**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 @ $V_{DS}1$=50V, $V_{DS}2$=6V, Tc=40°C, 50Ω 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 | $\Delta G_P$ |
| **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** | ° | -15 | - | +15 | Δφ |

∗ 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

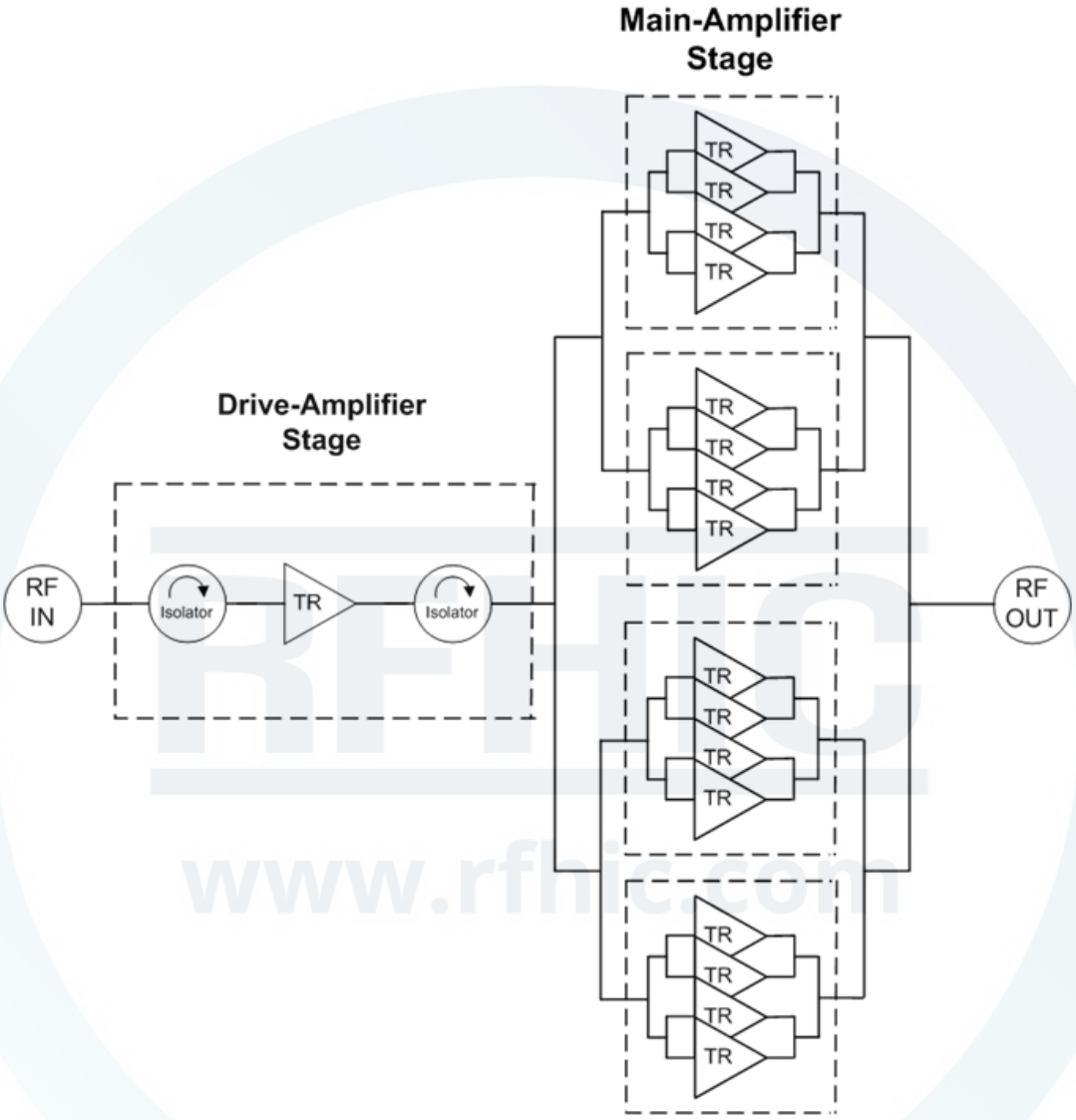
| PARAMETER | UNIT | NOMINAL VOLTAGE | VOLTAGE ACCURACY | SYMBOL |
|---|---|---|---|---|
| Drain-Source Voltage | V | 50 | ± 2% | $V_{DS}1$ |
| Drain-Source Sub Voltage | V | 6 | ± 2% | $V_{DS}2$ |
| Drain Enable Voltage | V | TTL Low(0V) : PA OFF, TTL High(5V) : PA ON | | |
| Pulse On/Off Control Voltage | 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℃ (0.01V /1℃) | | |

## Power Supply

| PARAMETER | UNIT | MIN | TYP | MAX | SYMBOL |
|---|---|---|---|---|---|
| Drain-Source Current(AVG) | A | - | 3.5 | 4.5 | $I_{DS}1$ |
| Drain-Source Sub Current(AVG) | A | - | 0.03 | 0.06 | $I_{DS}2$ |

* Duty Cycle 2%, Pulse Width 10us

## Block diagram

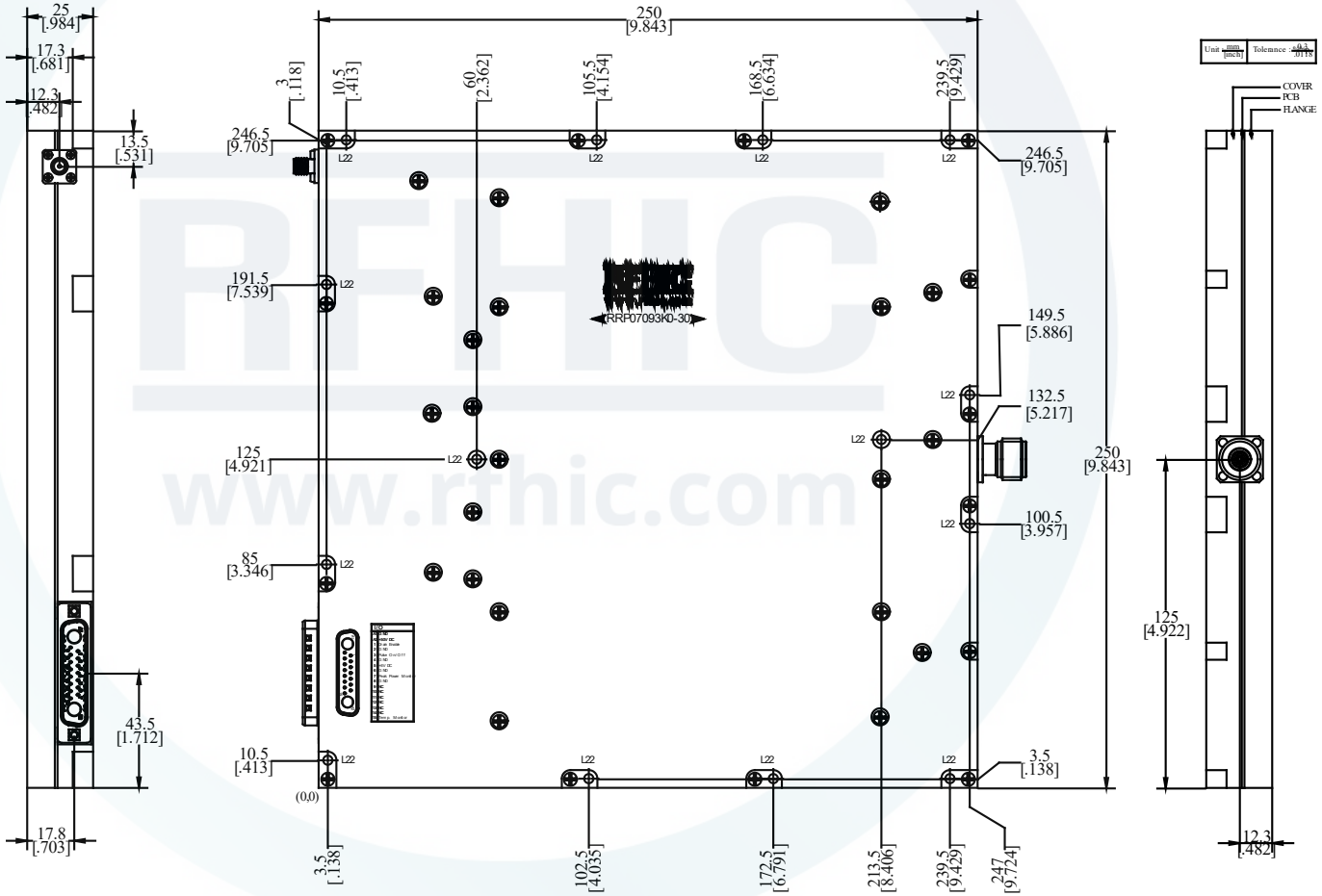



## Mechanical Specifications

| 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 |

## 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 ($V_{DS}1$) , ON | 1. RF Signal , OFF |
| 2. Pin 5 : +6V DC ($V_{DS}2$) , 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 ($V_{DS}2$) , OFF |
| 5. RF Signal , ON | 5. Pin A2 : +50V DC ($V_{DS}1$) , 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.

## 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 |
| - | - | - | - | - |



KS Q 9100:2018
AS9100 D

### Certification

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