

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	-	-	F _{step}
Output Power	Adjustable Range	W	10	-	800	P _o
	Step Size	W	1	-	-	P _{step}
	Accuracy	%	-3	-	3	P _a
Operating Mode		CW and or Pulse				
Power Spectrum Bandwidth		kHz	-	-	500	S _b
Frequency Accuracy & Stability		ppm	-2.5	-	2.5	F _s
Efficiency (DC to RF)		%	-	-	55	Eff
Operating Voltage		V	-	50	-	V _{DC}
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

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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

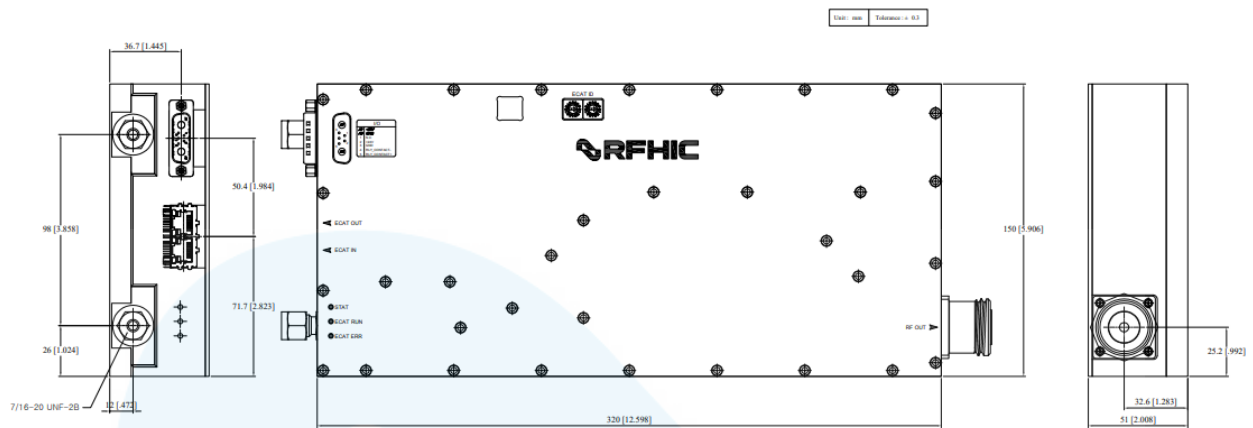
Remarks:

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

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Mechanical Drawings



Remarks

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

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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.

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