Preliminary

GaN SSPA Microwave Generator

RCM25800-20G

Product Features

- 2400~2500 MHz (ISM band)
- 800 W CW Peak Power @ 50V
- Built with GaN-on-SiC HEMT Transistors
- Digital Adjustability of Power, Phase, Frequency
- 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

The RCM2800-20G is a 800 W, GaN solid-state microwave generator designed ideally for microwave heating and plasma generation applications. The RCM25800-20G is a module type generator that provides continuous wave (CW) and or pulse output power adjustable from 10 W to 800 W at frequencies ranging between 2400 MHz and 2500 MHz. The RCM2800-20G is built with RFHIC's state-of-the-art gallium-nitride (GaN) on silicon-carbide (SiC) transistors, providing high power levels and high system efficiency. The RCM2800-20G is equipped with a phase-lock-loop (PLL) synthesizer that generates a signal without an external source. RCM2800-20G supports Ethercat-style communication. The compact generator is designed ideally for industrial and medical applications.

Electrical Specifications

PARAMETER		UNIT	MIN	TYP	MAX	SYMBOL
Operating Frequency(1)	Adjustable Range	MHz	2400	-	2500	F_O
	Step Size	kHz	500	-	-	Fstep
Output Power	Adjustable Range	W	10	-	800	P_O
	Step Size	W	1	-	-	Pstep
	Accuracy	%	-3	-	3	Pa
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)		%	-	-	55	Eff
Operating Voltage		V	-	50	-	VDC
Pulse Mode	Pulse Repetition Frequency	kHz	-	-	1	-
	Pulse Length	ms	0.02	-	10000	-
	Pulse Width	us	10	-	-	-

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 > 880W
Over-Temperature	Alarm	System Module Temperature > 55 C°
Reflected Power	Alarm	Reflected Power > 200W
PLL Unlock (1)	Disabled	
Over-Temperature	Disabled	System Module Temperature > 55 C°
Reflected Power	Disabled	Reflected Power > 200W

***Remarks**
(1) (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	320 x 150 x 51	
Weight	kg	5	
Microwave Output Port	-	DIN (Female)	
DC & GND Connector	-	D-sub 7W2	
I/O Connector		RJ45	
Cooling Requirements	-	**Water Cooling Rate**	5L/Min, 3Bar
		Cooling Water Inlet Temperature	20°C~25°C ((typ.)
		Relative humidity below dew point (non-condensing)	
		* De-ionized water shall be used to prevent system damage	
Fluid Inlet/Outlet Size	Inch	1/4 Tapered Pipe Thread	

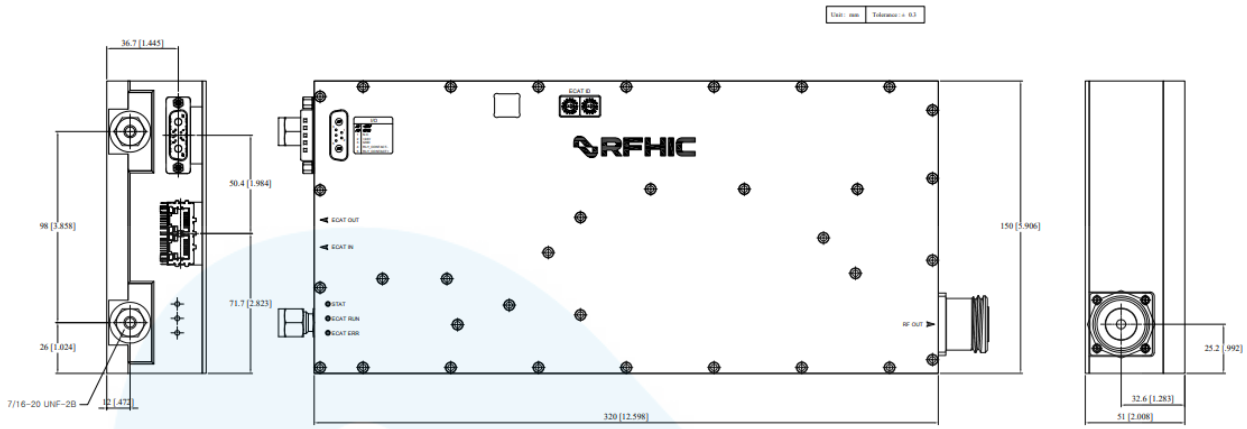
Remarks: Dimensions and Connectors may be subject to change.

Environmental Specifications

PARAMETER	UNIT	VALUE
Operating Case Temperature(1)	°C	0 ~ 55
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	GND
A2	+50V
1	+24V
2	GND
3	RS232_RX
4	RS232_TX
5	Interlock

Revision History

Part Number	Release Date	Version	Description	Data Sheet Status
RCM2800-20G	ARRIL, 2025	0.1	Initial release of datasheet	Preliminary

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