

Product Features

- Frequency from 5.6 ~ 5.7GHz
- GaN HEMT
- 50 Ohm Input/Output impedance
- High efficiency

Applications

- Radar system



Description

The RRP56572K4-24 is designed for Radar system application frequencies from 5.6 ~ 5.7GHz. This module uses GaN HEMT technology which performs high breakdown voltage, wide bandwidth and high efficiency.

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

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Operating Frequency	MHz	5600	-	5700	f_o
Operating Bandwidth	MHz	-	100	-	BW
Output Pulse Power	W	2400	-	-	P_o
Input Pulse Power	dBm	-	40	-	P_i
Power Gain	dB	23.8	-	-	G_P
Gain Flatness	dB	-	-	± 0.5	ΔG_P
Duty Cycle	%	-	-	10	DC
Pulse Width	us	-	-	100	PW
Efficiency	%	25	30	-	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	-	-	50	t_r
Fall Time	ns	-	-	50	t_f
Input VSWR	dB	-	-	1.5:1	VSWR
Output VSWR	dB	-	-	1.5:1	VSWR
Switching Time	us	-	0.1	-	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	$^{\circ}C$	-20 ~ 85	T_c
Storage Temperature	$^{\circ}C$	-40 ~ 125	T_{STG}

Operating Voltages

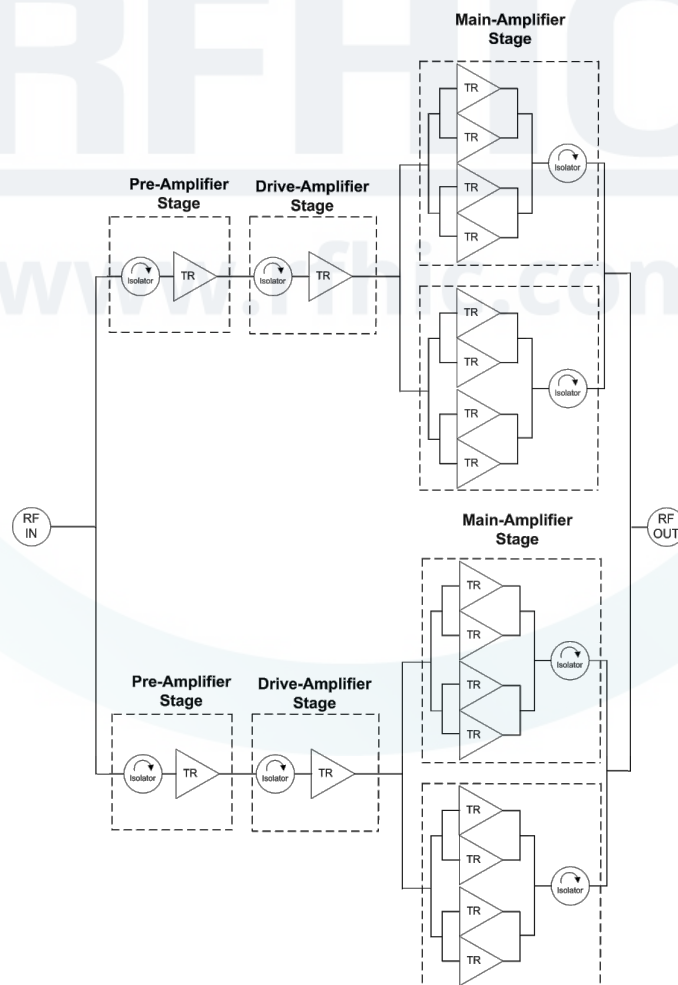
PARAMETER	UNIT	NOMINAL VOLTAGE	VOLTAGE ACCURACY	SYMBOL
Drain-Source Voltage	V	50	± 2%	V _{DS1}
Drain-Source Sub Voltage	V	6	± 2%	V _{DS2}
Pulse On/Off Control Voltage	V	TTL Low(0V) : PA OFF, TTL High(5V) : PA ON		
Peak Monitor Voltage	V	1.4V@5.65GHz, 63dBm (25mV/dB)		
Current Monitor Voltage	V	4V@AVG_16A (0.25V/A)		
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	-	16.5	20	I _{DS1}
Drain-Source Sub Current(AVG)	A	-	0.07	0.12	I _{DS2}

* Duty Cycle 10%, Pulse Width 100us

Block diagram

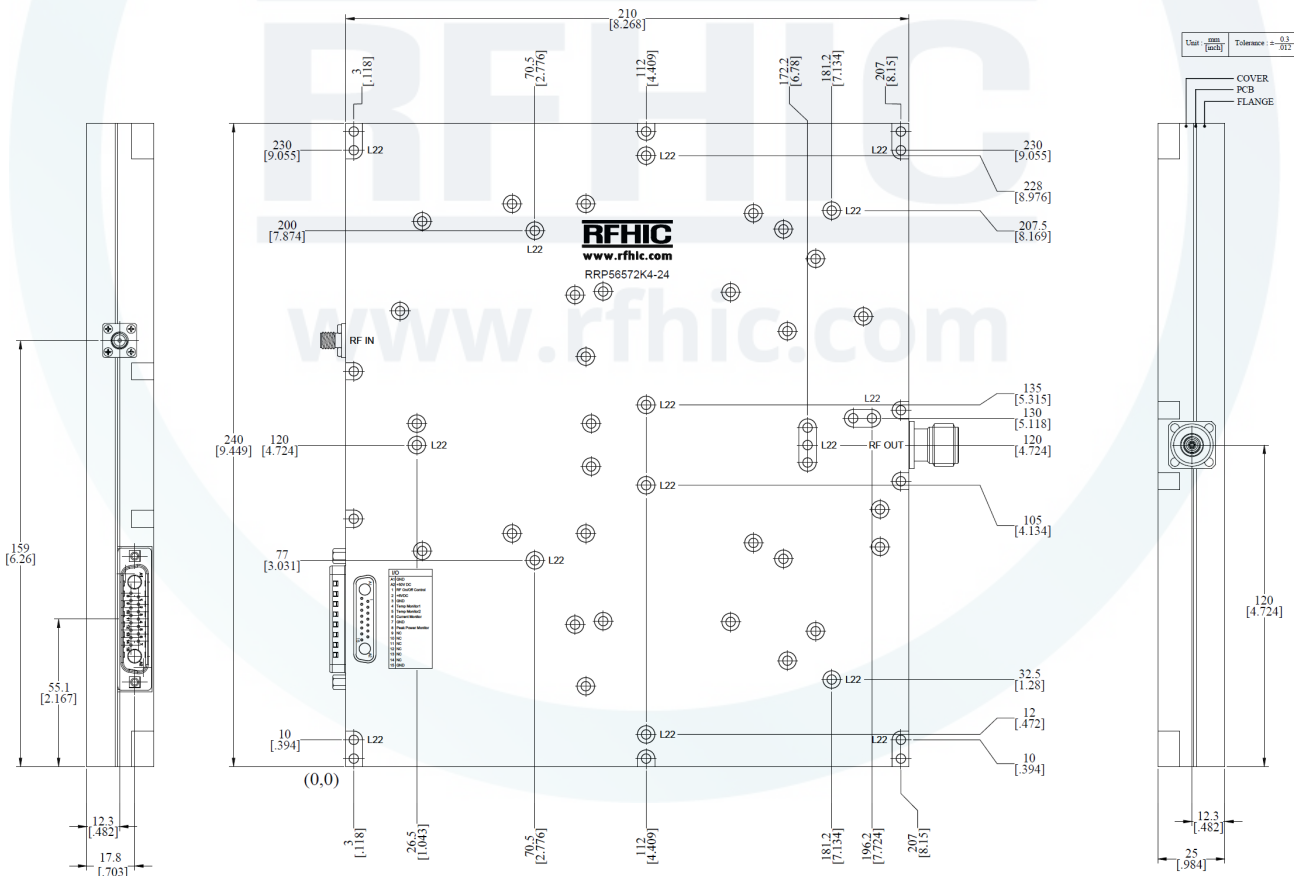


Mechanical Specifications

PARAMETER	UNIT	TYP
Mass	kg	2.21
Dimension	mm	210 x 240 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	Peak Power Monitor
A2	$V_{DS1}(+50V)$	9	NC
1	Pulse On/Off	10	NC
2	$V_{DS2}(+6V)$	11	NC
3	GND	12	NC
4	Temp Monitor1	13	NC
5	Temp Monitor2	14	NC
6	Current Monitor	15	GND
7	GND		

Bias Sequence

HPA turn-on	HPA turn-off
1. Pin A2 : $V_{DS1}(+50V)$	1. RF Input, Off
2. Pin 2 : $V_{DS2}(+6V)$	2. Pin 1 : Pulse on/off
3. Pin 1 : Pulse on/off	3. Pin A2 : $V_{DS1}(+50V)$
4. RF Input	4. Pin 2 : $V_{DS2}(+6V)$

* 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
RRP5657K4-24	2021.07.08	0.1	-	Preliminary
RRP5657K4-24	2022.03.08	0.2	Modification of Specifications	Preliminary
RRP5657K4-24	2022.04.29	0.3	Modification of Specifications	Preliminary



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