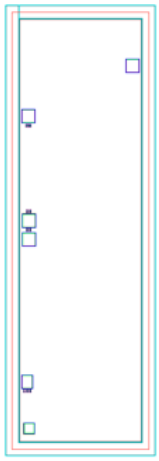
AMT1315

8 - 12GHz Transceiver Integrated Multi-Function Chip



Key Features :

- Receiver frequency : 8 – 12GHz
- Receiver gain : 24dB
- Receiver noise : 2.7dB
- Receiver clipper endurance power : 30dBm
- Receiver input/output standing wave : 1.8
- Transmitter frequency : 8 – 12GHz
- Transmitter insertion loss : 1.2dB
- Transmitter output power at P-1 : 31dBm
- Transmit input/output standing wave : 1.8
- Chip dimensions : 1.1mm x 3.5mm x 0.1mm
- Applications : wireless communication, transceiver module, radio telecommunication etc.

Description :

AMT1315 is a high performance transceiver multi-function chip, frequency range is 8 – 12GHz, it integrates switch, clipper, LNA, gain is 24dB, noise figure is 2.7dB, transmitter channel RF switching insertion loss is 1.2dB, and transmitter output power at P-1 is 31dBm. 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)

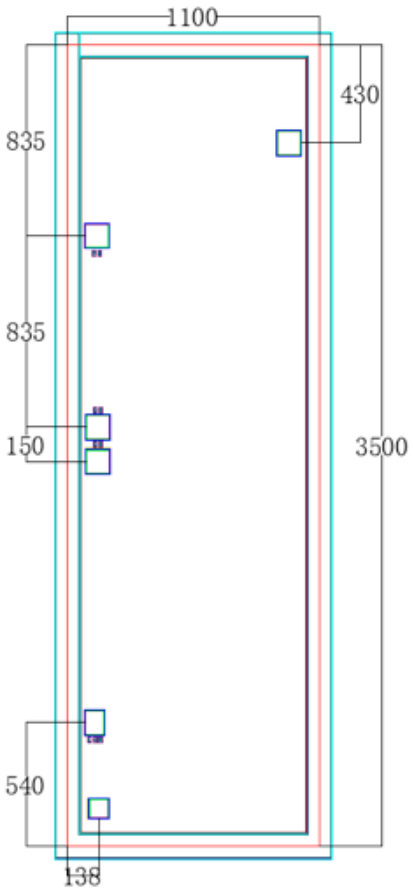
Symbol	Parameter	Value	Remark
VD	Drain voltage	+7V	
Pin	Max. Input Signal Power	12dBm	
Tch	Operation Temperature	150°C	
Tm	Sintering Temperature	310°C	30s, N_2 protection
Tstg	Storage Temperature	-65 ~ +150°C	

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

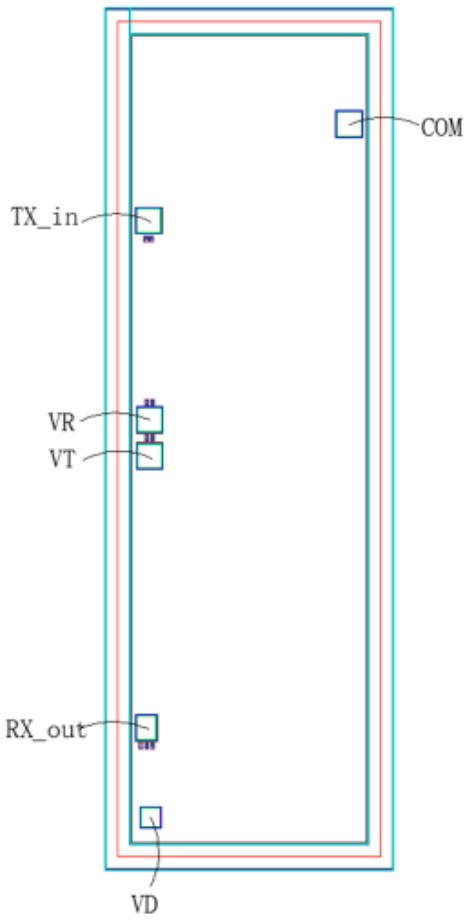
Electrical Characteristics (Ta = 25°C)

Symbol	Parameter	Test Conditions	Value			Unit
			Min	Typical	Max	
G_R	Receiver gain	VD = +5V F : 8 ~ 12GHz VR = 0V VT = -5V	-	24	-	dB
NF	Receiver noise figure		-	2.7	-	dB
$VSWR_{RX}$	Receiver input standing wave		-	1.8	-	-
$VSWR_{RX}$	Receiver output standing wave		-	1.8	-	-
$P_{R\text{-}1dB}$	Receiver output power at P-1 point		-	8	-	dBm
I	Receiver current		-	32	-	mA
IL	Transmitter insertion loss	VD = 0V VG = -0.5V F : 8 ~ 12GHz VR = -5V, VT = 0V	-	1.2	-	dB
$VSWR_{TX}$	Transmitter input standing wave		-	1.8	-	-
$VSWR_{TX}$	Transmitter output standing wave		-	1.8	-	-
$P_{T\text{-}1dB}$	Transmitter output power at P-1 point		-	31	-	dBm

Chip Dimensions (Unit : μm)



Chip Layout Diagram



Usage Explanation

Operation State	Receive State	Transmit State
Voltage bias	VD = 5V, VR = 0V, VT = -5V	VD = 0V, VR = -5V, VT = 0V

Note, use either one of SW1 / SW2.

Please see appendix A for details.