

Preliminary
Pulse Amp Pallet
RRP07093K0-30



Product Features

- Frequency from 750~900MHz
- GaN HEMT
- 50 Ohm Input/Output impedance
- High efficiency

Applications

- Radar system

Description

The RRP07093K0-30 is designed for Radar system application frequencies from 750~900MHz. This module uses GaN HEMT technology which performs high breakdown voltage, wide bandwidth and high efficiency.

Electrical Specifications @ $V_{DS1}=50V, V_{DS2}=6V, T_c=40^{\circ}C, 50\Omega$ System

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Operating Frequency	MHz	750	-	900	f_o
Operating Bandwidth	MHz	-	150	-	BW
Output Pulse Power	W	3000	4000	-	P_o
Input Pulse Power	dBm	-	35	-	P_i
Power Gain	dB	-	31	-	G_p
Gain Flatness	dB	-	-	± 0.5	ΔG_p
Duty Cycle	%	-	-	2	DC
Pulse Width	us	-	-	10	PW
Efficiency	%	50	60	-	E_{ff}
Amplitude Pulse Droop	dB	-	-	0.4	Droop
Harmonics 1 to N	dBc	25	-	-	H_N
Spurious Level	dBc	60	-	-	Spur
Rise Time	ns	-	-	100	t_r
Fall Time	ns	-	-	100	t_f
Input VSWR	dB	-	-	2:1	VSWR
Output VSWR	dB	-	-	2:1	VSWR
Switching Time	us	-	-	1.0	t_{sw}
Phase Deviation	$^{\circ}$	-15	-	+15	$\Delta\phi$

* Test Pulse conditions = 10us, 2%
 * Custom design available

Absolute Maximum Ratings

PARAMETER	UNIT	RATING	SYMBOL
Operating Flange Temperature	°C	-20 ~ 85	T _c
Storage Temperature	°C	-40 ~ 105	T _{STG}

Operating Voltages

PARAMETER	UNIT	NOMINAL VOLTAGE	VOLTAGE ACCURACY	SYMBOL
Drain-Source Voltage	V	50	± 2%	V _{DS1}
Drain-Source Sub Voltage	V	6	± 2%	V _{DS2}
Drain Enable Voltage	V	TTL Low(0V) : PA OFF, TTL High(5V) : PA ON		
Pulse On/Off Control Voltage	V	TTL Low(0V) : PA OFF, TTL High(5V) : PA ON		
Peak Monitor Voltage	V	1.5V@825MHz, 65dBm (25mV/dB)		
Temp Monitor Voltage	V	0.75V@25°C (0.01V /1°C)		

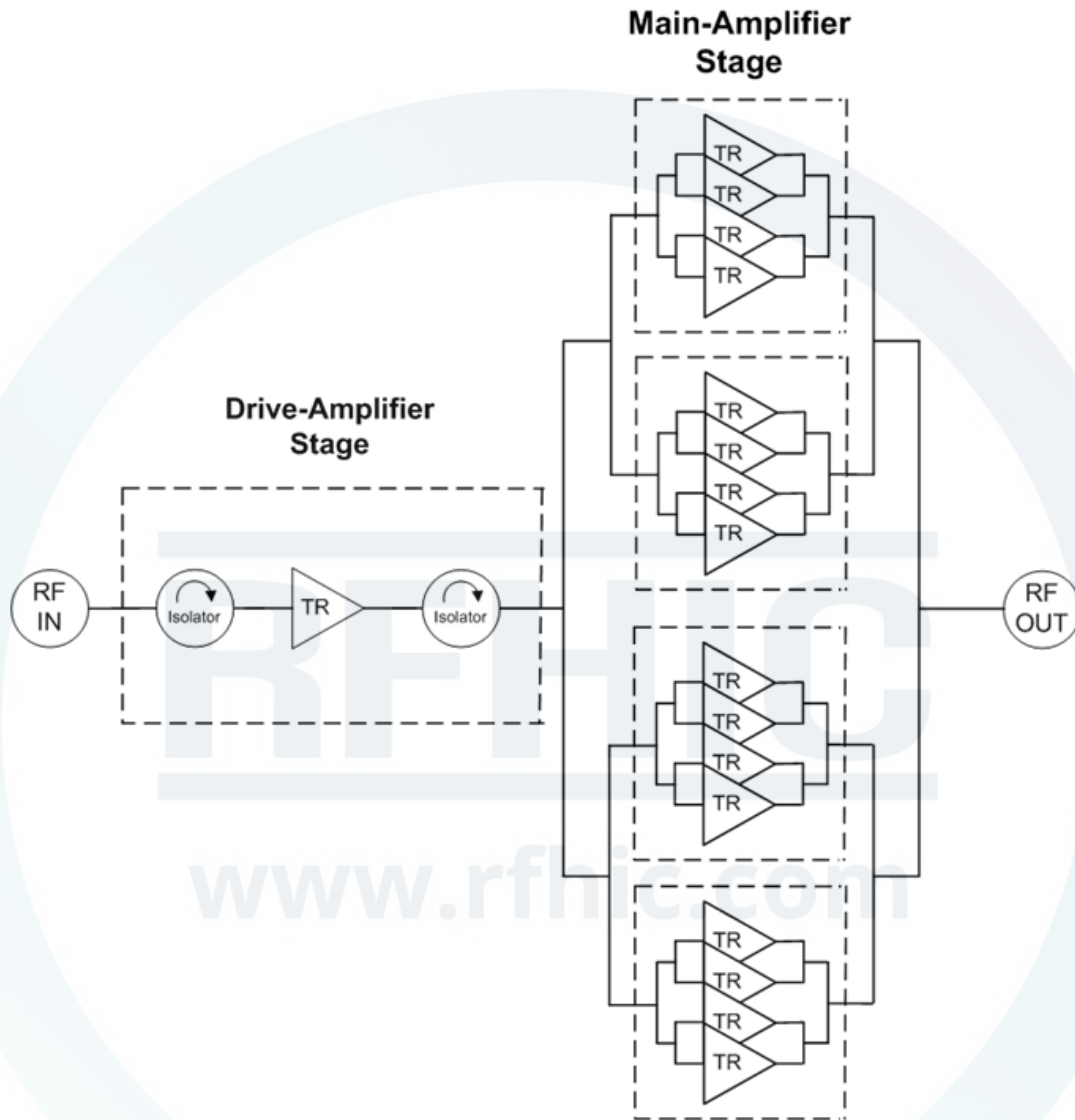
Power Supply

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Drain-Source Current(AVG)	A	-	3.5	4.5	I _{DS1}
Drain-Source Sub Current(AVG)	A	-	0.03	0.06	I _{DS2}

* Duty Cycle 2%, Pulse Width 10us

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Block diagram



Mechanical Specifications

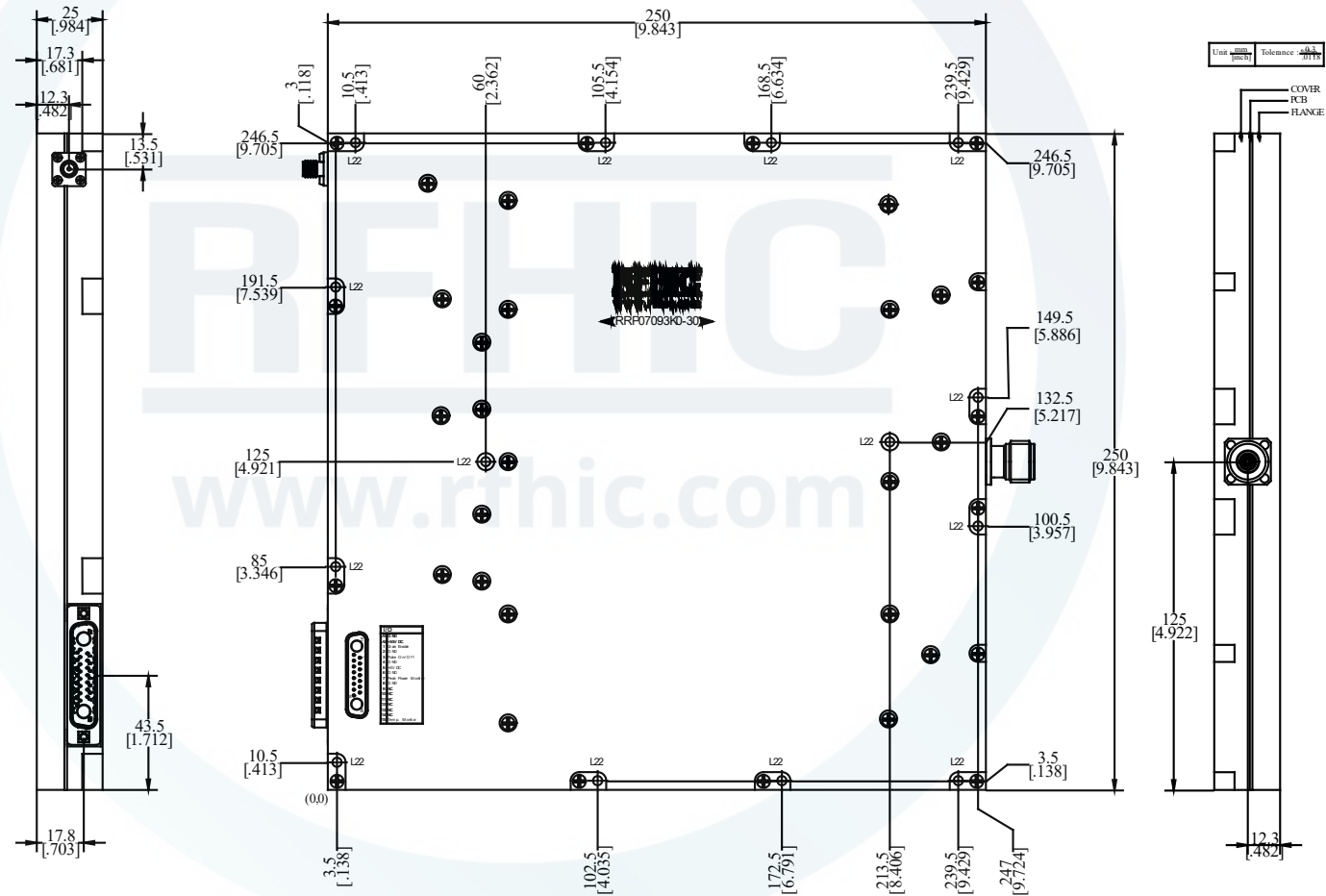
PARAMETER	UNIT	TYP
Mass	kg	2.6
Dimension	mm	250 x 250 x 25 (without connectors)
RF Connector	-	SMA Female : RF Input
		N Female : RF Output
DC Connector	-	17W2 Combo Connector (male) : Supply

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Outline Drawing

* Unit: mm[inch] | Tolerance ± 0.3 [.012]



Pin Description

Supply : 17W2 Combo Connector			
Pin No	Description	Pin No	Description
A1	GND	8	GND
A2	+50V DC (V_{DS1})	9	NC
1	Drain Enable	10	NC
2	GND	11	NC
3	Pulse On/Off	12	NC
4	GND	13	NC
5	+6V DC (V_{DS2})	14	NC
6	GND	15	Temp. Monitor
7	Peak Power Monitor		

Bias Sequence

HPA turn-on	HPA turn-off
1. Pin A2 : +50V DC (V_{DS1}) , ON	1. RF Signal , OFF
2. Pin 5 : +6V DC (V_{DS2}) , ON	2. Pin 1 : Drain Enable , OFF
3. Pin 3 : Pulse on/off , ON	3. Pin 3 : Pulse on/off , OFF
4. Pin 1 : Drain Enable , ON	4. Pin 5 : +6V DC (V_{DS2}) , OFF
5. RF Signal , ON	5. Pin A2 : +50V DC (V_{DS1}) , OFF

* It is recommended to follow the sequence of bias application as in the above table. However, there is an internal protection circuit that prevents the possible damages that may be occurred from a different sequence of bias applications.

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Revision History

Part Number	Release Date	Version	Modification	Data Sheet Status
RRP07093K0-30	August, 2021	0.1	Initial release of datasheet	Preliminary
RRP07093K0-30	September, 2021	1.0	Version changed	V1.0
RRP07093K0-30	December, 2021	1.1	Modification of Specifications	V1.1
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Certification

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

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