GaN Solid State Power Amplifier

RIM281K2-20

Product Features

- 2856 MHz
- Output power: 1200W(Pulse) Peak Power
- Built with GaN on SiC HEMT
- 35% Amp Efficiency
- High Reliability
- Excellent Frequency Stability
- Power & Frequency Monitoring Available

Applications

- Building Block for High-Power Systems
- Plasma Generation
- Industrial Heating and Drying
- Microwave CVD
- Microwave Sintering
- Microwave Chemistry
- Materials Processing
- Study of Biological Phenomena
- Semiconductor Equipment

Description

The RIM281K2-20 is a 1200W, GaN solid-state power amplifier designed for high power industrial, scientific, and medical (ISM) applications. The solid-state power amplifier is operable from 2856 MHz and is built using RFHIC's cutting edge gallium- nitride (GaN) on SiC HEMT providing excellent efficiency and breakdown voltage.
The GaN Solid state Power Amplifier (SSPA) is suitable for use in pulse applications. This high efficiency rugged device is targeted to replace industrial magnetrons and other vacuum tubes currently powering industrial heating, drying, microwave CVD and sintering.

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

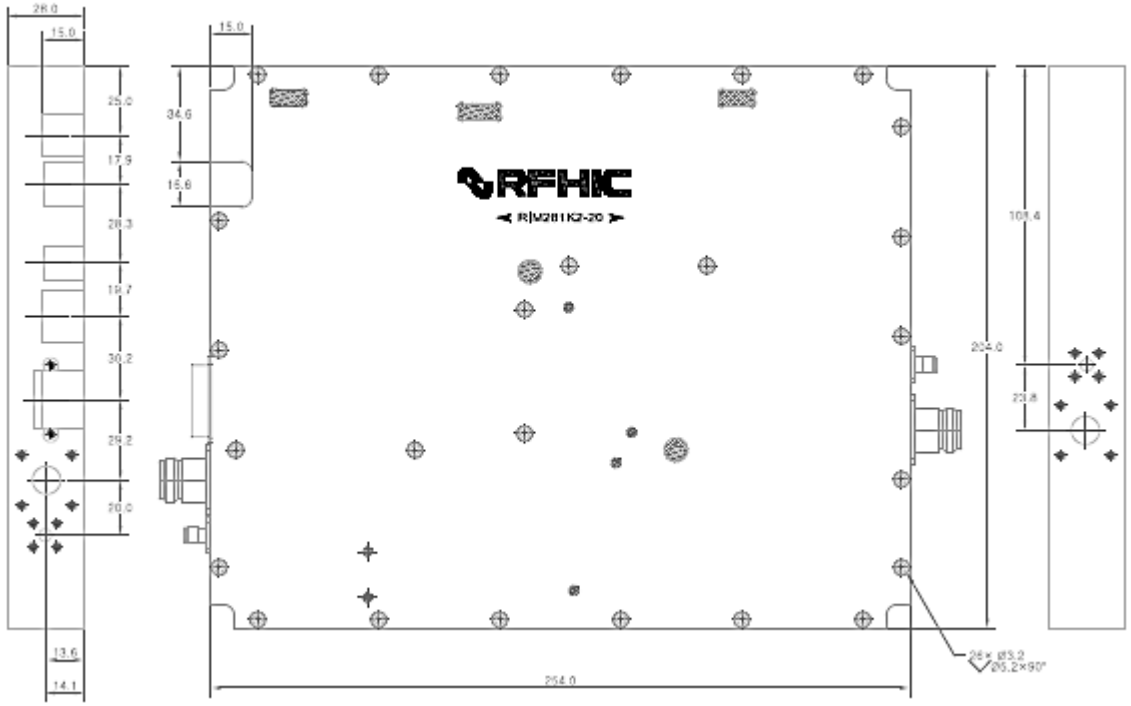
PARAMETER		UNIT	MIN	TYP	MAX
Operating Frequency		MHz	-	2856	-
Operating Bandwidth		MHz	-	-	-
Pulse Variable Output Power		W	-	-	1200
Power Gain @ Peak Power		dB	-	60	-
RF Input power		dBm	-	0	-
Frequency Accuracy & Stability		ppm	-2.5	-	2.5
Operating Voltage		VDC	50		
Amp Efficiency		%	-	45	-
FWD Power Monitor		dBm		TBD	
RVS Power Monitor		dBm		TBD	
Control	Transistor On / Off	Enable / Disable			
	Power control	100~1200W			
Monitoring (GUI)	INPUT & FWD Power	System Output and Reflect Power from 10 to 100%			
	Temperature	Individual Power Amplifier			
Max. Mismatch @ Max Output Power*		6: 1 VSWR			
Control Interface		RS-232			

*** Amplifier can withstand a maximum load mismatch up to 6:1 at max. output power.**
In case a higher reflected power is measured, the system will automatically shut down to prevent system failure.

Mechanical Specifications

PARAMETER	UNIT	VALUE
Dimensions (L x W x H)	mm	254 x 204 x 28
Weight	Kg	2
RF FWD/RVS monitor Connector	-	SMA Female
RF INPUT/ Output Connector	-	N-type Female
I/O Connector	-	SMAW200-16C, USB, RJ45
Cooling Type	-	Air

Mechanical drawing



Revision History

Part Number	Release Date	Version	Description	Data Sheet Status
RIM281K2-20	May, 2025	1.0	Initial release of datasheet	Preliminary

Certification

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