

◆ Product Description

The MPAR-004020S50 is a 0.45-2GHz, 100W solid state high gain broadband power amplifier with state-of-art GaN design technology. It has higher saturated output power while keeping higher P1dB and better linearity, and 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 and EMC.

◆ Features

Frequency Range: 0.45-2GHz	Solid-state Class AB broadband design
Output Power.: 49dBm Min., 50dBm Typ.	High linearity, high efficiency
P1dB: 47dBm Min., 48dBm Typ.	Suitable for modulated signals test
50 ohm input/output impedance	Better harmonics and gain flatness
Built-in control, monitoring and protection circuits	High reliability and ruggedness

◆ Electrical Specifications (T=25°C, AC Voltage= 220V, Load VSWR ≤ 1.2)

Description	Min	Typ	Max	Unit
Frequency Range	0.45		2	GHz
Output Power CW* @Pin=0dBm	49	50		dBm
Output P1dB* CW	47	48		dBm
Gain @ Pin=0dBm	49	51		dB
Gain Flatness @ Pin=0dBm		± 1.5	± 2	dB
2 nd /3 rd Harmonics @ Pin=-5dBm		-20/-20	-13/-15	dBc
Noise Figure		8	10	dB
Spurious Signals @Pin=0dBm		-70	-65	dBc
Small Signal Gain @ Pin=-30dBm	53	55		dB
Small Signal Flatness		± 1.5	± 2	dB
Isolation (Disable Status)		90		dB
Input VSWR		1.5	2	/
Output VSWR		1.5	2	/
Third Order Intercept Point 2-Tone @ 41dBm/Tone, 1MHz Space(If Needed, Please Contact)		+54		dBm
Supply Voltage (47~61Hz) /Single-Phase	180	220/50Hz	260	V
Power Consumption @ Pin=0dBm		450	550	W

Note*: Fundamental Power, Harmonics are excluded

◆ Environmental Specifications (Design Goal)

Operation Temperature*1	-10	45	°C
Storage Temperature Range	-20	55	°C
Relative-Humidity		95	%
Altitude*2	N/A		
Vibration/Shock*2	N/A		

Notes *1: Operation Temperature can be extended to -20~65°C. Contact Sales for update.

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

◆ Limits

Pin<15 dBm (Input RF level without damage)	Load VSWR<1.5:1 (50 Ohm)
Pin=-10dBm	Load open or short for up to 10 minutes.
Pin=0 dBm	Load VSWR<3:1 for continuous operation
Thermal Degradation	60°C

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

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

◆ Front Panel LED Indicators

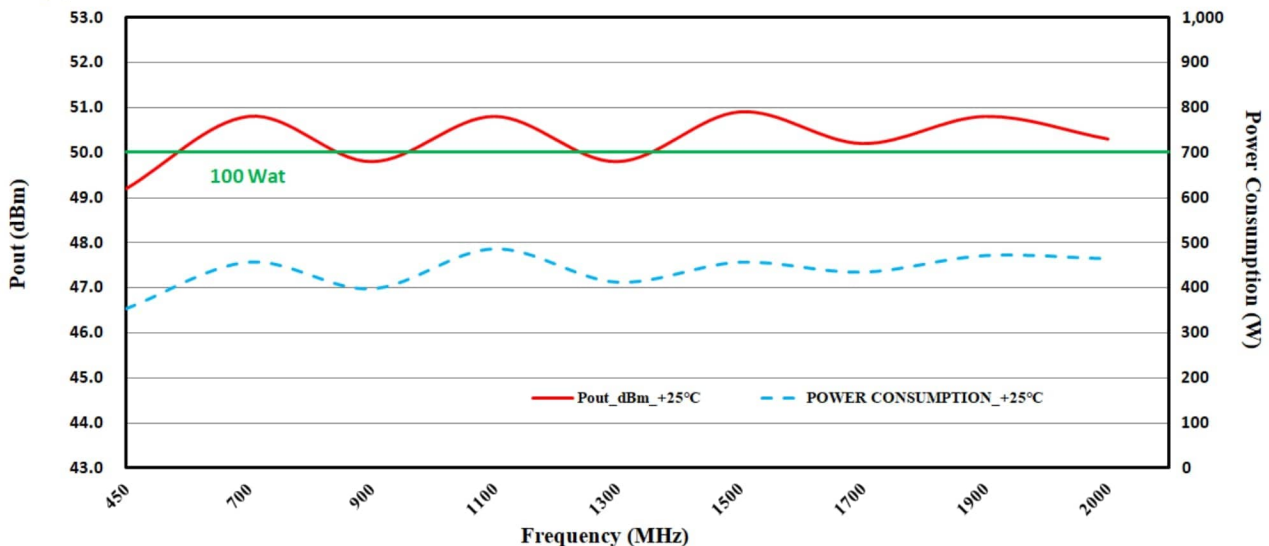
Description	Specifications
RUN	GREEN: Internal DC supply turn on, Amplifier is awoken and ready to work.
TEMP	RED: Temperature is over-limited, Amplifier shutdown
FAN	RED: Fan is abnormal, Amplifier shutdown
ALARM	RED: Amplifier is abnormal, Amplifier shutdown, Connect D-Sub 9 to debug

◆ 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.

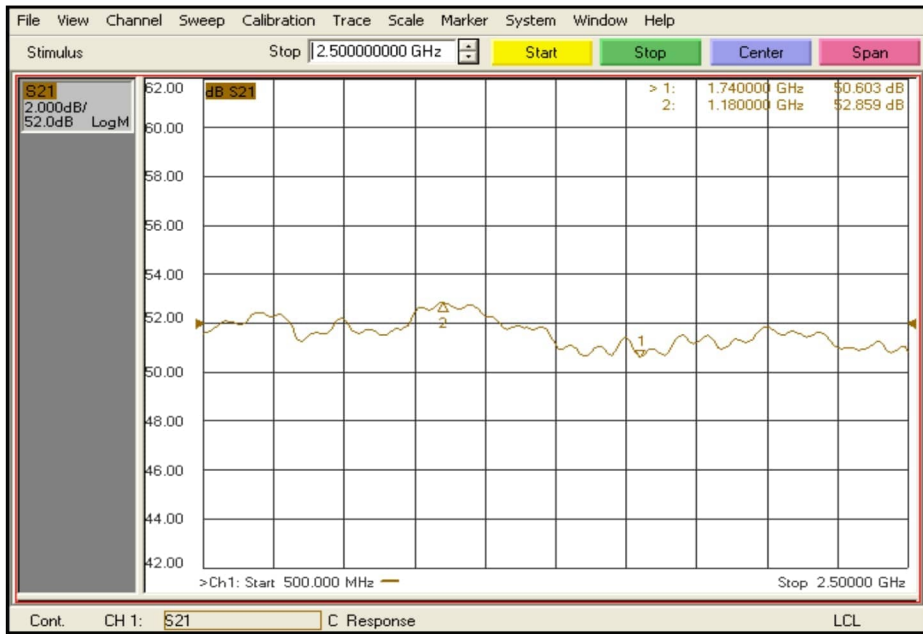
◆ Typical Performance Data



Psat & Power Consumption (CW, Load VSWR≤1.2, 25°C)

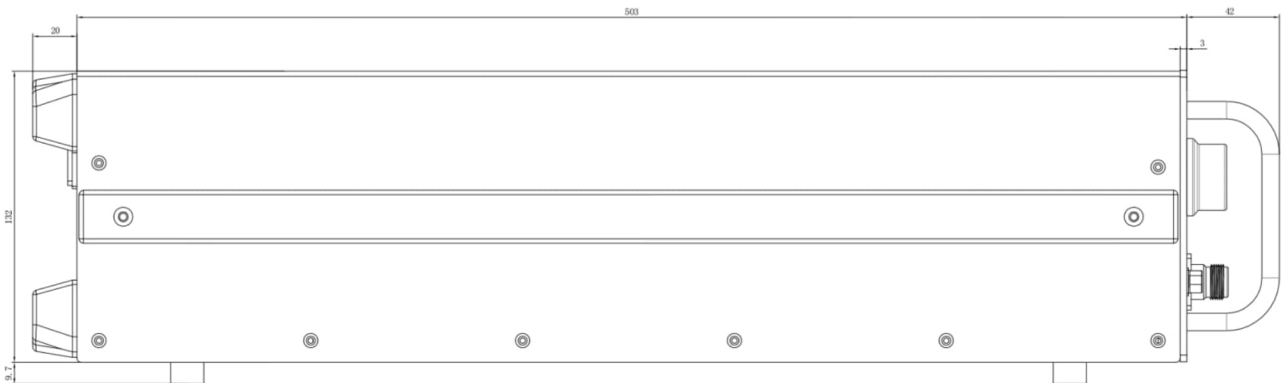
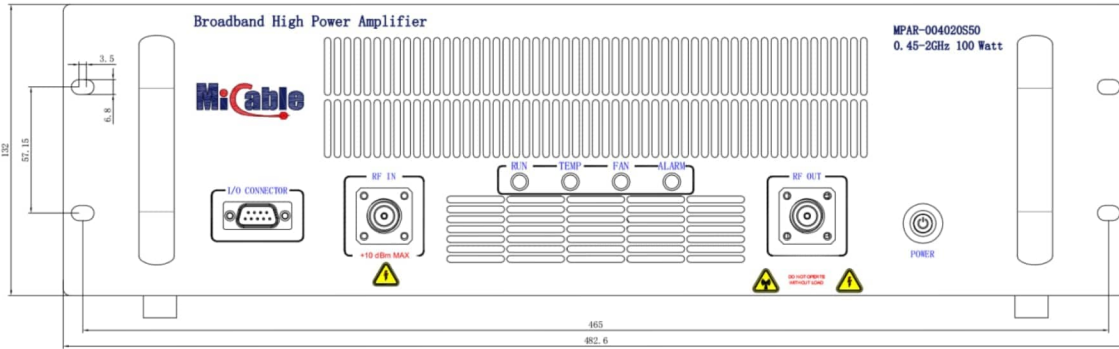
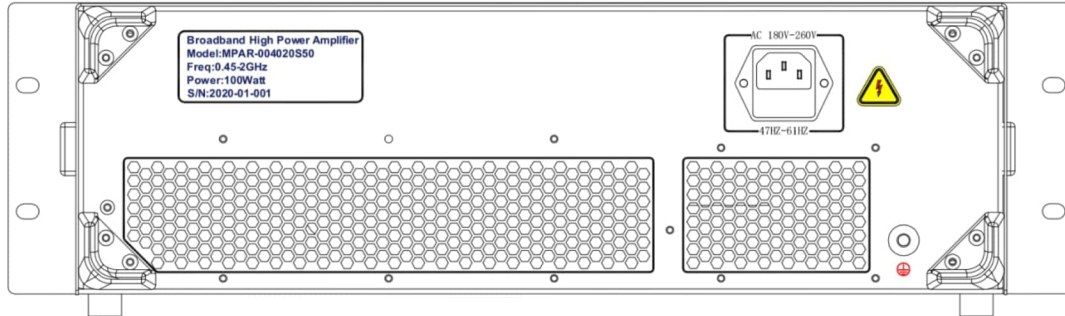


Input Return loss S11 (Pin=-30dBm, CW, Load VSWR≤1.2, 25°C), for reference only



Gain S21 (Pin= 0 dBm, CW, Load VSWR≤1.2, 25°C), gain Flatness for reference only

◆ Outline Drawings (mm)



◆ Mechanical Definition

Dimensions (B, H, D) mm	482.6 x 132 x 503 (3U)
Weight (Kg)	17 (Max)
RF-Input	N Female
RF-Output	N Female
DC Interface Connector	Dsub-9 Male
AC Connector	3 WIRE A/C Power Entry