

# Preliminary

## GaN Solid State Module Generator

### RNP24500-20G



#### Product Features

- 2400 ~ 2500MHz (ISM band)
- 500W CW Peak Power @ 50V
- 55% Drain Efficiency @ 50V
- PLL included

#### Applications

- Plasma Lighting
- Industrial Heating & Drying
- Scientific
- Medica



#### Description

RNP24500-20G is a module type microwave generator designed ideally for microwave heating and plasma generation applications. The RNP24500-20G is built with gallium-nitride (GaN) on silicon-carbide (SiC) transistors providing high efficiency and excellent thermal stability. The RNP24500-20G is equipped with its own phase locked loop (PLL) signal generator requiring no external RF input. The module type generator is capable of operating in both continuous and pulse providing users the flexibility to optimize their end applications.

#### Electrical Specifications

PARAMETER		UNIT	MIN	TYP	MAX
Operating Frequency		MHz	2400	-	2500
Operating Bandwidth		MHz	-	100	-
CW Output Power		W	-	500	-
CW Variable Output Power		W	10	-	500
Power Spectral Bandwidth		KHz	-	-	500
Pulse Duty Cycles		%	1	-	99
Frequency Resolution		KHz	-	100	-
Frequency Accuracy & Stability		ppm	-2.5	-	2.5
Operating Voltage		V	50 ± 1%		
Current Consumption	500W @ CW	A		18.2	-
Efficiency		%		55	-
Control (RS232)	Generator On / Off	Enable / Disable			
	RF Mode	CW / Pulse			
	RF Control	Frequency, Pulse width and duty, Output Power etc.			
Alarm & Shutdown	Over Temperature Shutdown	@PA Temperature > 70°C			
	Over VSWR Shutdown	@PA Reverse Power > 200W			
	Over Power Alarm	@Output Power > 550W			

#### 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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### Environmental Characteristics

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Operating Case Temperature	°C	0	-	65	
Storage Temperature	°C	-40	-	100	Tstg
Relative humidity w/o condensation	%	-	-	95	RH

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

### Mechanical Specifications

PARAMETER	UNIT	VALUE
Dimensions (L x W x H)	mm	260 x 110 x 30
Weight	Kg	TBD
RF Output Connector	-	N-type (Female)
I/O Connector	-	D-sub 7W2
Cooling	-	Water cooling / External Heat-sink & Airflow

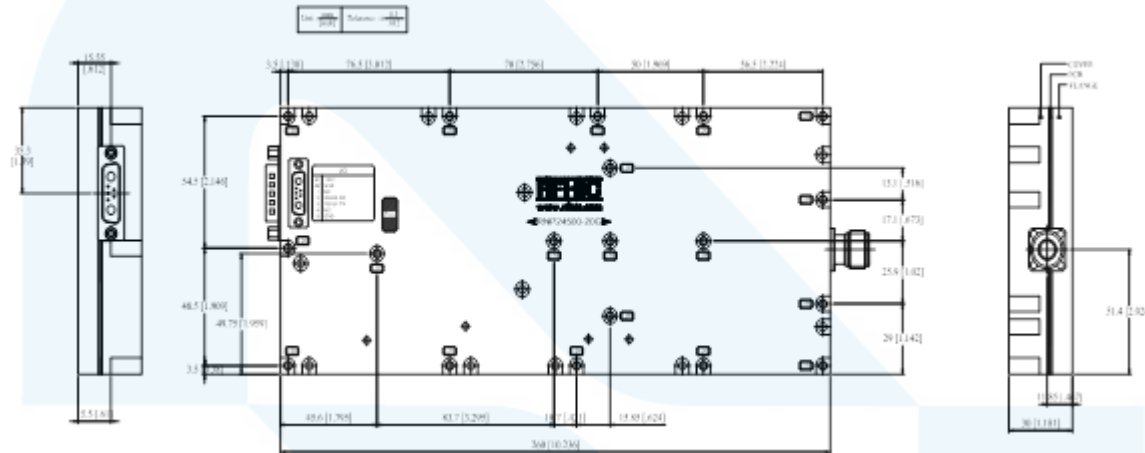
**\*Remarks**

(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.

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**Amplifier Dimensions**



Connector positions and module mount holes may be subjected change.

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**Interface Connector**

7pin control (7W2)

Pin No	Description
A1	+50V
A2	GND
1	N.C
2	RS232_RX
3	RS232_TX
4	N.C
5	GND

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## Revision History

Part Number	Release Date	Version	Description	Data Sheet Status
RNP24500-20G	December, 2020	0.1	Initial release of datasheet	
RNP24500-20G	November, 2021	0.2	Minor Spec Changes	



### Certification

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

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