

## Product Features

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

## Applications

- Radar system



## Description

The RRP27312K5-30 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 @ $V_{DS1}=50V$ , $V_{DS2}=6V$ , $T=25^{\circ}C$ , 50 $\Omega$ System

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Operating Frequency	MHz	2700	-	3100	$f_o$
Operating Bandwidth	MHz	-	400	-	BW
Output Pulse Power	W	2500	2800	-	$P_o$
Input Pulse Power	dBm	-	34.5	-	$P_i$
Power Gain	dB	-	30	-	$G_p$
Gain Flatness	dB	-	-	$\pm 0.5$	$\Delta G_p$
Duty Cycle	%	-	5	10	DC
Pulse Width	us	1	50	100	PW
Efficiency	%	35	40	-	$E_{ff}$
Amplitude Pulse Droop	dB	-	0.5	1.0	Droop
Harmonics 1 to N	dBc	40	-	-	$H_N$
Spurious Level	dBc	70	-	-	Spur
Rise Time	ns	-	-	100	$t_r$
Fall Time	ns	-	-	100	$t_f$
Input VSWR	dB	-	-	1.5:1	VSWR
Output VSWR	dB	-	-	1.5:1	VSWR
Switching Time	us	-	-	0.5	$t_{sw}$
Phase Deviation	$^{\circ}$	-20	-	20	$\Delta\phi$

\* Test Pulse conditions = 100us, 10%

\* Custom design available

## Absolute Maximum Ratings

PARAMETER	UNIT	RATING	SYMBOL
Operating Flange Temperature	°C	-20 ~ 85	T <sub>C</sub>
Storage Temperature	°C	-40 ~ 125	T <sub>STG</sub>

## Operating Voltages

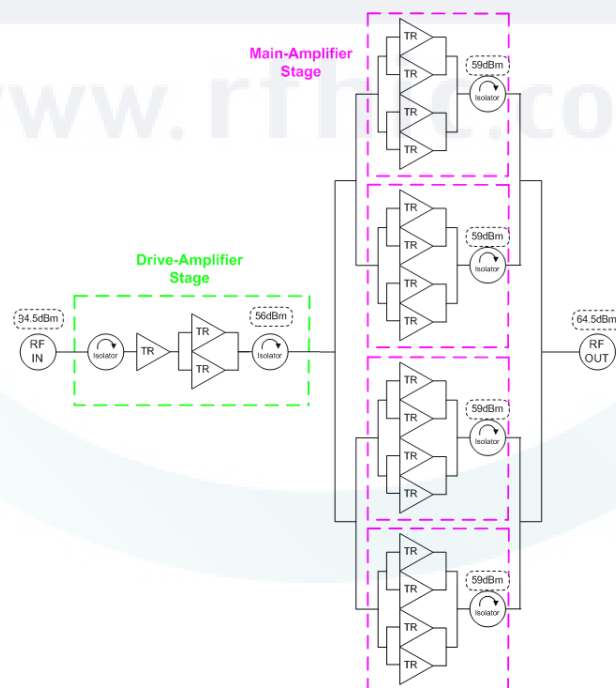
PARAMETER	UNIT	NOMINAL VOLTAGE	VOLTAGE ACCURACY	SYMBOL
Drain-Source Voltage	V	50	± 2%	V <sub>DS1</sub>
Drain-Source Sub Voltage	V	6	± 2%	V <sub>DS2</sub>
Shutdown Voltage	V	TTL Low(0V) : PA OFF, TTL High(5V) : PA ON		V <sub>DC1</sub>
On/Off Control Voltage	V	TTL Low(0V) : PA OFF, TTL High(5V) : PA ON		V <sub>DC2</sub>
Peak Monitor Voltage	V	1.9V@2.9GHz, 64dBm (dB/20mV)		-
Temp Monitor Voltage	V	0.75V@25°C (1°C/0.01V)		-

## Power Supply

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Drain-Source Current(AVG)	A	-	14	16	I <sub>DS1</sub>
Drain-Source Sub Current(AVG)	mA	-	50	100	I <sub>DS2</sub>

\* Duty Cycle 10%, Pulse Width 100us

## Block diagram

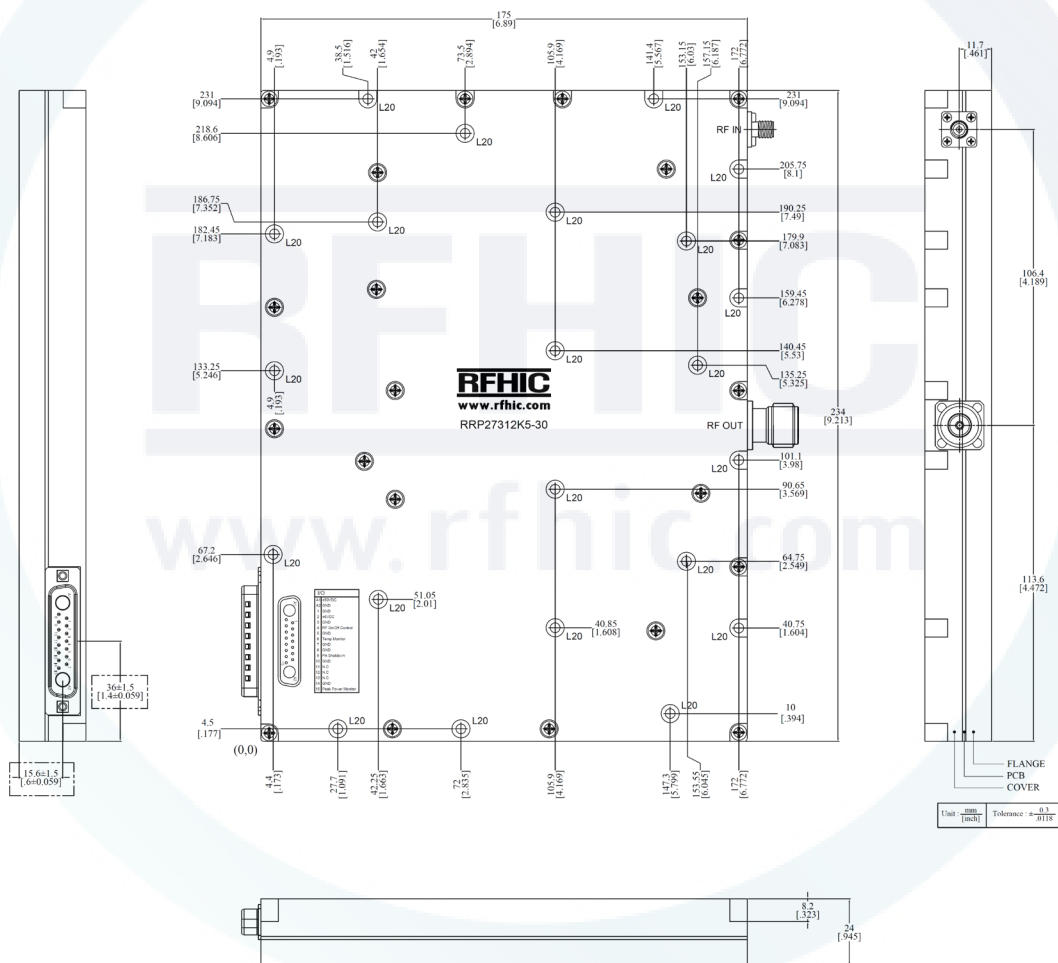


## Mechanical Specifications

PARAMETER	UNIT	TYP
Mass	kg	1.8(TBD)
Dimension	mm	175x234x24(TBD)
RF Connector	-	SMA Female : RF Input
		N Female : RF Output
DC Connector	-	17W2 Combo Connector : Supply and Control

## Outline Drawing

\* Unit: mm[inch] | Tolerance  $\pm 0.3$ [.0118]



## Pin Description

Supply : 17W2 Combo Connector			
Pin No	Description	Pin No	Description
A1	+50V (V <sub>Ds1</sub> )	8	GND
A2	GND	9	PA Shutdown
1	GND	10	GND
2	+6V (V <sub>Ds2</sub> )	11	N.C
3	GND	12	N.C
4	Pulse On/Off Control	13	N.C
5	GND	14	GND
6	Temp Monitor	15	Peak Power Monitor
7	GND	-	-

\* Temp Monitor (25°C=0.75V, 0.01V/1°C)

\* Peak Power Monitor (1dB/20mV)

### Revision History

Part Number	Release Date	Version	Modification	Data Sheet Status
RRP27312K5-20	2016.07.15	0.1	-	Preliminary
RRP27312K5-20	2017.11.20	0.2	-	Preliminary



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