Preliminary
GaN SSPA Microwave Generator
RIM25100-20G

Product Features

- 2400~2500MHz (ISM band)
- 100W CW Peak Power @ 50V
- Built with GaN-on-SiC HEMT Transistors
- Digital Adjustable of Power, Frequency, Phase
- Excellent Frequency Spectrum at both low and high-power levels

Applications

- Building Block for High Power Systems
- Microwave CVD Equipment
- Plasma Generation
- MW Heating and Drying
- Semiconductor Equipment

Description

RIM25100-20G is a 100W, GaN solid-state microwave generator designed ideally for microwave heating and plasma generation applications. The RIM25100-20G is a module type generator that provides continuous wave (CW) and or pulse output power adjustable from 1W to 100W at frequencies ranging between 2400MHz and 2500MHz. The generator also provides an automatic frequency sweeping software where the system's frequency is automatically adjusted to reach minimum reflected power. The RIM25100-20G is built using RFHIC's state-of-the-art gallium-nitride (GaN) on silicon-carbide (SiC) transistors providing high power levels and high system efficiency. The RIM25100-20G is equipped with a phase-lock-loop (PLL) synthesizer allowing to generate a signal without any external source. This highly efficient and rugged device is targeted to replace conventional magnetrons used for industrial heating and drying applications.

Electrical Specifications

PARAMETER		UNIT	MIN	TYP	MAX	SYMBOL
Operating Frequency(1)	Adjustable Range	MHz	2400	-	2500	F_O
	Step Size	kHz	500	-	-	
Output Power	Adjustable Range	W	1	-	100	P_O
	Step Size	W	1	-	-	
Operating Mode		CW and or Pulse				
Power Spectrum Bandwidth		kHz	-	-	500	S_b
Frequency Accuracy & Stability		ppm	-2.5	-	2.5	Fs
Efficiency (DC to RF)		%	-	-	60	Eff
Operating Voltage			-	50	-	VDC
Pulse Mode	Pulse Repetition Frequency	kHz	-	-	1	
	Pulse Length	ms	1	-	10	
	Pulse Width	us	500	-	-	

Remarks:
(1) The generator also provides an automatic frequency sweeping feature where the system's frequency is automatically adjusted to reach minimum reflected power

Generator Alarm & Protection Features

PARAMETER	State	CONDITION
Output Power	Alarm	Output Power > 110W
Over-Temperature	Alarm	System Module Temperature > 60 C°
Reflected Power	Alarm	Reflected Power > 50W
PLL Unlock (1)	Disabled	
Over-Temperature	Disabled	System Module Temperature > 60 C°
Reflected Power	Disabled	Reflected Power > 50W

***Remarks**
(1) A phase-locked loop (PLL) is a control system that generates an output signal whose phase is related to the phase of the input signal. The PLL is equipped with a voltage-driven oscillator that constantly adjusts to match the frequency of the input signal.

Mechanical Specifications

PARAMETER	UNIT	VALUE
Dimensions (W x D x H)	mm	200 x 100 x 30
Weight	kg	1.16
Microwave Output Port	-	N-type (Female)
DC & GND Connector	-	D-sub 7W2
I/O Connector		RS-232
Cooling Requirements	-	External Heat-sink & Airflow

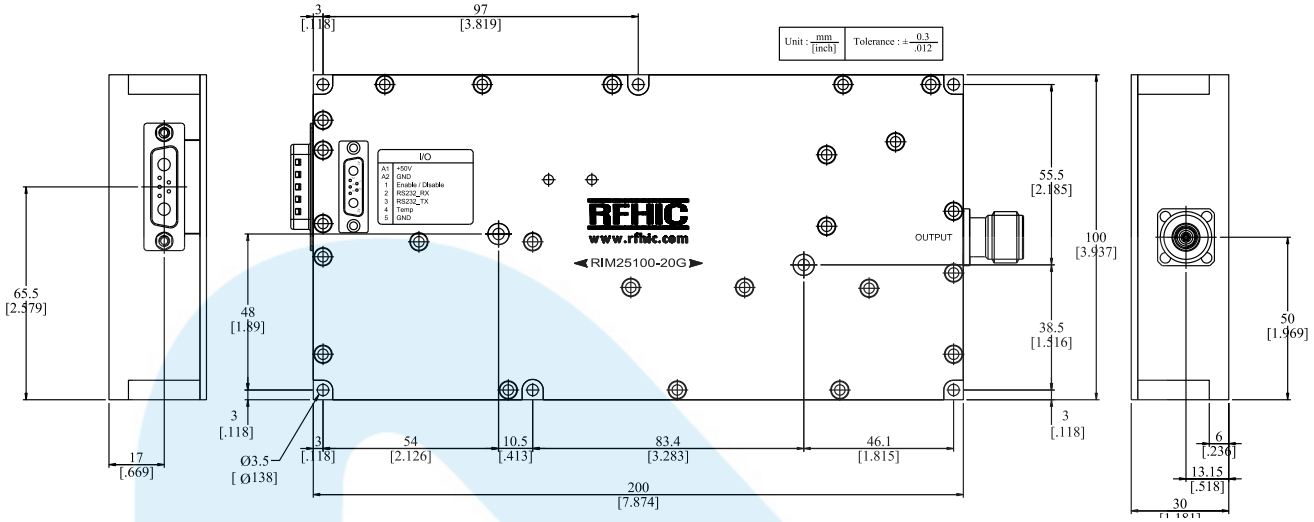
Remarks: Dimensions and Connectors may be subject to change.

Environmental Specifications

PARAMETER	UNIT	VALUE
Operating Case Temperature(1)	°C	0 ~ 60
Environmental/Storage Temperature	°C	-40 ~ 100

Remarks: **(1)** Operating case temperature is the temperature detected at the PA temp sensor.

Mechanical Drawings



Remarks:
Connector positions and module mount holes may be subjected to change.

Interface Connector

7pin control (7W2)

Pin No	Description
A1	+50V
A2	GND
1	Enable (TTL Low) / Disable (TTL High)
2	RS232_RX
3	RS232_TX
4	Temperature monitor
5	GND

Revision History

Part Number	Release Date	Version	Description	Data Sheet Status
RIM25100-20G	July, 2020	0.1	Initial release of datasheet	Preliminary
RIM25100-20G	December, 2020	0.2	Modified mechanical specifications	Preliminary
RIM25100-20G	January, 2022	0.3	Modified pulse mode specifications	Preliminary

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