Preliminary

Pulse Amp Module   RRM9397800-59A   RFHIC

Product Features

- Frequency from 9.3 ~9.7GHz
- GaN HEMT
- 50 Ohm Input/Output Impedance
- High Efficiency

Applications

- Radar System

Description

The RRM9397800-59A is designed for Radar system application frequencies from 9.3~9.7GHz.
This module uses GaN HEMT technology which performs high breakdown voltage, wide bandwidth and high efficiency.

Electrical Specifications @ T=25°C, 50Ω System

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Operating Frequency	MHz	9300	-	9700	f_O
Operating Bandwidth	MHz	-	400	-	BW
Output Pulse Power	W	800	-	-	P_O
Input Pulse Power	dBm	-2	0	+2	P_I
Power Gain	dB	57	59	-	G_P
Gain Flatness	dB	-	-	±1.0	ΔG_P
Duty Cycle	%	-	-	10	DC
Pulse Width	us	-	-	100	PW
PAE	%	15	20	-	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 / Fall Time	ns	-	-	50	t_r / t_f
Input VSWR	dB	-	-	2 : 1	VSWR
Output VSWR	dB	-	-	2 : 1	VSWR
Switching Time	ns	-	-	200	t_{SW}
Operating Voltage(Main)	V	-	50	-	O_{V1}
Operating Voltage(Sub)	V	-	5.6	-	O_{V2}
Power Consumption	W	-	500	550	P_C

∗ Test Pulse conditions = 100us, 10%

∗ Custom design available

Absolute Maximum Ratings

PARAMETER	UNIT	RATING	SYMBOL
Operating Flange Temperature	°C	-30 ~ 75	T_C
Storage Temperature	°C	-40 ~ 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	5.6	± 5%	$V_{DS}2$
SSPA On/Off Control Voltage	V	Low(0V) : SSPA OFF, High(5V) : SSPA ON		$V_{DC}1$
Pulse On/Off Control Voltage	V	TTL Low(0V) : Pulse OFF, TTL High(5V) : Pulse ON		$V_{DC}2$

Power Supply

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Drain-Source Current (AVG)	A	-	10.0	11.0	$I_{DS}1$
Drain-Source Sub Current (AVG)	A	-	0.5	1.0	$I_{DS}2$

* Duty Cycle 10%, Pulse Width 100us

Mechanical Specifications

PARAMETER	UNIT	TYP
Mass	kg	3.16(TBD)
Dimension (W x L x H)	㎜	232.8 x 190 x 43
RF Connector	-	RF Input : SMA Female
		RF Output : TNC Female
DC Connector	-	3W3 Combo Male(50V)
Control Connector	-	9-Pin D-sub Male(5.6V / Control / Monitor)

Outline Drawing

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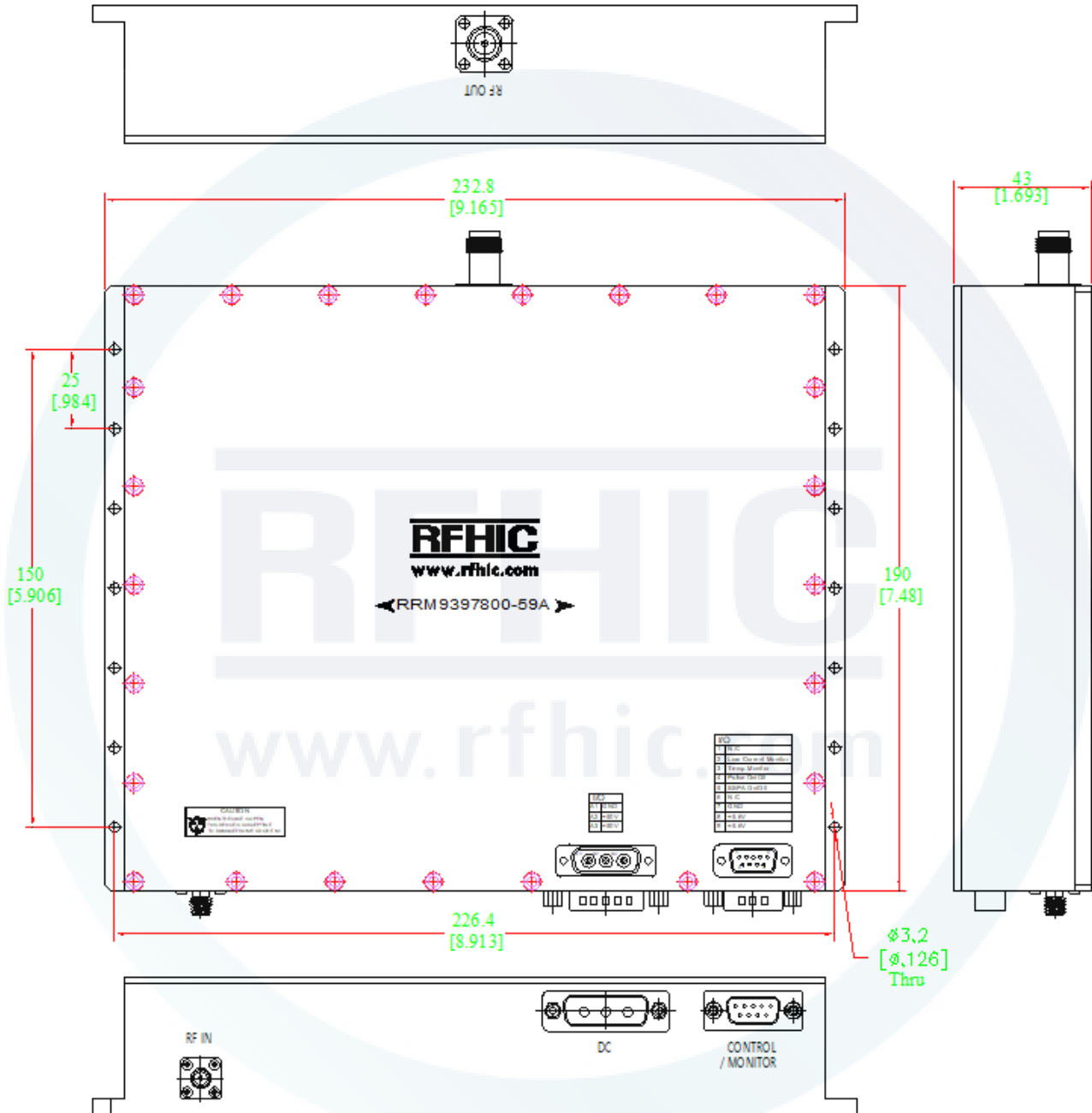
Pin Description

Supply : 3W3 Combo Male Type Connector			
Pin No	**Description**	**Pin No**	**Description**
A1	Ground	A3	$V_{DS}1$ (+50V)
A2	$V_{DS}1$ (+50V)	-	-

Supply : 9-Pin D-Sub Male Type Connector			
Pin No	**Description**	**Pin No**	**Description**
1	N.C	6	N.C
2	Low Current Monitor	7	Ground
3	Temp Monitor	8	$V_{DS}2$ (+5.6V)
4	TTL Control (Pulse On/Off)	9	$V_{DS}2$ (+5.6V)
5	Enable (SSPA On/Off)		-

* Temp Monitor [0.75V/25°C(10mV/°C)]

Revision History

Part Number	Release Date	Version	Modification	Data Sheet Status
RRM9397800-59A	March, 2021	0.1	Initial Release of Datasheet	Preliminary