Preliminary

GaN Solid State Power Amplifier RNP091K1-20

Product Features

- 900 ~ 930MHz
- 1100W CW Peak Power @ 50V
- 63% Drain Efficiency @ 50V
- Low Cost, Light Weight, Compact
- Using GaN-on-SiC HEMT Transistor
- Excellent Thermal Stability and Ruggedness
- Externally 50Ω Matched

Applications

- High Power Industry
- Microwave CVD Reactor
- Plasma Generator
- Food Science
- MW Heating and Drying

Description

RNP091K1-20 using GaN-on-SiC transistors is designed for industrial, scientific, medical (ISM) and plasma applications at 915MHz. RNP091K1-20 is the world's highest power and efficiency SSPA with affordable price. This amplifier is suitable for use in CW, ISM applications. This high efficiency rugged device is targeted to replace industrial magnetrons and other vacuum tubes which are currently applying into high power industrial applications, artificial diamond manufacturing, semiconductor equipments, and plasma systems.

Electrical Specifications @ V_{DS} =50V, T=25°C, 50Ω System

PARAMETER		UNIT	MIN	TYP	MAX	SYMBOL
Operating Frequency		MHz	900	-	930	F_O
Operating Bandwidth		MHz	-	30	-	OBW
CW Output Power		W	-	1100	-	P_O
Efficiency		%	-	63	-	Eff
Input Power		dBm	-	10	-	P_I
Power Gain @ Peak Power		dB	-	50	-	G_P
Gain Flatness		dB	-	0.5	1.0	ΔG_P
In/Out Return Loss		dB	-	-	-15	S_{11}
Operating Voltage		V	-	50	-	Vdc
Operating Case Temperature		-	-	-	60	Tc
DC & Controls Connector	D-sub 3W3	A1~A3	A1(50V ±1%), A2(NC), A3(GND)			-
	D-sub 15 Pin	1	Current Monitor (0~5V)			-
		2	Temperature Monitor (0~5V) : 0.75V@25°C, 10mV/°C			-
		3	Forward Power Monitor (0~5V)			-
		4	Reflect Power Monitor (0~5V)			-
		5	Input Power Monitor (0~5V)			-
		6	+50VDC Voltage Monitor : (0~5V), 2.5V@50V			-
		7	PA En/Dis : Enable(Low), Disable(High or Open)			-
		8	Gain Control (0~5V) : 3dB Range min.			-
		10, 11	+5.6V for MMIC & Misc.			-
		12, 13	GND			-
		Others	Reserved			-

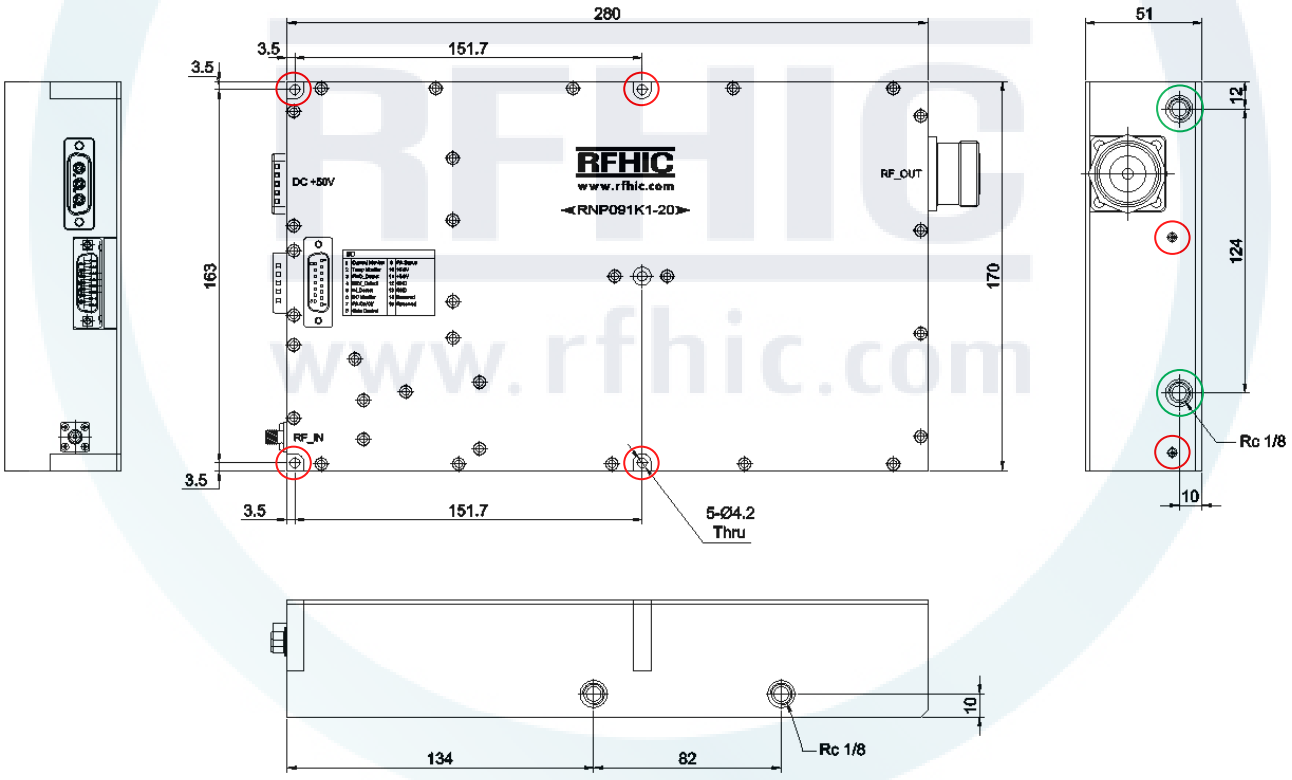
Mechanical Specifications

PARAMETER	UNIT	VALUE
Dimensions (L x W x H)	mm	280 x 170 x 51
Weight	Kg	3.4 typ
RF Input Connectors	-	SMA, Female
RF Output Connectors	-	7/16 DIN, Femail
DC & I/O Connector	-	D-sub 3W3, D-sub 15 Pin
Cooling	-	Water cooling (20℃ typ, 2 liter per minute, 0.2 bar)

Note

Water cooling condition may be subject to change.

Mechanical drawing



◯ : Mount Hole

◯ : Water Inlet/Outlet

Revision History

Part Number	Release Date	Version	Description	Data Sheet Status
RNP091K1-20	June, 2018	0.1	Initial release of datasheet	Preliminary