

TECHNICAL DATASHEET

AVBR2060U53

The AVBR2060U53 is a 200W high gain Solid State Broadband High Power Amplifier System. This amplifier 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 high power CW or Pulse system applications, Communication Modulated Signal Test (LTE && 5G), or EMC testing situation.

Features

- 2GHz-6GHz frequency range
- Psat.: 53dBm Min., 53.5 dBm Typ.
- Power gain 53 dB
- 50 ohm input/output impedance
- Built-in control, monitoring and protection circuits
- Solid-state Class AB Broadband design
- Ultra-broadband Instantaneous Bandwidth
- Suitable for pulse or CW applications
- ALC and MGC is available in options
- High reliability and ruggedness

ELECTRICAL SPECIFICATIONS (T=25°C ± 3°C, VAC =220V, CW, Load VSWR<1.2)

Description	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	2		6	GHz
Output Power CW* @ Pin= 0 dBm	Psat	53	53.5		dBm
Output P1dB* CW	P1dB	50	51		dBm
Power Gain @ Pin= 0dBm	Gp	53	55		dB
Power Gain Flatness @ Pin=0 dBm	ΔGp		± 1.0	± 1.3	dB
Harmonics @ Pin=-5 dBm	2 nd /3 rd		-20/-25	-15/-20	dBc
Spurious Signals @ Pin= 0 dBm	Spur		-70	-60	dBc
Small Signal Gain @ Pin= -30 dBm	Gss		60		dB
Small Signal Flatness @ Pin= -30 dBm	ΔGs		± 2	± 2.7	dB
Isolation[Disable Status]	Iso		90		dB
Input VSWR	VSWR_IN		1.5	1.8	/
Output VSWR	VSWR_OUT		1.5	2.0	/
Third Intermodulation Third Order 2-Tone @ 43dBm/Tone, 10MHz**	IMD3		-30	-25	dBc
Group Delay	G _D			20	nS
Supply Voltage (47~61Hz) /Single-Phase	VAC	180	220/50Hz	260	V
Power Consumption @ Pout =53~54dBm	PC		1100	1300	W

Note*: Fundamental Power, Harmonics are excluded.

Note:** 1MHz, 5MHz, 20MHz, 100MHz Data is Available, please contact sales for further information.

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MECHANICAL SPECIFICATIONS

Length*Width*Height[mm]	482.6 x 221.5 x 480 (5U)
Weight[Kg] *	39
RF Connector Input	Type N, Female
RF Connector Output	Type N, Female
RF Connector Forward Coupler (Optional)	Type N, Female
DC Connector RS-232	Dsub-9, Male
AC Connector	3 WIRE A/C Power Entry

Note*: Net Weight, without package.**ENVIRONMENTAL SPECIFICATIONS (Design to Meet)**

System Operation Temperature* ¹	-10	45	°C
Storage Temperature Range	-25	75	°C
Relative-Humidity		95	%
Altitude* ²	N/A		
Vibration/Shock* ²	N/A		

Notes *¹: System Operation Temperature can be extended to -40~65°C, Contact Sales for update.**Notes** *²: Altitude/Vibration is designed with experienced considerations, but without tests and experiments, Contact Sales for experimentally verified.**LIMITS**

Pin<15 dBm (Input RF level without damage)	Load VSWR<1.5:1 (50 Ohm)
Pin=-5 dBm	Load open or short for up to 10 minutes.
Pin=0 dBm	Load VSWR<3:1 for continuous operation
Thermal Degradation	55 °C
VSWR protection	Forward Power > 20W and VSWR>5:1 N/A

DC INTERFACE CONNECTOR –RS-232 [D-Sub 9-Pin, Male]

Pin #	Description	Specifications
1	GND	Ground
2	SHUTDOWN	Amplifier Disable: TTL Logic High (3.3V) (Internally
3	Temperature Alarm	Abnormal: Logic High (3.3V) (Internally Pulled-Low)
4	Fan Alarm	Abnormal: Logic High (3.3V) (Internally Pulled-Low)
5	Power Amplifier Alarm	Abnormal: Logic High (3.3V) (Internally Pulled-Low)
6~9	N/C	No electrical connected, Reserved

Front Panel LED Indicators**

Description	Specifications
RUN	GREEN: Internal DC supply turn on, Amplifier is awoken and ready to work.
TEMP	RED: Temperature is over-limited, Amplifier shutdown
FAN	RED: Fan is abnormal, Amplifier shutdown
ALARM	RED: Amplifier is abnormal, Amplifier shutdown, Connect D-Sub 9 to debug

**Note: LCD display is available; LED Indicator is for version without LCD.

Available options:

AVBR2060U53	180-260VAC, 1-phase, 47-63 Hz, Front RF Connectors, Without LCD Display
AVBR2060U53-001	28 VDC, Front RF Connectors , Without LCD Display
AVBR2060U53-002	180-260VAC, 1-phase, 47-63 Hz, Front RF Connectors, With LCD Display(Forward power)
AVBR2060U53-003	180-260VAC, 1-phase, 47-63 Hz, Front RF Connectors,, RS232 ALC and MGC functions, With LCD Display(Forward power, ALC, MGC)
AVBR2060U53-XXX	<p>Other Feature:</p> <ul style="list-style-type: none"> -LCD Control, Ethernet & Serial -Main RF Connectors: Input & Output [Front] -Sample Port: SMA-F [Forward & Reverse] -Blanking/Gating Port: BNC-F -Rack Slides, Handles and Rackmount Bracket

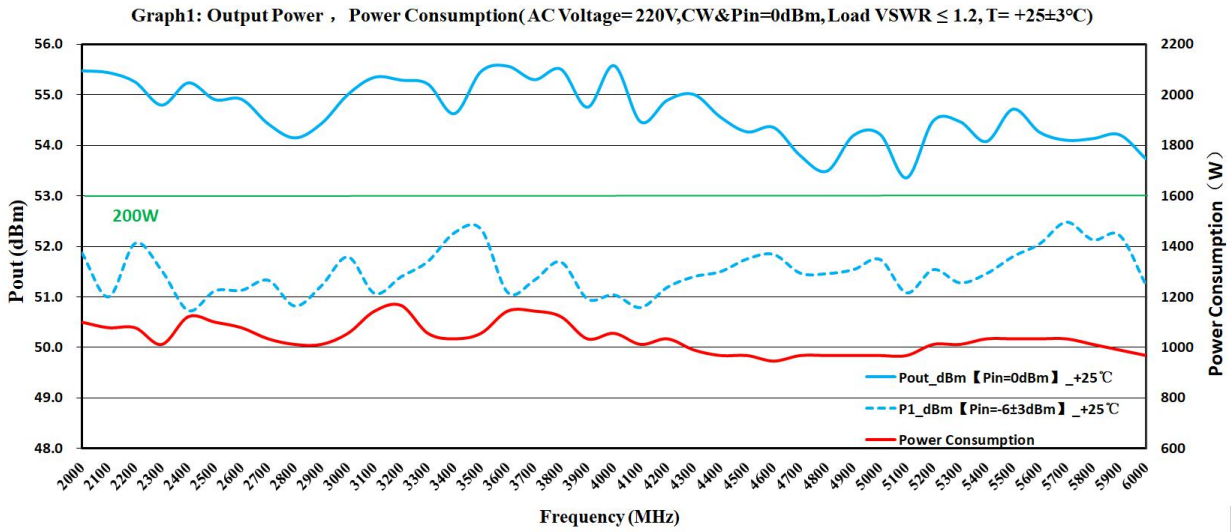
PLOTTED AND OTHER DATA

Notes:

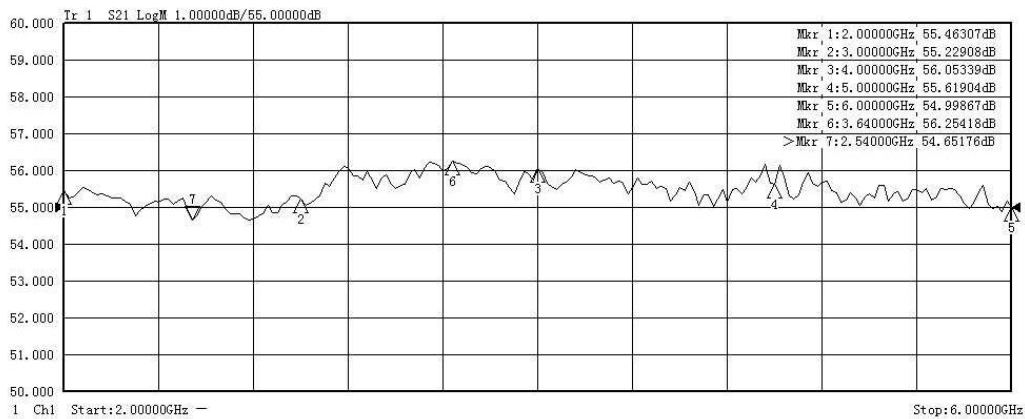
1. Values at +25°C, sea level.
2. Handle only in approved ESD Workstation.
3. Unit is cooled by air-forced condition.

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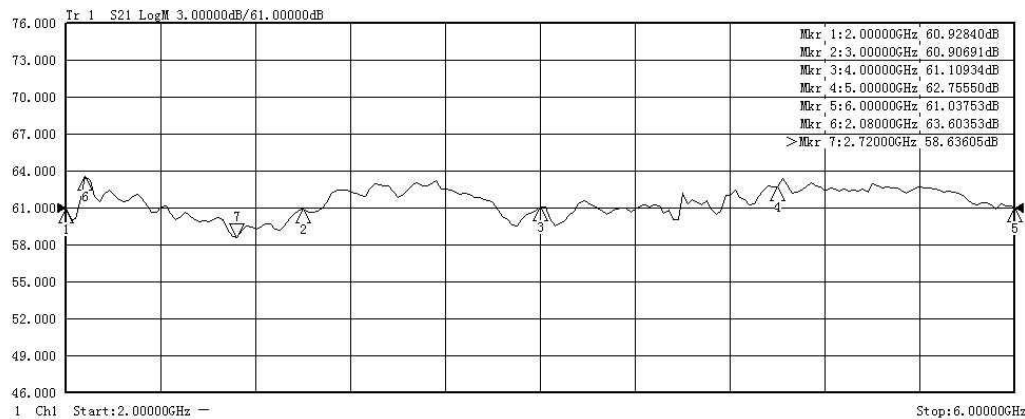
TYPICAL PERFORMANCE DATA [Ambient Temp:25°C, Load VSWR<1.2, ALC OFF]



Pout@ Pin=0dBm & P1dB (CW, Load VSWR≤1.2, 25°C), for reference only (Shipped Products)



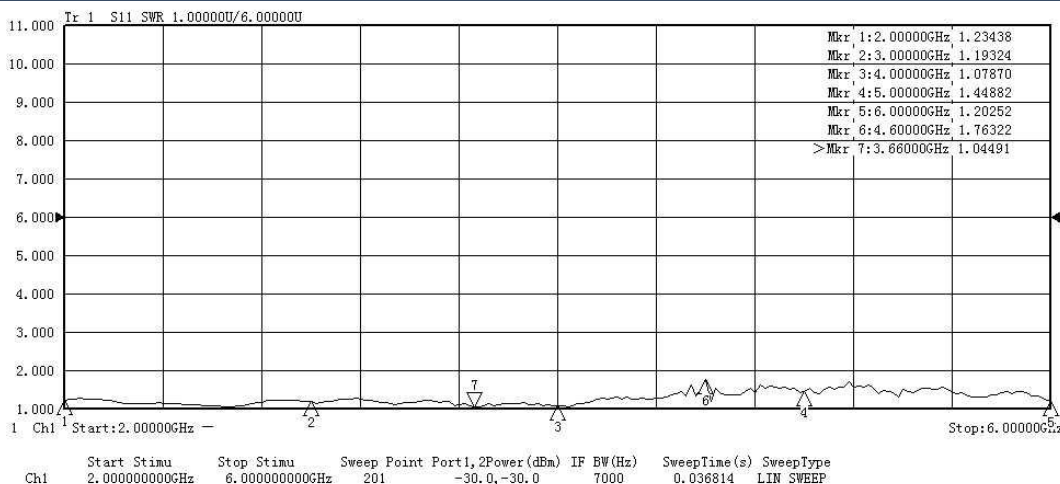
Power Gain S21@ Pin=0 dBm (Ambient temp. +25±2°C, Load VSWR≤1.2), for reference only (Shipped Products)



Small signal gain @Pin=-30dBm (Ambient temp. +25±2°C, Load VSWR≤1.2), for reference only (Shipped Products)

Datasheet: REV2.0 /11.10.2021

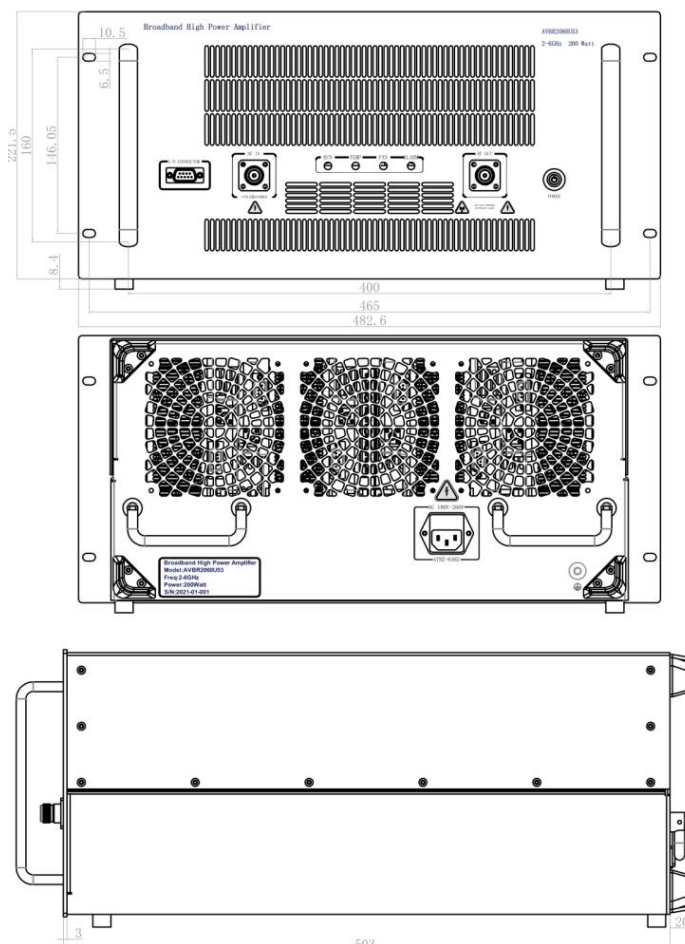
Unique Amplifier With Innovation



Input VSWR @Pin=-30dBm (Ambient temp. +25±2°C, Load VSWR≤1.2), for reference only (Shipped Products)

Rack Mounted System - Detailed Dimensions (mm)-Standard Case Style-A5U2 (Front RF connector View)

Outlines:

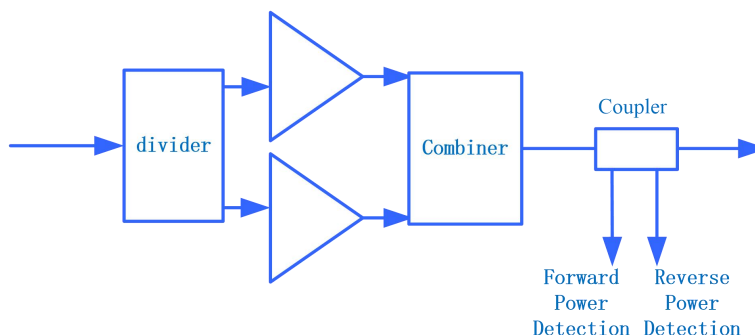


Product Side View:



Description:

1. ALC and MGC functions are controlled by serial communication protocol (RS-232), and the communication protocol will be provided to the user before delivery;
2. ALC control input range is typical -15~5dBm. The ALC Output power range is 30dBm~50dBm (typical value);
3. ALC and MGC functions can function well suited for CW signal;
4. LCD display is only used for monitoring the status of the device, without touch function;
5. Typical diagram is as follows:



Part Number	Version	Release Date	Modification	Status
AVBR2060U53	1.0	2021.7.15	-	Production
AVBR2060U53	2.0	2021.11.10	Added: ALC, MGC	Production