

◆ Product Description

The MPAR-060180S51-A is a 6-18GHz, 125W solid state high gain broadband high power amplifier with state-of-art GaN design technology. Its built-in control and monitoring, with protection functions improve amplifier's reliability & usability. And it can adapt to a variety of different signal modes such as continuous wave, pulse, wide instantaneous bandwidth signal, high-order modulation signal and etc. It is designed for applications, such as Test & Measurement System, EMC

◆ Features

Frequency Range: 6-18GHz	Solid-state Class AB broadband design
Output Power: 50dBm Min., 51dBm Typ.	Better linearity, high efficiency
Gain: 50dB Min., 53dB Typ.	Suitable for CW or pulse applications
50 ohm input/output impedance	ALC and MGC is available in options
Forward and Reverse power display	High reliability and ruggedness

◆ Electrical Specifications (T=25°C±3°C, VAC =220V, CW, Load VSWR<1.2)

Description	Min	Typ	Max	Unit
Operating Frequency	6		18	GHz
Output Power CW* @ Pin= 0 dBm	50	51		dBm
Gain @ Pin= 0 dBm	50	53		dB
Gain Flatness @ Pin=0 dBm		±1.5	±2	dB
Gain Flatness Leveled (ALC)**		±1	±1.5	dB
Gain Adjustment Range (MGC***)		20		dB
Input Power for Rated Psat	-5	0	2	dBm
2nd/3rd Harmonics @ Pin=-5 dBm		-15/-25	-9/-15	dBc
Small Signal Gain @ Pin= 25 dBm		62		dB
Small Signal Flatness @ Pin= -25 dBm		±2	±3.5	dB
Spurious Signals @ Pin= 0 dBm		-70	-60	dBc
Input Return Loss			-10	dB
Supply Voltage (47~61Hz) /Single-Phase	180	220/50Hz	260	V
Peak Power Consumption @ Pout =100-150W		1000	1600	W

Note*: CW measurement performed in MGC Mode (Manual Gain Control)

Note**: ALC power can be set to the range of 30dBm~50dBm.

Note***: MGC can be set to the range of 0dB~30dB

◆ Environmental Specifications (Design Goal)

Operation Temperature*1	-10	45	°C
Storage Temperature Range	-20	55	°C
Relative-Humidity	N/A		
Altitude*2	N/A		
Vibration/Shock*2	N/A		

Notes *1: Operation Temperature can be extended to -40~65°C, Contact Sales for update.

Notes *2: Altitude /Vibration are designed with considerations, but without tests and experiments. Contact Sales for experimentally verified.

◆ Limits

Input RF drive level without damage	Pin ≤ 10dBm
Load VSWR @ POUT =80W	VSWR ≤ 5:1
VSWR protection	Forward Power > 20W and VSWR > 5:1
Thermal Degradation	55°C

◆ AC Interface Connector Standard Circular Connectors

Pin #	Description	Specifications
1	L	Live Wire
2	N	Neutral Wire
3	GND	Earth Wire

◆ DC Interface Connector (D-Sub 9-Pin, Male)-Standard Version

Pin #	Description	Specifications
1	GND	Ground
2	Shutdown	Amplifier Disable: TTL Logic High (3.3V) (Internally Pulled-Low)
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

◆ DC Interface Connector-RS-232 (D-Sub 9-Pin, Male)

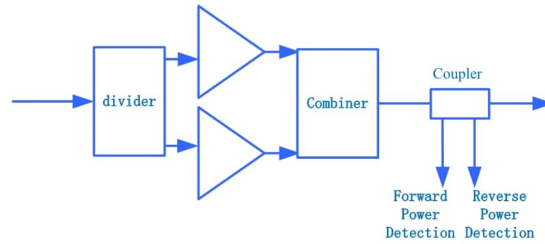
Pin #	Description	Specifications
1	GND	Ground
2	SHUTDOWN	Amplifier Disable: TTL Logic High (3.3V) (Internally Pulled-Low)
3	RS-232-TxD	Transmitted Data - TxD
4	RS-232-RxD	Received Data - RxD
5	GND	GND, Sig.GND
6~9	N/C	No electrical connected, Reserved

◆ 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

◆ Special Descriptions

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)
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 screen touch function
5. Typical diagram is as follows:



◆ Options

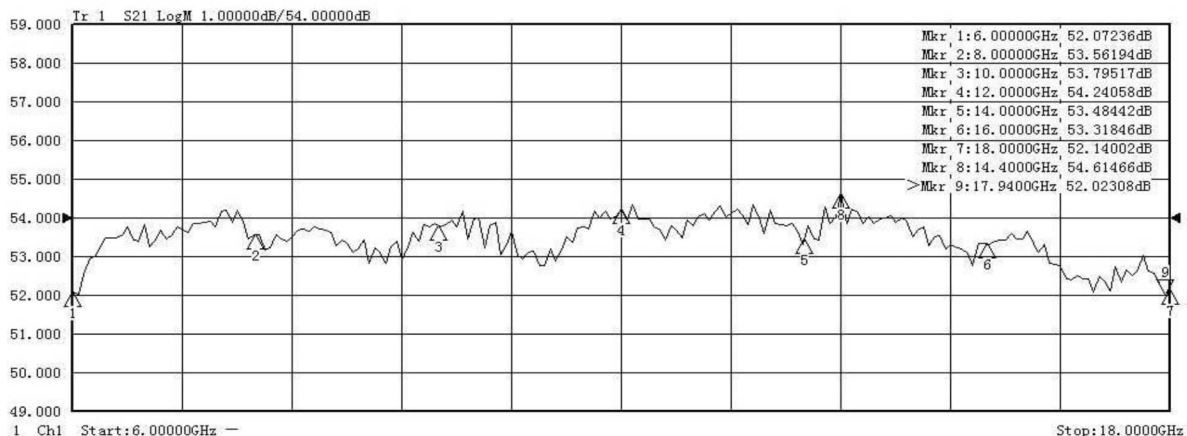
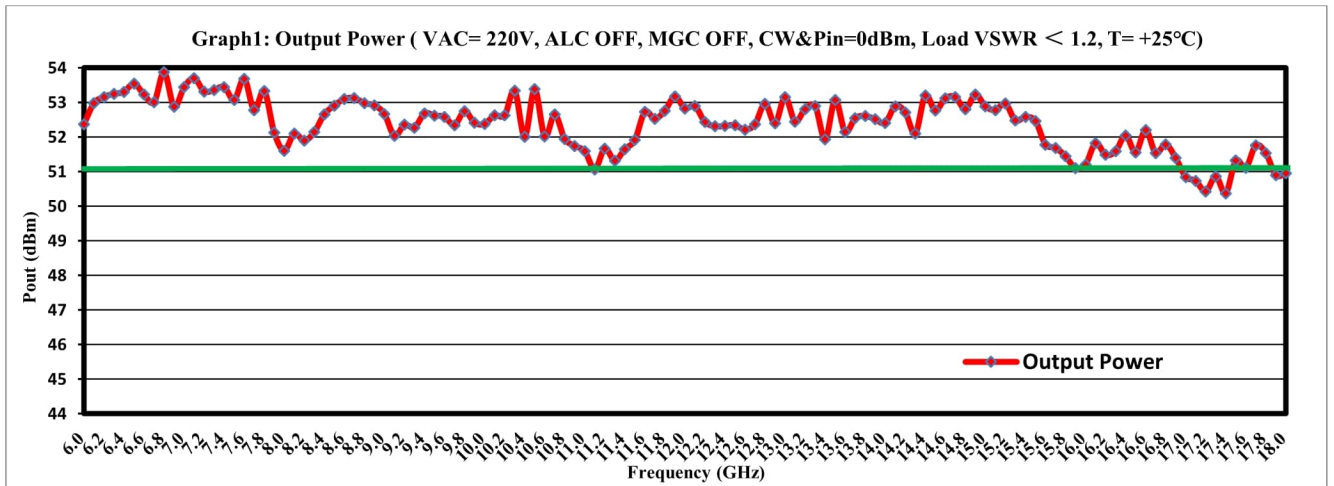
1. Standard: 180-260VAC, 1-phase, 47-63 Hz, Front RF Connectors, Without LCD Display
2. 28 VDC, Rear RF Connectors, Without LCD Display
3. 180-260VAC, 1-phase, 47-63 Hz, Rear RF Connectors, With LCD Display (Forward power)
4. 180-260VAC, 1-phase, 47-63 Hz, Rear RF Connectors, RS232 ALC and MGC functions, With LCD Display (Forward power, ALC, MGC)
5. LCD Control, Ethernet & Serial
6. Main RF Connectors: Input & Output (Front)
7. Sample Port: SMA-F (Forward & Reverse)
8. Blanking/Gating Port: BNC-F
9. Rack Slides, Handles and Rackmount Bracket

◆ Plotted and other Data

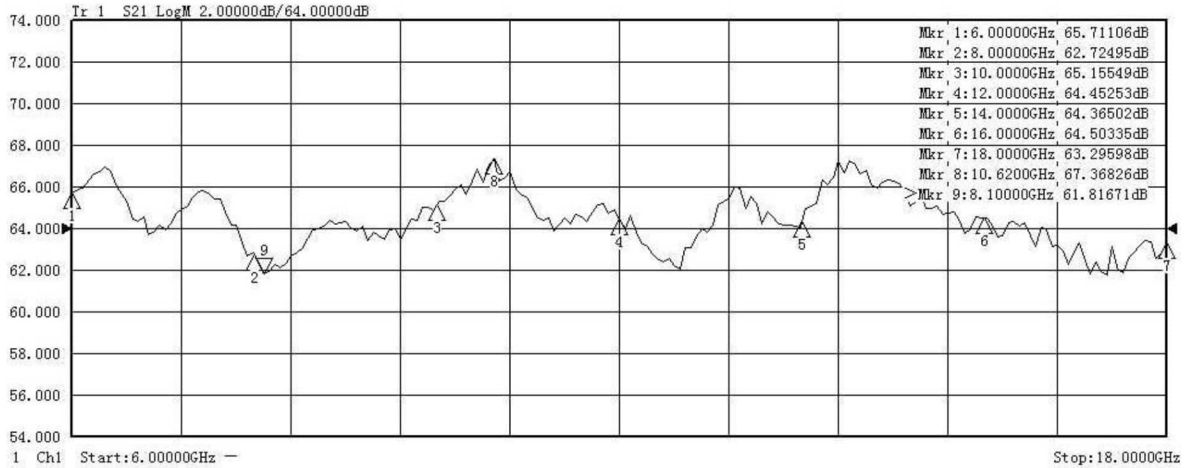
Notes:

1. All specifications are guaranteed at +25°C case operating temperature.
2. Handle only in approved ESD Workstation.
3. Unit is cooled by air-forced condition.

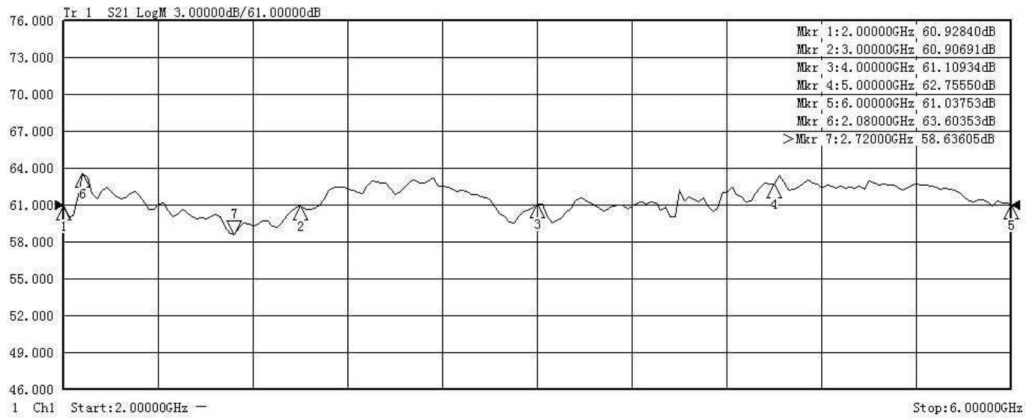
Typical Performance Data (Ambient Temp: 25°C, Load VSWR<1.2)



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



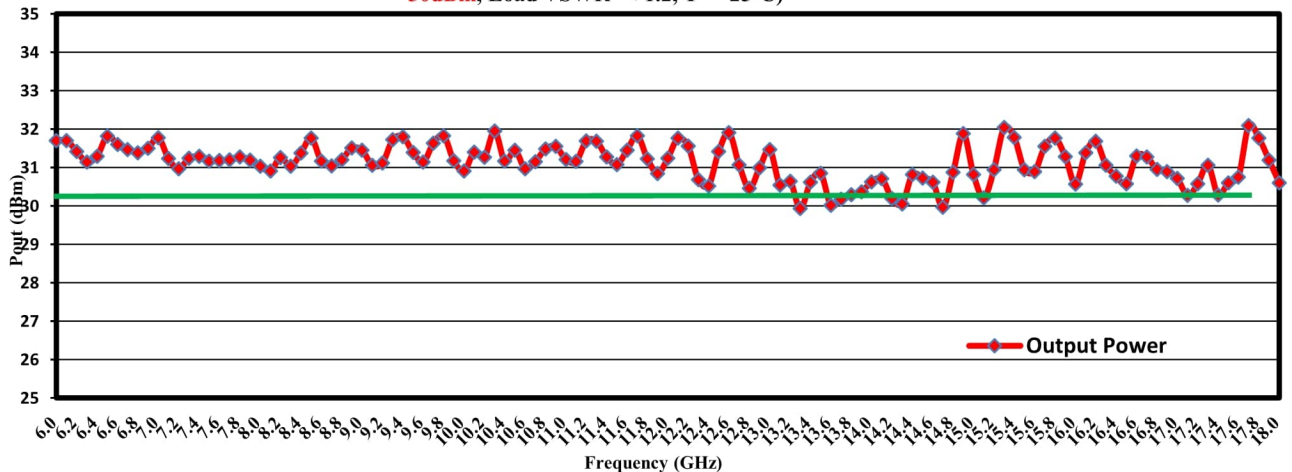
Small signal Gain S21@ Pin=0 dBm (Ambient temp. +25±2°C, Load VSWR≤1.2), for reference only (Shipped Products)



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

Typical Performance Data (Ambient Temp: 25°C, Load VSWR<1.2, ALC functions)

Graph2: Gain Flatness Levelled (ALC) (VAC= 220V, ALC ON, MGC OFF, CW&Pin= -10dBm, ALC= 30dBm, Load VSWR < 1.2, T= +25°C)



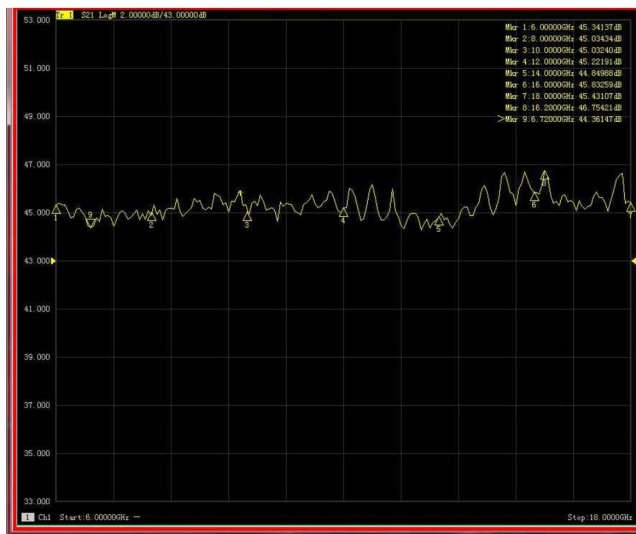
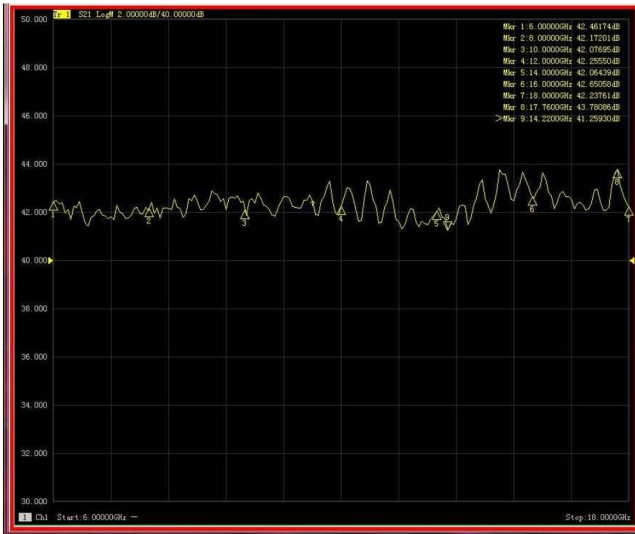
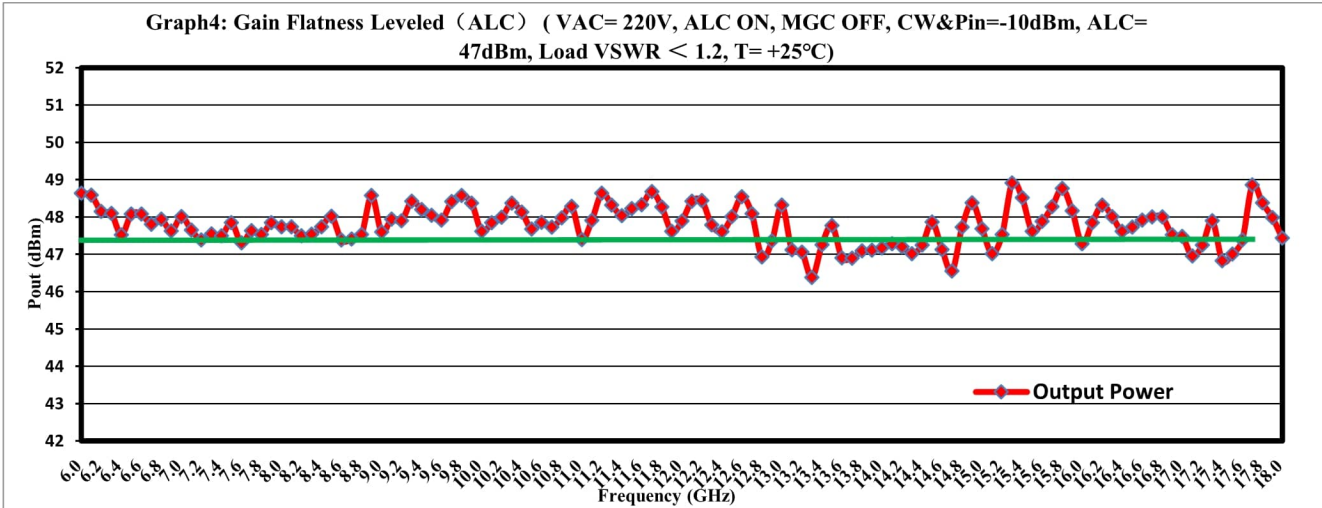


Figure left: Gain S21@ Pin=-10dBm (MGC OFF and ALC=40dBm), for Reference Only (Shipped Products)
Figure right: Gain S21@ Pin=-10dBm (MGC OFF and ALC=43dBm), for Reference Only (Shipped Products)

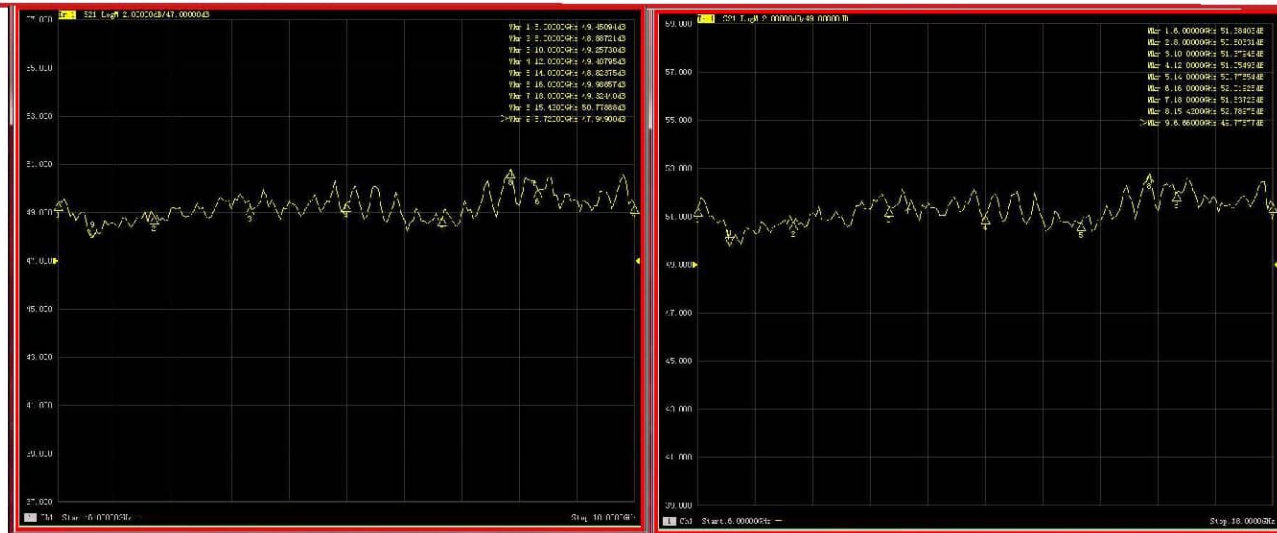
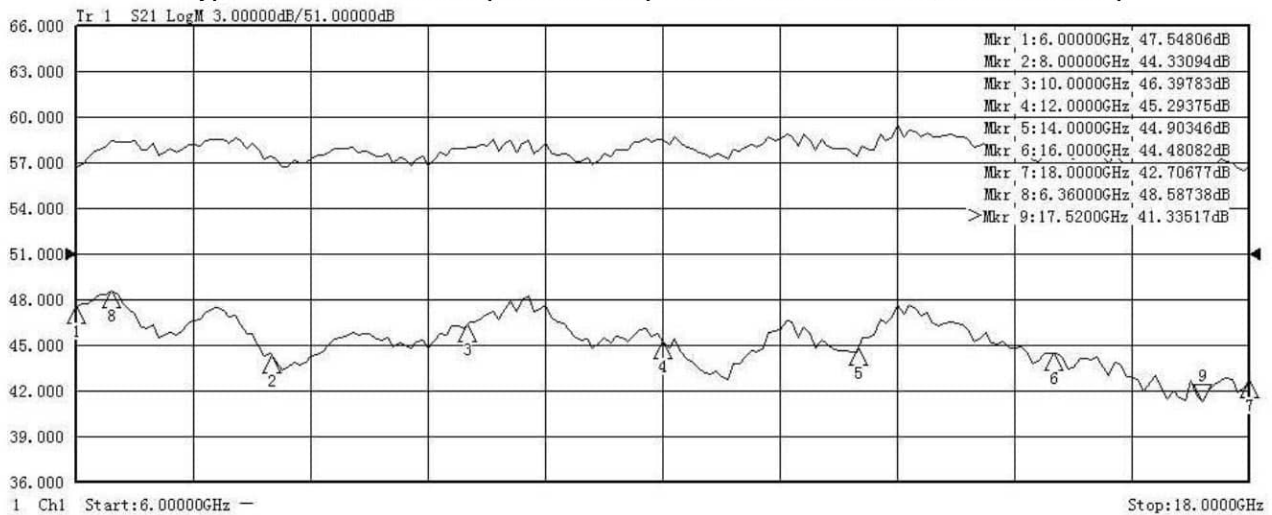
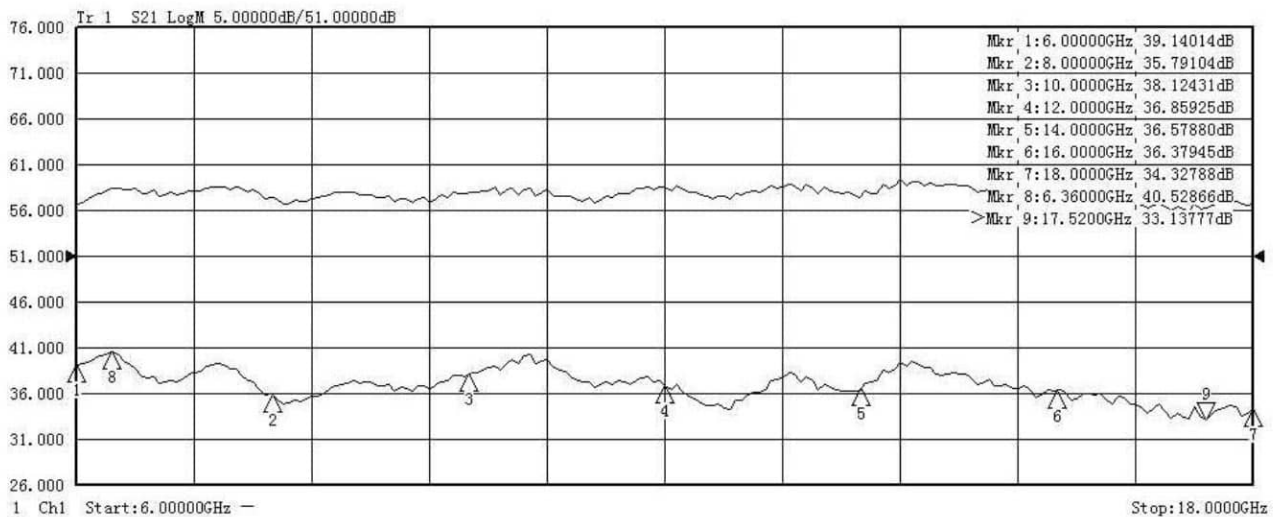


Figure left: Gain S21@ Pin=-10dBm (MGC OFF and ALC=47dBm), for Reference Only (Shipped Products)
Figure right: Gain S21@ Pin=-10dBm (MGC OFF and ALC=49dBm), for Reference Only (Shipped Products)

Typical Performance Data (Ambient Temp: 25°C, Load VSWR<1.2, MGC functions)

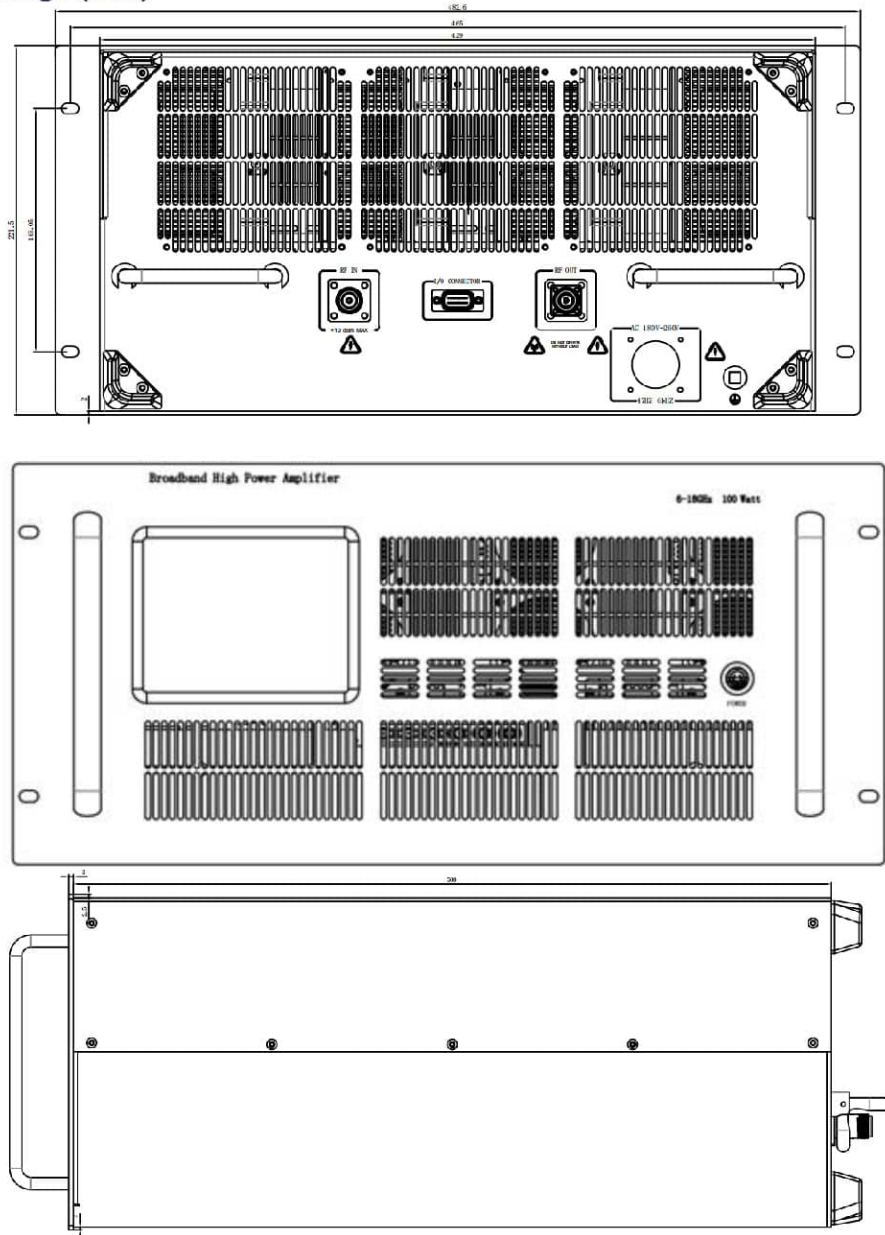


Gain S21@ Pin=-5dBm (MGC OFF and MGC=20dB), for Reference Only (Shipped Products)



Gain S21 @ Pin=-5dBm (MGC OFF and MGC=30dB), for Reference Only (Shipped Products)

◆ Outline Drawings (mm)



◆ Outline for reference**◆ Mechanical Definition**

Dimensions (B,H,D) mm	482.6 x 221.5 x 500 (5U)
Weight (Kg)	38
RF-Input	N Female
RF-Output	N Female
DC Connector RS-232	D sub-9 Male
AC Connector	3 position Standard Circular Connectors