

Pulse Amp Module RRP33250-11



Product Features

- Frequency from 3.1 ~ 3.5GHz
- GaN HEMT
- 50 Ohm Input/Output impedance
- High efficiency

Applications

- Radar system



Description

The RRP33250-11 is designed for Radar system application frequencies from 3.1 ~ 3.5GHz. This module uses GaN HEMT technology which performs high breakdown voltage, wide bandwidth and high efficiency.

Electrical Specifications @ $V_{DS}=48V$, $T=25^{\circ}C$, 50Ω System

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Operating Frequency	MHz	3100	-	3500	f_o
Operating Bandwidth	MHz	-	400	-	BW
Output Pulse Power	W	220	250	275	P_o
Input Pulse Power	dBm	-	23	-	P_i
Power Gain	dB	30.42	31	31.39	G_P
Gain Flatness	dB	-	-	1.0	ΔG_P
Duty Cycle	%	-	-	20	DC
Pulse Width	us	-	-	500	PW
Efficiency	%	33	40	-	E_{ff}
Amplitude Pulse Droop	dB	-	0.5	1.0	Droop
Harmonics 1 to N	dBc	35	-	-	H_N
Spurious Level	dBc	60	-	-	Spur
Rise Time	ns	-	-	50	t_r
Fall Time	ns	-	-	50	t_f
Off Isolation(Gate Off State)	dBc	50	-	-	$\Delta\phi$

* Test Pulse conditions = 100us, 10%

* Above electrical specifications is measured by connecting electrolytic condenser 1,000uF 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
Gate-Source Voltage	V	-10 ~ 0	V _{GS1, 2}
Drain- Source Voltage	V	110	V _{DS}
Gate Current	mA	70	I _G
Thermal Resistance	°C/W	0.36	R _{TH(JC)}
Operating Junction Temperature	°C	225	T _J
Operating Flange Temperature	°C	-20 ~ 100	T _C
Storage Temperature	°C	-50 ~ 150	T _{STG}

Operating Voltages

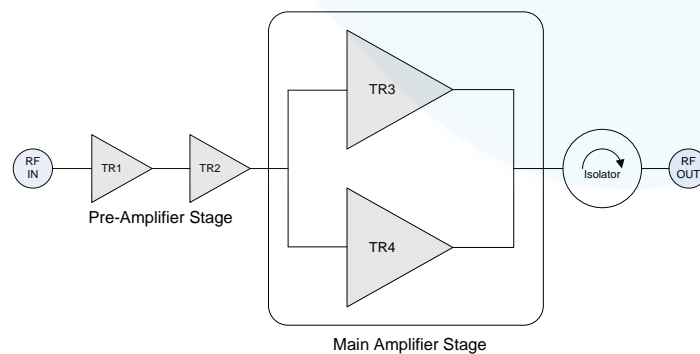
PARAMETER	UNIT	NOMINAL VOLTAGE	VOLTAGE ACCURACY	SYMBOL
Drain-Source Voltage	V	48	± 5%	V _{DS}
Gate-Source Voltage	V	-4(ON) , -8(OFF)	± 5%	V _{GS1}
Gate-Source Voltage	V	-4(ON) , -8(OFF)	± 5%	V _{GS2}

Power Supply

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Drain-Source Current(AVG)	A	-	-	-	I _{DS}

* Duty Cycle 10%, Pulse Width 100us

Block diagram



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Precautions

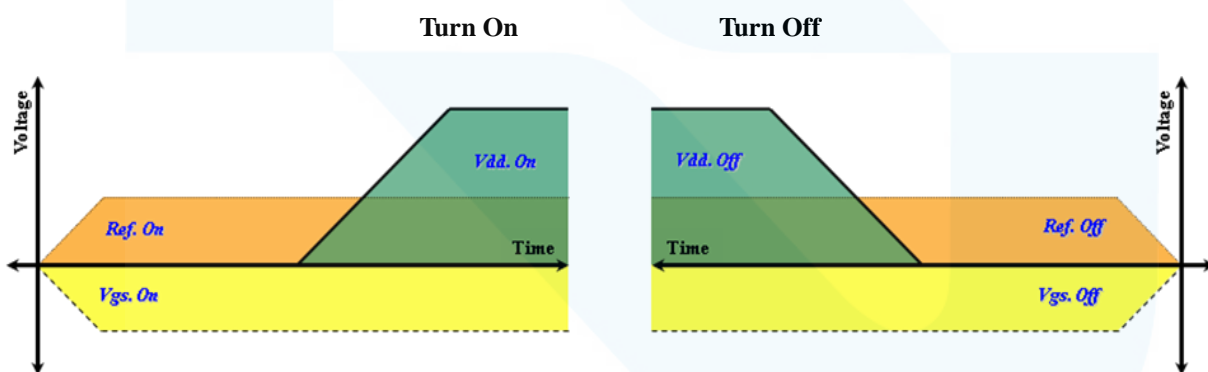
This product is a Pulse Amplifier based on a Gallium Nitride Transistor.
 The Gallium Nitride Transistor requires a Negative Voltage Bias which operates alongside a Positive Voltage Bias. These Biases are applied in accordance to the Sequence during Turn-On and Turn-Off.
 The Pallet Amplifier does not 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 -4V to V_{GS1} and V_{GS 2}.
3. Apply 48V to V_{DS}.
4. Turn on the V_{GS1} and V_{GS 2}, 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_{GS1} and V_{GS 2}.
3. Remove all connections.



- Sequence Timing Diagram -

Mechanical Specifications

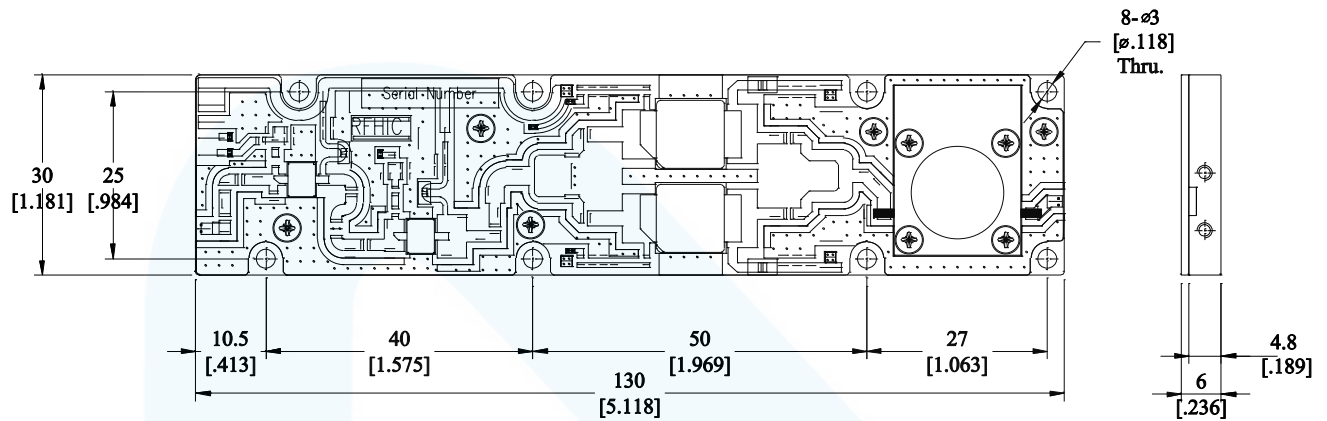
PARAMETER	UNIT	TYP
Mass	kg	0.076
Dimension	mm	130 x 30 x 10
RF Connector	-	50 ohm Pad(SMA Connector available) : RF Input
		50 ohm Pad(SMA Connector available): RF Output
DC Connector	-	DC Pad : V _{DS}
		DC Pad : V _{GS1} and V _{GS 2}
		DC Pad : GND

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Outline Drawing

* Unit: mm[inch] | Tolerance ± 0.2 [.008]



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Revision History

Part Number	Release Date	Version	Modification	Data Sheet Status
RRP33250-11	2018.7.23	2.1	Modified Specification	
RRP33250-11	2015.8.26	2.0	Format Revision	
RRP33250-11	2011.10.2	1.0	-	-



Certification

This product is manufactured by a company that is certified for the AS9100D quality management system.

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