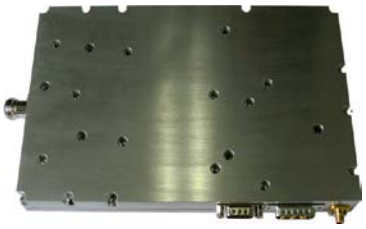
Pulse Amp Module RRP291K0-10

Product Features

- Frequency from 2.7 ~ 3.1GHz
- GaN HEMT
- 50 Ohm Input/Output impedance
- High efficiency

Applications

- Radar system



Description

The RRP291K0-10 is designed for Radar system application frequencies from 2.7 ~ 3.1GHz.
This module uses GaN HEMT technology which performs high breakdown voltage, wide bandwidth and high efficiency.

Electrical Specifications @ V_{DS} =50V, T=25°C, 50Ω System

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Operating Frequency	MHz	2700	-	3100	f_O
Operating Bandwidth	MHz	-	400	-	BW
Output Pulse Power	W	1000	1100	-	P_O
Input Pulse Power	dBm	-	0	-	P_I
Power Gain	dB	60	60.5	-	G_P
Gain Flatness	dB	-	-	±1.0	ΔG_P
Duty Cycle	%	-	-	20	DC
Pulse Width	us	-	-	500	PW
Efficiency	%	30	35	-	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	-	-	200	t_r
Fall Time	ns	-	-	200	t_f
Input VSWR	dB	-	-	1.5:1	VSWR
Output VSWR	dB	-	-	1.5:1	VSWR
Switching Time	us	-	0.5	1	t_{SW}
Phase Deviation	°	-20	-	20	Δφ

∗ Test Pulse conditions = 100us, 10%
∗ 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 ~ 75	T_C
Storage Temperature	°C	-30 ~ 125	T_{STG}

Operating Voltages

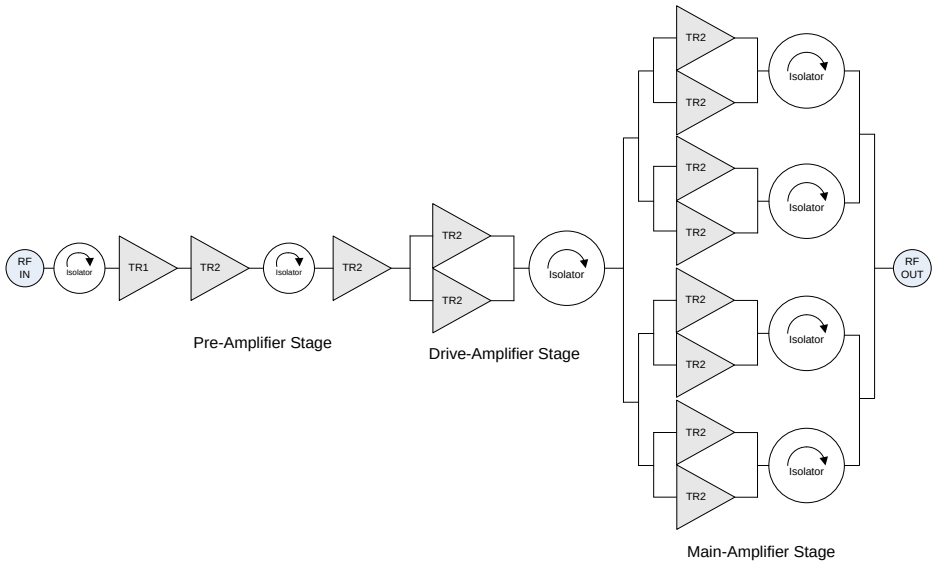
PARAMETER	UNIT	NOMINAL VOLTAGE	VOLTAGE ACCURACY	SYMBOL
Drain-Source Voltage	V	50	± 5%	$V_{DS}1$
Drain-Source Sub Voltage	V	12	± 5%	$V_{DS}2$
Shutdown Voltage	V	TTL Low(0V) : PA ON, TTL High(5V) : PA OFF		$V_{DC}1$
On/Off Control Voltage	V	TTL Low(0V) : PA ON, TTL High(5V) : PA OFF		$V_{DC}2$

Power Supply

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Drain-Source Current(AVG)	A	-	14	20	$I_{DS}1$
Drain-Source Sub Current(AVG)	A	-	0.12	0.2	$I_{DS}2$

* Duty Cycle 20%, Pulse Width 200us

Block diagram

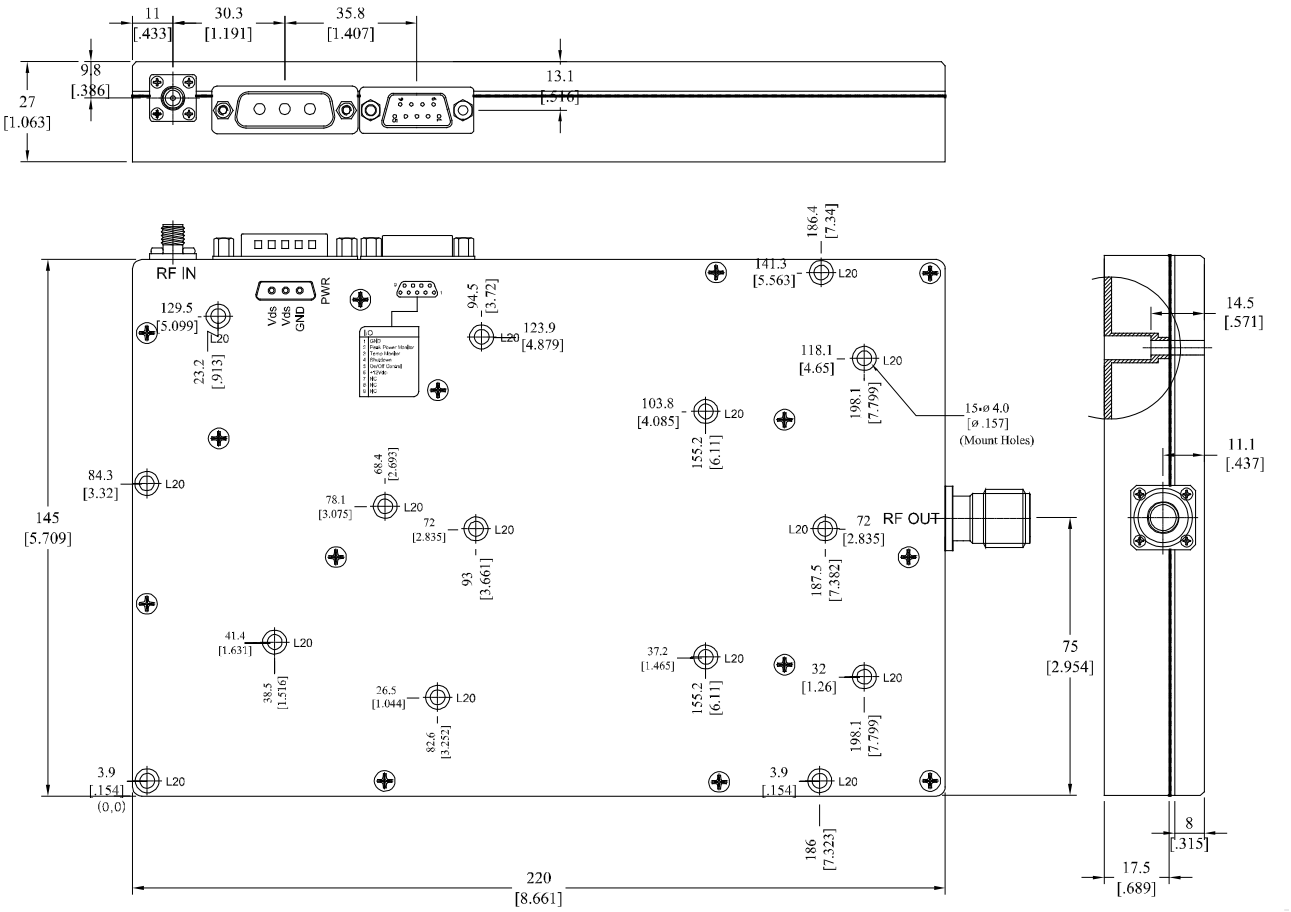


Mechanical Specifications

PARAMETER	UNIT	TYP
Mass	kg	1.3
Dimension	㎜	220 x 145 x 27
RF Connector	-	SMA Female : RF Input
		N-type Female : RF Output
DC Connector	-	3W3 connector : Supply
		9Pin D-Sub : Control

Outline Drawing

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



Pin Description

Supply : 3W3 Connector			
Pin No	**Description**	**Pin No**	**Description**
1 & 2	$V_{DS}1$ (+50V)	3	GND
Control : 9Pin D-Sub			
Pin No	**Description**	**Pin No**	**Description**
1	GND	6	$V_{DS}2$ (+12V)
2	Peak Power Monitor	7	NC
3	Temp Monitor	8	NC
4	Shutdown	9	NC
5	On/Off Control	-	-

Revision History

Part Number	Release Date	Version	Modification	Data Sheet Status
RRP291K0-10	2012.12.28	1.0	Version update	-
RRP291K0-10	2012.9.6	0.1	-	Preliminary
-	-	-	-	-