TECHNICAL DATASHEET **AVBR180400H43**

The AVBR180400H43 is a 20W high gain Solid State Broadband 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 broadband jamming and EMC testing.

Features

18GHz-40GHz frequency range
Psat 45dBm type
Output port: built-inside Isolator to protect
Built-in control, monitoring and protection circuits
Solid-state Class AB Broadband design
Instantaneous ultra-broadband
Suitable for pulse and CW applications
High reliability and ruggedness

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

Description	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	18		40	GHz
Output Power CW* @ Pin= 0dBm	P_{sat}	42	43		dBm
Power Gain @ Pin=0dBm	Gp		45		dB
Power Gain Flatness @ Pin=0dBm	ΔGp		±1.0	±2.0	dB
Input Power for Rated P_{SAT}	P_{IN}		0	+4	dBm
Harmonics @ Pin=0dBm	2^{nd}			-10	dBc
Noise Figure*	NF		N/A		dB
Spurious Signals@ Pin=0dBm	Spur			-60	dBc
Input Return Loss	S11			-10	dB
Operating Voltage	VDC	18	28	36	V
Average Current @ Pin=0dBm	IDD		13	16	A
Switching Time @ 1kHz TTL**	TON/TOFF		1	2	μs

Note*: contact our sales for further information.
Note:** Switching Time can be customized for less than 500nS, please contact our sales.

MECHANICAL SPECIFICATIONS

Cooling External Heat Sink Needed (Not Supplied)

Length* Width*Height[mm]	140*90*36
Weight[Kg]	0.8
RF Connector Input	2.92mm, Female
RF Connector Output	WRD180
DC interface connector	Hybrid D-Sub 7 Pin, Male

*Chengdu AmpliVisionS Technology Co., Ltd.**
Advanced Wireless Communication Crowd-Innovation Space
High-Tech(West) Zone, Chengdu, P. R. China
Phone: +86(28)61892455
Email: sales@amplivisions.com
www.amplivisions.com

ENVIRONMENTAL SPECIFICATIONS

Module Operation Temperature*1	-20	60*2	℃
Storage Temperature Range	-45	85	℃
Relative-Humidity		95	%
Altitude*3	N/A		
Vibration/Shock*3	N/A		

Notes*1: Module Operation Temperature can be extended to -45~+65℃, Contact Sales for update.
Notes*2: Should Supply Adequate Heat Dissipation, Enough Fan and Heat-Sink is necessary during the Temp Test.
Notes*3: Altitude /Vibration are designed with considerations, but without tests and experiments.

LIMITS

Input RF drive level without damage	Pin≤+8	dBm
Load VSWR @ POUT = 10W	VSWR≤6:1[Design To Meet]	N/A
Load VSWR @ POUT = 20W	VSWR≤3:1[Design To Meet]	N/A
Thermal Degradation	90±5°C Graceful Degradation(recovery at 80±5°C)	℃

DC INTERFACE CONNECTOR – [Hybrid D-Sub 7 Pin, Male]*3

Pin #	Description	Specifications
A1	GND	Ground
A2	VDD	28VDC
1	CURRENT SENSE	Analog voltage relative to IDD @ 100mV per Ampere
2	TEMP SENSE*1	Analog voltage relative to Module's Temperature @ 10 mV/°C
3	ENABLE	Amplifier Enable:TTL Logic High (3.3~5V) Disable: TTL Logic Low (0~0.6V)(Internally Pulled-Down)
4	GND	Ground
5	OUTPUT POWER SENSE*2	Output power≥**5W:** TTL Logic High (3.3~5V) (Internally Pulled-Low).

Note*1: Temp sense has a positive temperature coefficient of approximately 10mV/°C by design.
The Temp sense voltage can be calculated using the equation: VT(mV)= 500mV+10mV*Temp

Note*2: Use Power indicator to make sure the power amplifier is operating Ok. Pin5 outputs a high level (3.3~5V), indicating that the amplifier output power is ≥5W (test conditions: single tone, continuous wave).Pin5 can also be changed to an analog voltage output (forward power detection, analog voltage), and the output voltage changes linearly with the positive output power (Power Sense has a positive power coefficient of +20~60 mV/dB by design). Please contact sales if you want customize this function.

Note*3: Over-excitation and over-standing wave protection functions can be added. Please contact sales for updates.

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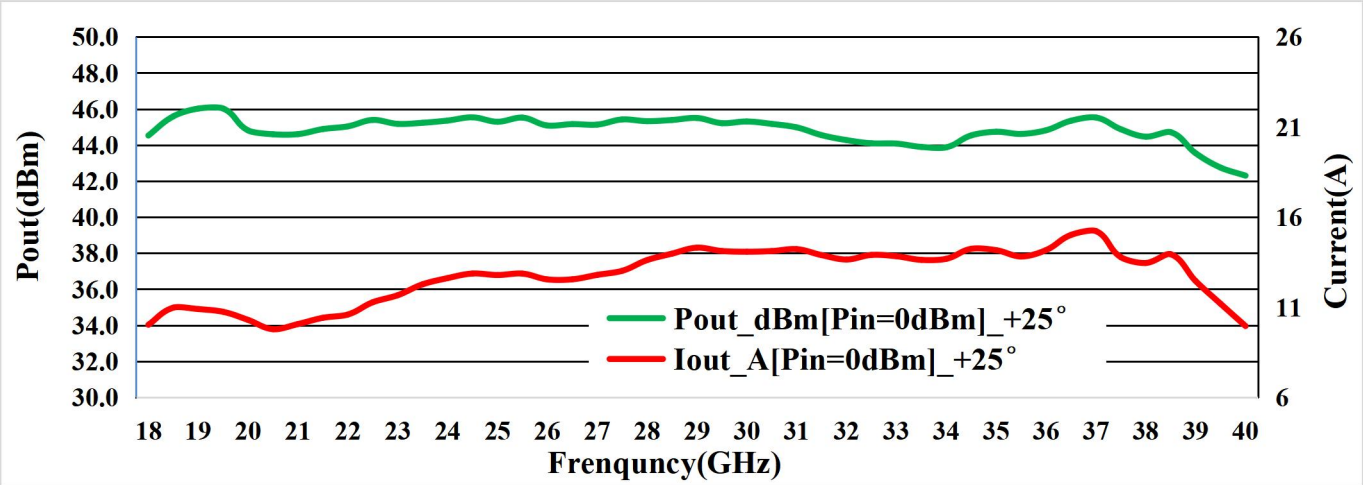
PLOTTED AND OTHER DATA

Notes:

1. Values at +25℃， 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] [DC Voltage= 28V,Load VSWR ≤ 1.2,Ambient temp. +25±3℃]



Output power & Iout @Pin=0 dBm

OUTLINE DRAWING Surface: Natural color conductive oxide

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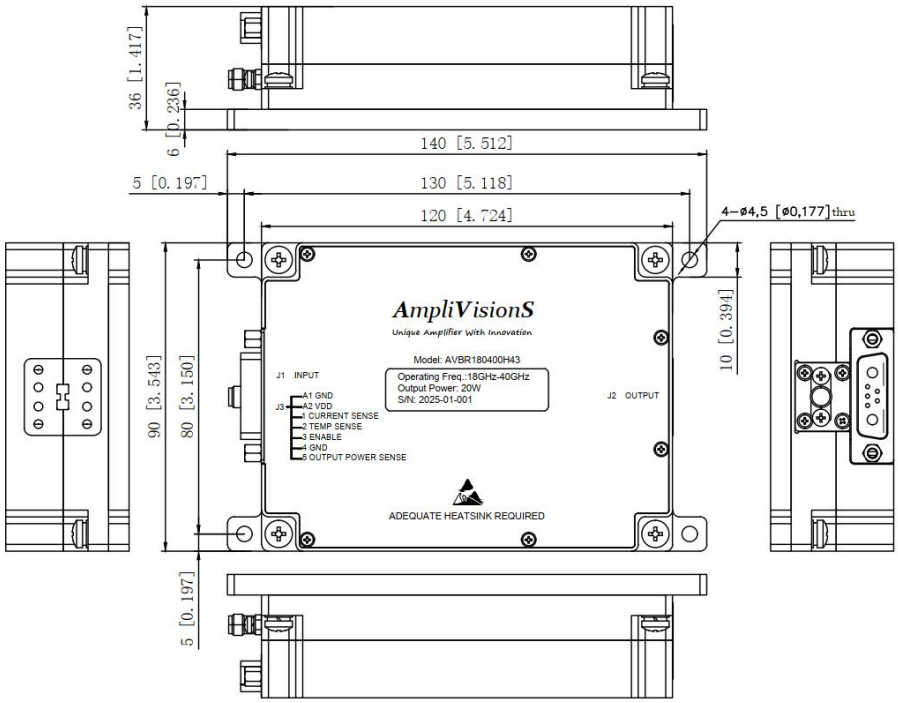
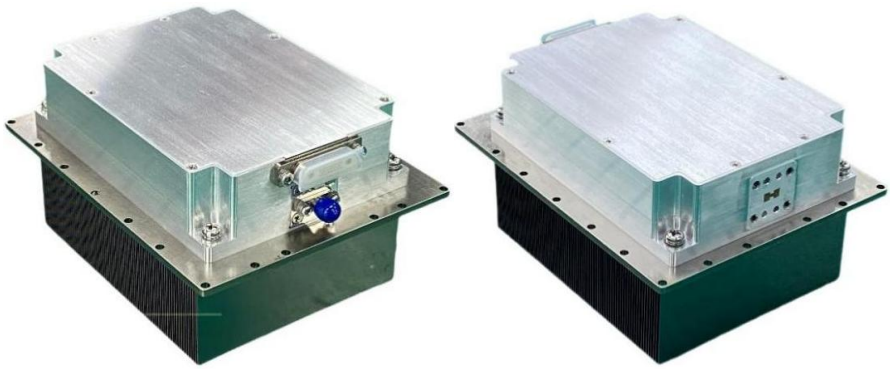


OUTLINE – Fabricated (picture with Heat-sink)



Unit：mm[inch]Tolerance：±0.2 [0.008]

Note*1: The Outline and Functions can be customized, please contact our sales for further information.

Note*2: thermal grease with a thermal conductivity of 3-6W/m-K is recommended

Part Number	Version	Release Date	Modification	Status
AVBR180400H43	A.1	3.11.2024	-	Preliminary
AVBR180400H43	A.2.1	2.24.2025	Updated to CW Mode	Official Release
AVBR180400H43	A.2.2	2.25.2025	1.ReplaceDC connector(J30J) with 7W2 2.Update interface definition 3.Update maximum input power	Official Release

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