

TECHNICAL DATASHEET

AVNR14900H47

The AVNR14900H47 is a 50W high gain Solid State Narrowband High Power Amplifier. This amplifier module utilizes the latest high power RF GaN transistors and also features built in control and monitoring, with protection functions to ensure high availability. This amplifier is suitable for satellite jamming and Satcom.

Features

14.4GHz-15.4GHz frequency range	Solid-state Class AB Broadband design
Psat 47dBm type, 46.5dBm Min.	Instantaneous ultra-broadband
Power gain 47dB	Suitable for CW, and Pulse
50 ohm input/output impedance	Small and lightweight
Built-in control, monitoring and protection circuits	High reliability and ruggedness

ELECTRICAL SPECIFICATIONS(T=25°C,DC Voltage= 28V, Load VSWR ≤ 1.2)

Description	Symbol	Min	Typ	Max	Unit
Operating Frequency*	BW	14.4		15.4	GHz
Output Power CW@ Pin=0dBm	Psat	45	50		W
Power Gain @ Pin=0dBm	Gp	47	48		dB
Power Gain Flatness @ Pin=0dBm	ΔGp		±0.5	±1.0	dB
Input Power for Rated PSAT	P _{IN}	-3	0		dBm
Harmonics @ Pin=0dBm**	2 nd /3 rd			-40	dBc
Noise Figure	NF		N/A		dB
Spurious Signals@ Pin=0dBm	Spur			-60	dBc
Input Return Loss	S11			-10	dB
Third Order Intercept Point***					
2-Tone @ 40dBm/Tone, 100kHz Spacing	IP3		N/A		dBc
Operating Voltage	VDC	26	28	30	V
Current Consumption @ Pout= 40W~50W	IDD		8	9.5	A
Switching Time @ 1kHz TTL, Pin=0dBm	TON/TOFF		2	3	μs

Note*: Frequency can be extended to 14.5GHz, Contact sales engineer to update.

Note:** 3rd harmonics is not tested.

Note*:** IP3 or IMD3 data, please contact sales engineer.

MECHANICAL SPECIFICATIONS

Cooling External	Heat Sink Needed (Not Supplied)
Length* Width*Height[mm]	170*165*25
Weight[Kg]	1.2
RF Connector Input	SMA, Female
RF Connector Output	SMA, Female

Datasheet: REV A.2/ 12.15.2020

Unique Amplifier With Innovation

ENVIRONMENTAL SPECIFICATIONS (Design to Meet)

Module Operation Temperature* ¹	-20	65	°C
Storage Temperature Range	-25	70	°C
Relative-Humidity	N/A		
Altitude* ²	N/A		
Vibration/Shock* ²	N/A		

Notes *1: Module Operation Temperature can be extended to -45~80°C, Contact Sales for update.

Notes *1: Should Supply Adequate Heat Dissipation, Enough Fan and Heat-Sink is necessary during the Temp Test.

Notes *2: Altitude /Vibration are designed with considerations, but without tests and experiments.

LIMITS

Input RF drive level without damage	Pin ≤ 10	dBm
Load VSWR @ POUT =25W	VSWR ≤ 5:1 [Design To Meet]	N/A
Load VSWR @ POUT =50W	VSWR ≤ 3:1 [Design To Meet]	N/A
Thermal Degradation	85°C Graceful Degradation	°C

DC INTERFACE CONNECTOR – [Hybrid D-Sub 7-Pin, Male]

Pin #	Description	Specifications
A1	GND	Ground
A2	VDD	28VDC
1	CURRENT SENSE	Analog voltage relative to IDD @ 100mV per Ampere
2	TEMP SENSE	Analog voltage relative to Module's Temperature @ 10 mV/°C
3	ENABLE	Amplifier Enable: TTL Logic High (3.3V) (Internally Pulled-Low)
4	GND	Ground
5	N/C	No Connection

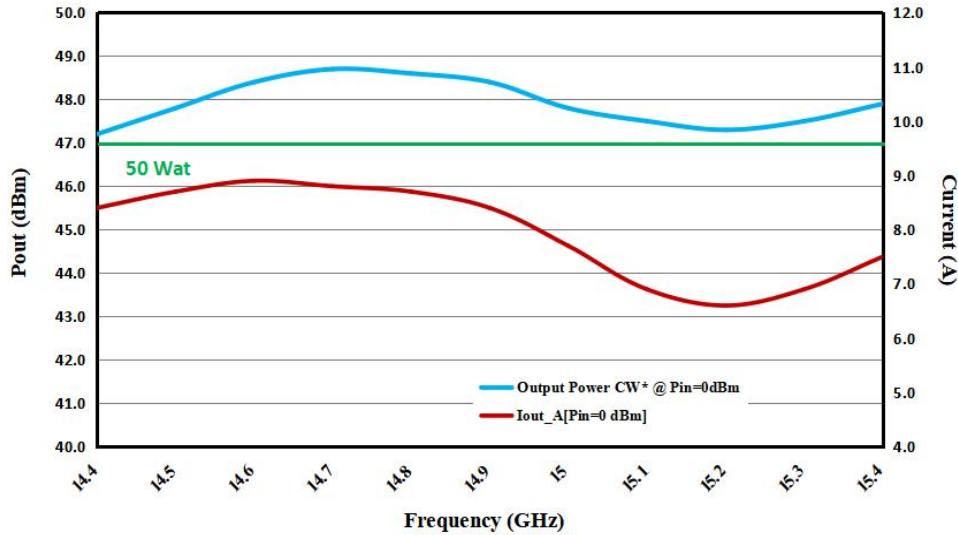
PLOTTED AND OTHER DATA

Notes:

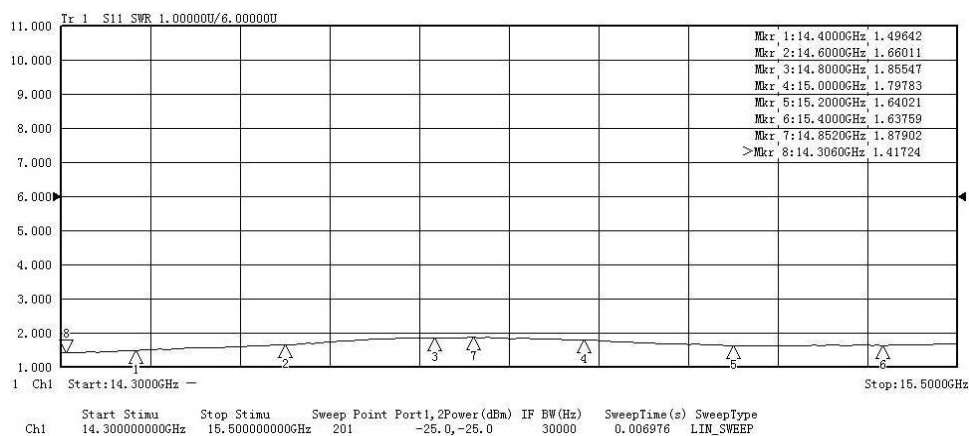
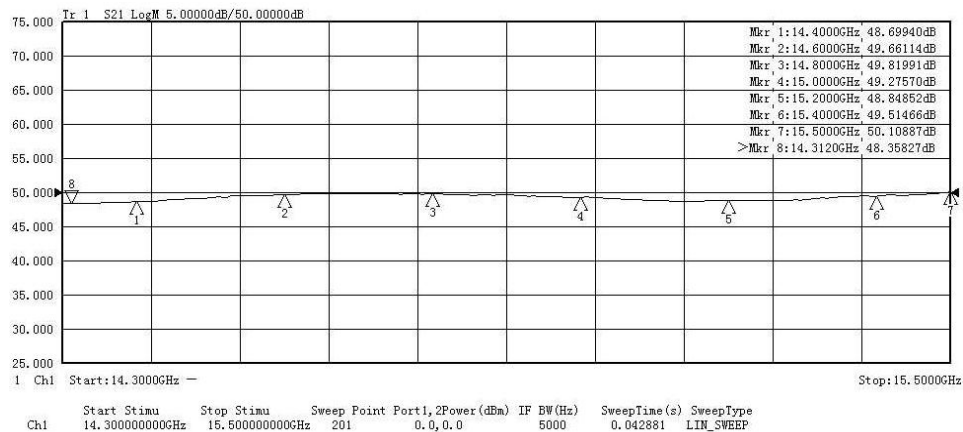
1. Values at +25°C, sea level.
2. ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in approved ESD Workstation.
3. Heat Sink required for Proper Operation, Unit is cooled by conduction to heat sink.

TYPICAL PERFORMANCE DATA [Volume Shipment product data for Reference]

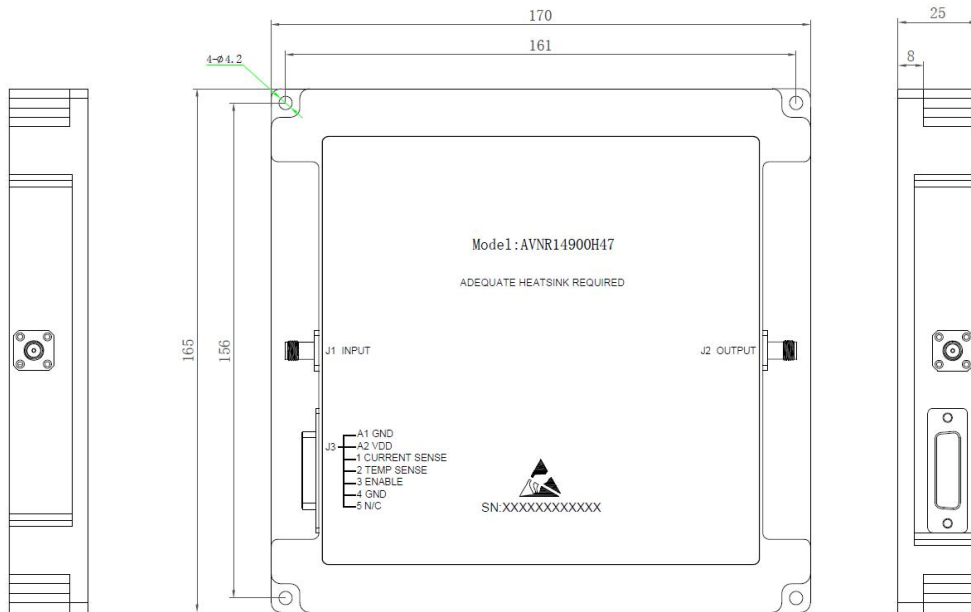
Pout and Current [Pin=0dBm Load VSWR ≤ 1.2], (Normal temp. +25±3°C)



S21@ Pin=0 dBm (figure up), S11@ Pin=-25dBm (figure down): (Ambient temp. +25±3°C, DC Voltage= 28V, Load VSWR ≤ 1.2)



OUTLINE DRAWING [mm]



Side View [3D]

