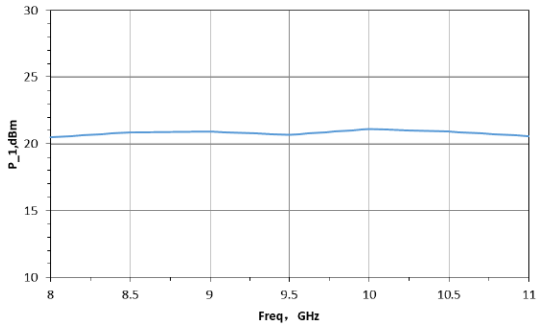
Transmitter Output Standing Wave Curve



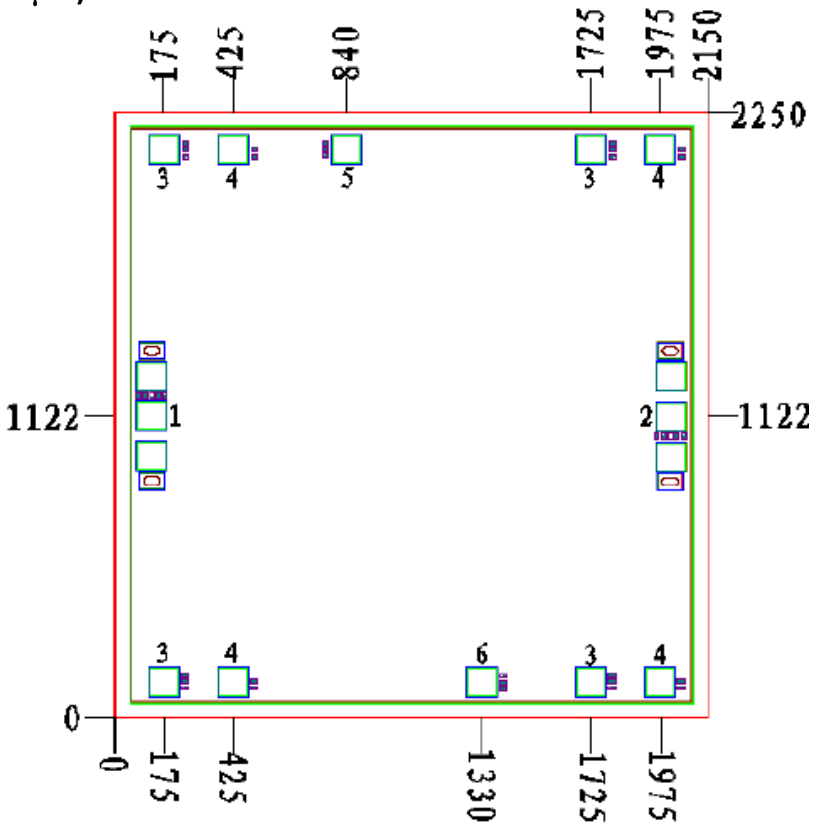
Transmitter Gain Curve



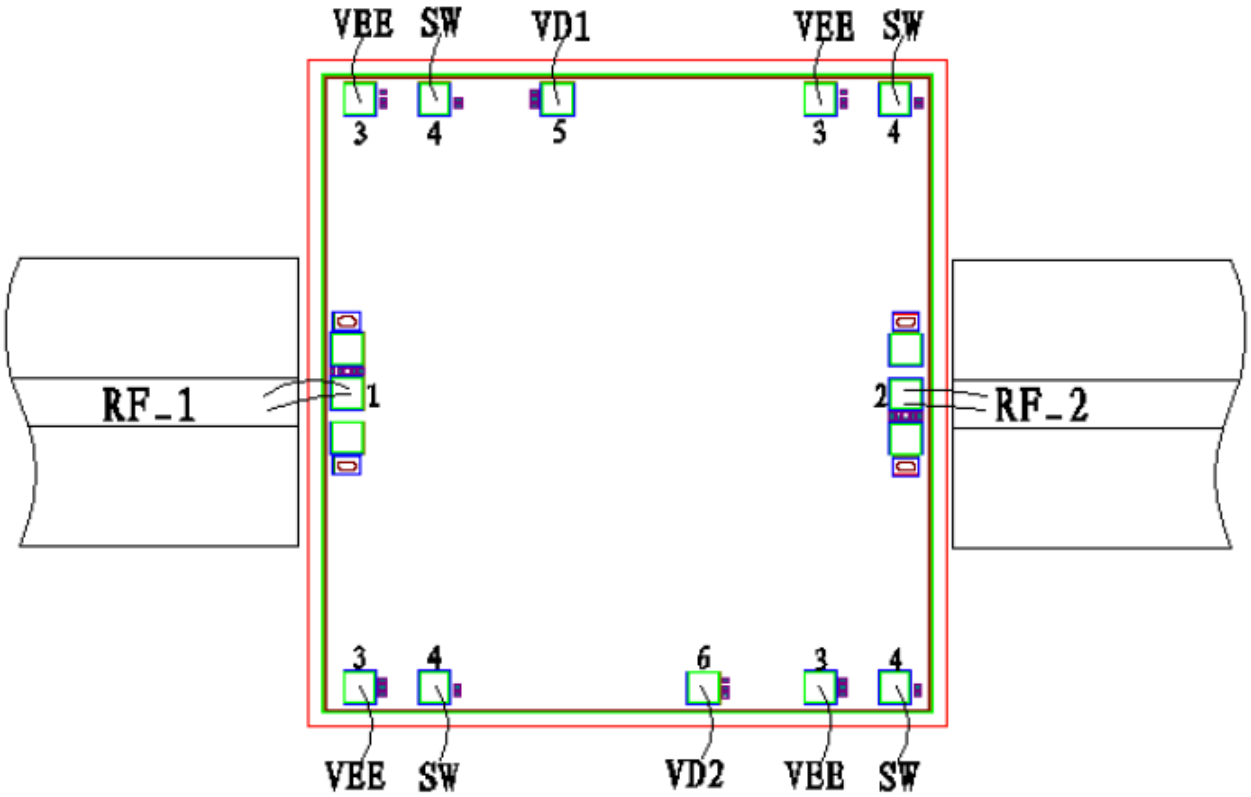
Transmitter Output Power at P-1 Curve



Chip Dimensions (Unit : μm)



Chip Layout Diagram



Usage Description

Symbol	Function Description	Dimensions
RF_1	Transmitter RF signal input port/Receiver RF signal output port, external connecting to 50Ω system.	100μm * 100μm
RF_2	Receiver RF signal input port/Transmitter RF signal output port, external connecting to 50Ω system.	100μm * 100μm
VEE	0V/-5V voltage control	100μm * 100μm
SW	0V/-5V voltage control	100μm * 100μm
VD1	Transmitter channel voltage bias	100μm * 100μm
VD2	Receiver channel voltage bias	100μm * 100μm

Please see appendix A for details.