

Preliminary

GaN Solid State Power Amplifier RIM091K1-20



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

RIM091K1-20 using GaN-on-SiC transistors is designed for industrial, scientific, medical (ISM) and plasma applications at 915MHz. RIM091K1-20 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 @ $V_{DS}=50V$, $T=25^{\circ}C$, 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	-	V _{dc}
Operating Case Temperature	-	-	-	60	T _c
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		-

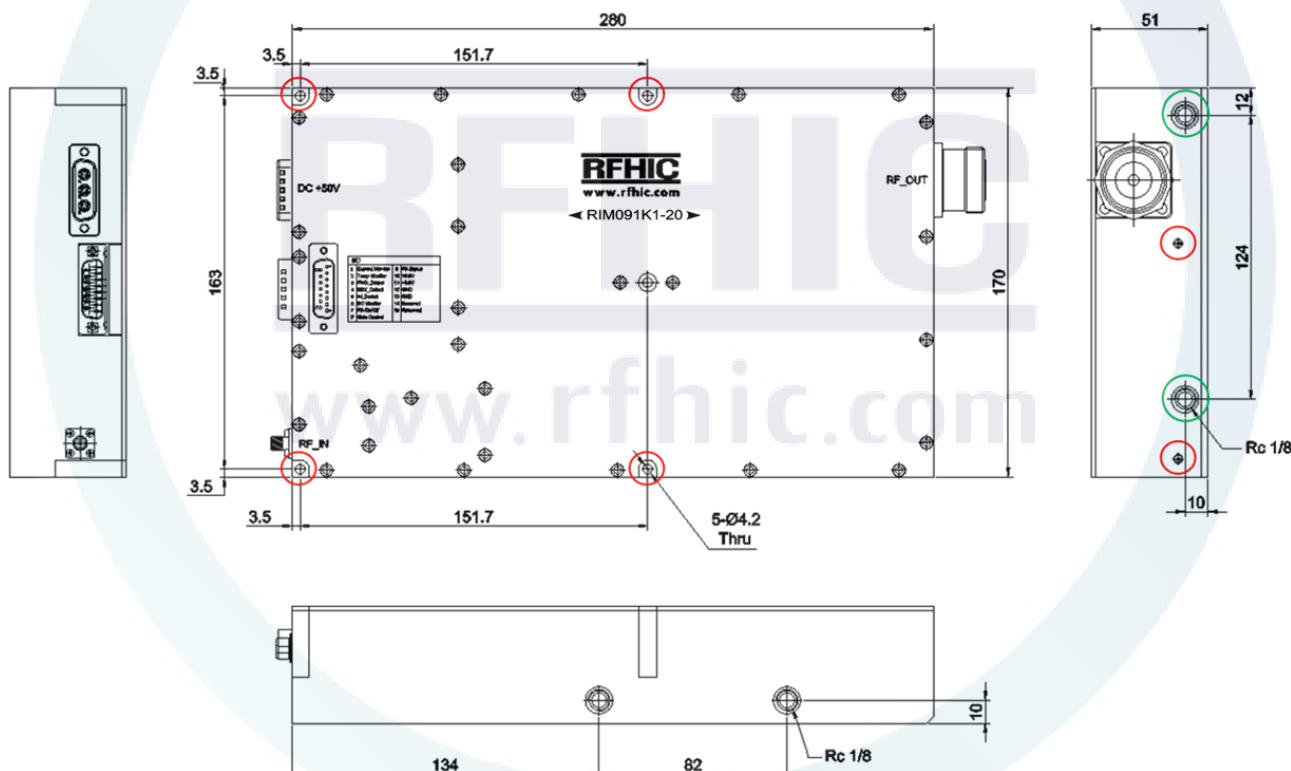
Mechanical Specifications

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, Female
DC & I/O Connector	-	D-sub 3W3, D-sub 15 Pin
Cooling	-	Water cooling (20°C typ, 2 liter per minute, 0.2 bar)

Note

Water cooling condition may be subject to change.

Mechanical drawing



○ : Mount Hole

○ : Water Inlet/Outlet

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Revision History

Part Number	Release Date	Version	Description	Data Sheet Status
RIM091K1-20	June, 2018	0.1	Initial release of datasheet	Preliminary



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