Preliminary

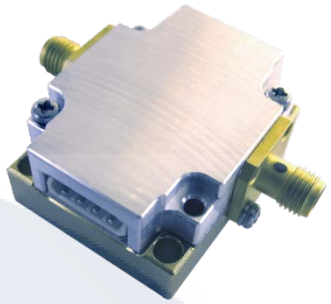
Pulse Amp Module RRP162168050-05A

Product Features

- Frequency from 16.2 ~ 16.8 GHz
- GaN HEMT
- 50 Ohm Input/Output impedance
- High efficiency

Applications

- Radar System



Description

The RRP162168050-05A is designed for Radar system application frequencies from 16.2 ~ 16.8 GHz.
This module uses GaN HEMT technology which performs high breakdown voltage, wide bandwidth and high efficiency.

Electrical Specifications @ V_{DS} =50V, Vgs = -3V, Idq=100mA, T=25°C, 50Ω System, Input Power +42dBm

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Operating Frequency	GHz	16.2	-	16.8	f_O
Operating Bandwidth	MHz	-	600	-	BW
Output Pulse Power	dBm	46.5	47	-	P_O
Power Gain	dB	-	5	-	G_P
Gain Flatness	dB	-	±1.0	-	ΔG_P
Duty Cycle	%	-	6	-	DC
Pulse Width	us	-	7.5	-	PW
Drain Efficiency	%	25	30	-	E_{ff}
Amplitude Pulse Droop	dB	-	0.5	1.0	Droop
Harmonics 1 to N	dBc	-	40	-	H_N
Spurious Level	dBc	-	60	-	Spur
Rise Time	ns	-	-	50	t_r
Fall Time	ns	-	-	50	t_f
Input Return Loss	dB	-	-	-5	RL
Operating Voltage V_{DS}	V		50		V_{DS}
Operating Voltage V_{GS}	V		-3		V_{GS}

∗ Test Pulse conditions = 7.5us, 6%
∗ Above electrical specifications is measured by connecting electrolytic condenser 10,000uF to DC. Please make sure that electrolytic condenser is connected properly while testing the module.
∗ Custom design available

Absolute Maximum Ratings

PARAMETER	UNIT	RATING	SYMBOL
Operating Junction Temperature	°C	225	T_J
Operating Flange Temperature	°C	-30 ~ 65	T_C
Storage Temperature	°C	-30 ~ 125	T_{STG}

Operating Voltages

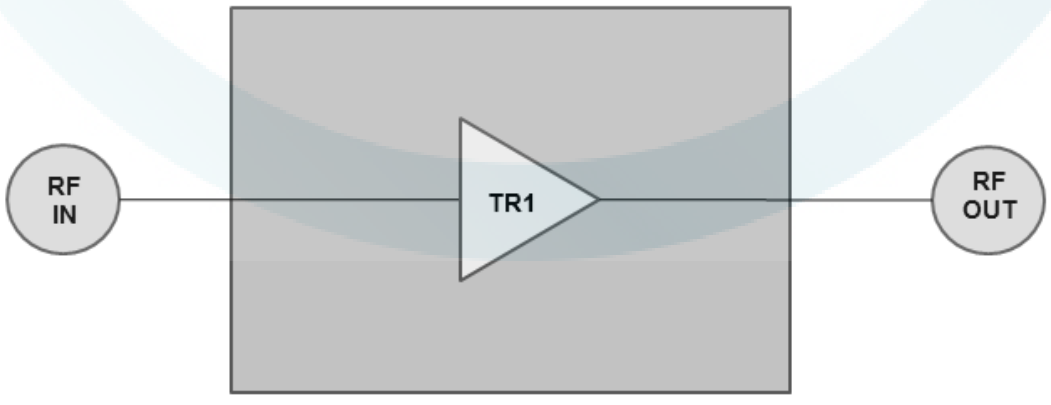
PARAMETER	UNIT	NOMINAL VOLTAGE	VOLTAGE ACCURACY	SYMBOL
Drain-Source Voltage	V	50	± 2%	V_{DS}
Gate-Source Voltage	V	-3(ON), -8(OFF)	± 2%	V_{GS}

Power Supply

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Drain-Source Current(AVG)	A	-	0.5	1.5	I_{DS}

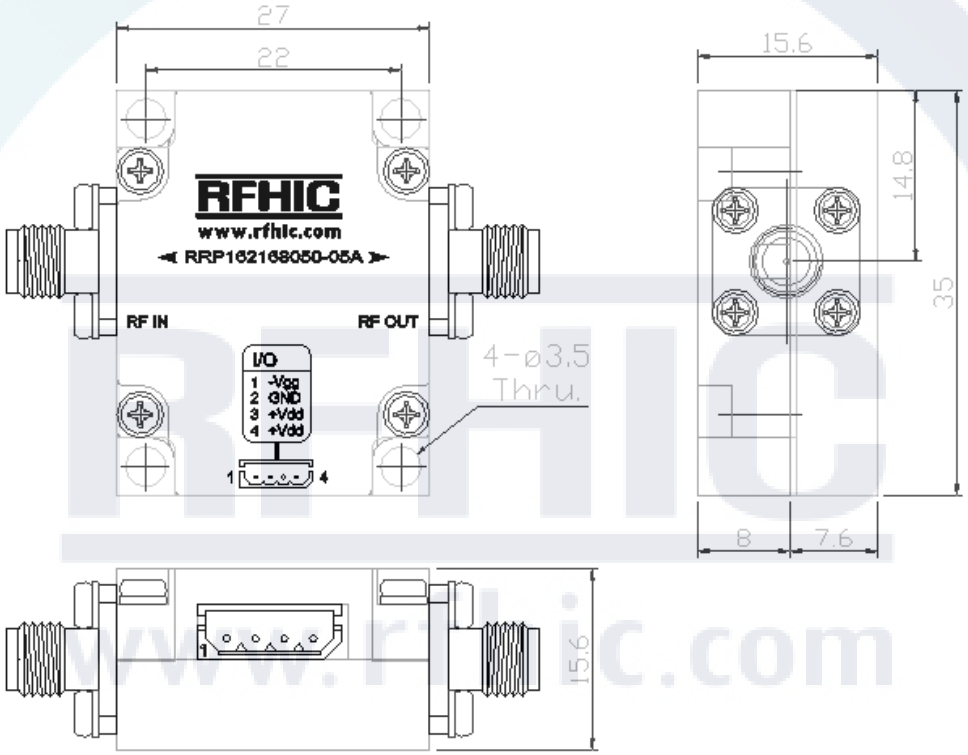
* Duty Cycle 6%, Pulse Width 7.5us

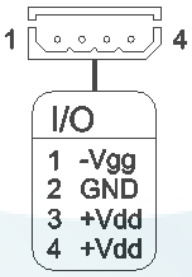
Block diagram



Mechanical Specifications

PARAMETER	UNIT	TYP
Dimension	㎜	27 x 35 x 15.6 (W x L x H)
RF Connector	-	SMA Fe-Male: RF Input
		SMA Fe-Male: RF Output





Pin No	Function	Description
1	-Vgg	ON -4V / OFF: less than -5V
2	GND	Ground
3	+Vdd	+50V
4	+Vdd	

Precautions

This product is a Gallium Nitride Transistor.
The Gallium Nitride Transistor requires a Negative Voltage Bias which operates alongside a Positive Voltage Bias. These Biases are applied in accordance to the Sequence during Turn-On and Turn-Off.
The Pallet Amplifier does not have a built-in Bias Sequence Circuit. Therefore, users need to either apply positive voltages and negative voltages in the required sequence, or add an external Bias Circuit to this Amplifier.
The required sequence for power supply is as follows.

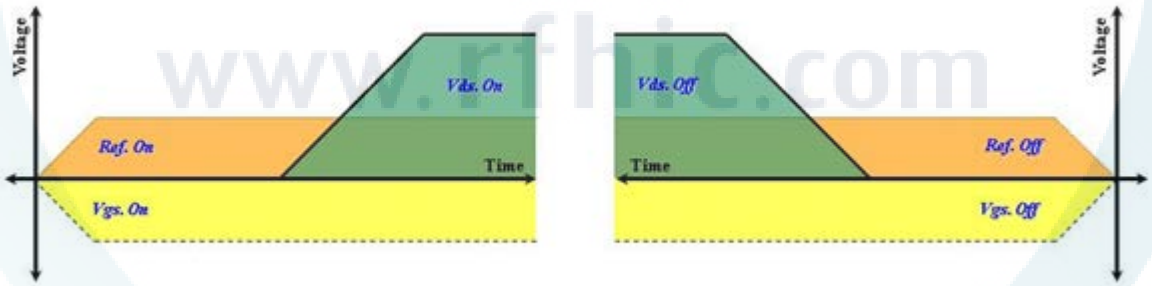
During Turn-On

1. Connect GND.
2. Apply V_{GS}.
3. Apply V_{DS}.
4. Turn on the V_{GS}, and then, turn on the V_{DS}.
5. Apply the RF Power.

During Turn-Off

1. Turn off RF power.
2. Turn off V_{DS}, and then, turn off the V_{GS}.
3. Remove all connections.

Turn On



- Sequence Timing Diagram -

Revision History

Part Number	Release Date	Version	Modification	Data Sheet Status
RRP162168050-05A	2016.03.23	0.1	-	Preliminary