

## Solid State Broadband High Power Amplifier

**2082 - BBS0K4AAJ**
**0.5 – 1000 MHz / 10 Watts**

The BBS0K4AAJ (2082) is suitable for broadband high power application. This bench top or rack mount unit amplifiers utilize high power push-pull MOSFET devices that provide high gain, wide dynamic range, low distortions and good linearity. Exceptional performance, long term reliability and high efficiency are achieved by employing advanced broadband RF matching networks and combining techniques, built-in high quality power supply, EMI/RFI filters, machined housings and all qualified components. Empower RF's ISO9001 Quality Assurance Program assures consistent performance and the highest reliability.



- Solid-state Class AB design
- Instantaneous ultra broadband
- Small form factor and lightweight
- Suitable for CW, AM, FM (Consult factory for other modulation types)
- 50 ohm input/output impedance
- High reliability and ruggedness

### ELECTRICAL SPECIFICATIONS @ 120V<sub>AC</sub>, 25°C, 50Ω system

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	0.5		1000	MHz
Power Output CW	P <sub>SAT</sub>	10	15		Watt
Output Power @ 1dB Gain Compression	P <sub>1dB</sub>	7			Watt
Power Gain @ 1dB Gain Compression	G <sub>1dB</sub>	40			dB
Input Power for Rated P <sub>SAT</sub>	P <sub>IN</sub>		0	3	dBm
Small Signal Gain Flatness, P <sub>IN</sub> = -20dBm	ΔG			±1.5	dB
Gain Adjustment Range	FGA	25			dB
Input Return Loss	S <sub>11</sub>			-10	dB
Noise Figure @ maximum gain	NF		7	10	dB
Harmonics @ P <sub>OUT</sub> = 7W	H		-20		dBc
Third Order Intercept Point 2-Tone @ 30dBm/Tone, 100kHz Spacing	IP3		+48		dBm
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage (1-phase)	V <sub>AC</sub>	100		240	Volt
Power Consumption @ P <sub>OUT</sub> = 10W CW	P <sub>D</sub>			100	Watt

### MECHANICAL SPECIFICATIONS

Parameter	Value	Unit
Dimensions (W x H x L)	19 x 3.5 x 18.35 (Rack mount)/8.5 x 3.5 x 15.6 (Bench top)	Inch
Weight	30/20	Pound
RF Connectors Input/Output	Type-N, Female	
Cooling	Built-in forced air cooling system	

### ENVIRONMENTAL SPECIFICATIONS (Design to Meet)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Ambient Temperature	T <sub>A</sub>	0		+50	°C
Non-operating Temperature	T <sub>STG</sub>	-40		+85	°C
Relative Humidity (non-condensing)	RH			95	%
Altitude (MIL-STD-810F Method 500.4)	ALT			30,000	Feet
Vibration / Shock MIL-STD-810F - Method 514.5/516.5 – Proc I	SH / VI		Airborne		

### LIMITS

Input RF drive level without damage	+10 dBm	Max
Load VSWR @ P <sub>OUT</sub> = 7W	∞ @ all load phase & amplitude for duration of 1 minute 3:1 @ all load phase & amplitude continuous	-
Thermal Overload	85°C shutdown	Max

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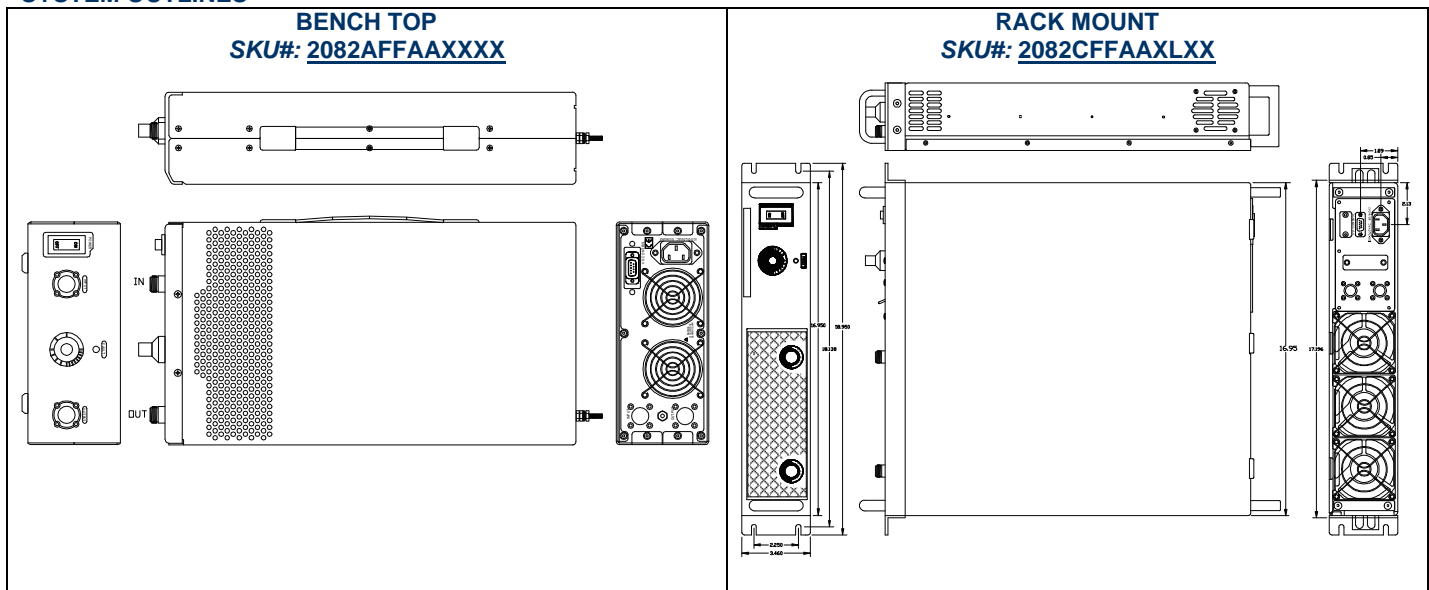
## AVAILABLE OPTIONS

SKU #	Description	LCD Touchscreen
2082CLFAAXLXX	LCD controller, Front RF connectors. 100-240VAC, 50/60Hz.	Touchscreen Digital Display, including FWD/REV Power indication (dBm or Watt scale), Gain Adjustment, ALC Fast/Slow, On/Off, Standby mode, Fault indication, Rear panel GPIB/HPIB IEEE-488.2 and Half Duplex RS232. <i>Note: (Output power is lowered by 0.5-0.75dB with this option)</i>
2082CFFAAXLXX	FGA (Front Gain Adjust) Front RF Connectors, 100-240VAC, 50/60Hz	
2082CFRAAXLXX	FGA (Front Gain Adjust) Rear RF Connectors, 100-240VAC, 50/60Hz	
Optional	Rack Slides (Call for price)	
2082AFFAAXXXX	Bench Top, FGA (Front Gain Adjust) Front RF Connectors, 100-240VAC, 50/60Hz	
2083AFRAAXXXX	Bench Top, FGA (Front Gain Adjust) Rear RF Connectors, 100-240VAC, 50/60Hz	

## I/O INTERFACE CONNECTOR – D-sub 9-pin, Female

Pin #	Description	Specification	Option		
			Bench Top	FGA	LCD
1	Forward TP	Analog Voltage 0-5V <sub>DC</sub> relative to Forward Power Level			√
2	Reverse TP	Analog Voltage 0-5V <sub>DC</sub> relative to Reverse Power Level			√
3	5V TP	Test point: 5.0V <sub>DC</sub> ±0.2V	√	√	√
4	VVA TP	Test point: 5.6V <sub>DC</sub> ±0.2V	√	√	
5	EXT Shutdown	Amplifier Disable: TTL Logic High (5V) (Internally Pulled-Low)	√	√	√
6	12V TP	Test point: 12.0V <sub>DC</sub> ± 0.5V	√	√	√
7	P/S TP	Test point: 26.0-30.0V <sub>DC</sub>	√	√	√
8&9	GND	Ground	√	√	√

## SYSTEM OUTLINES



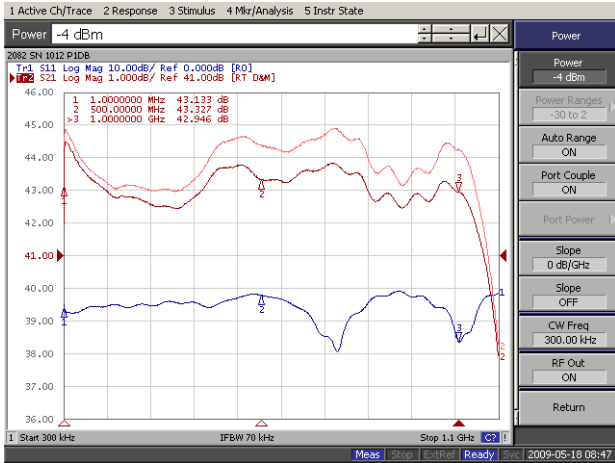
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## TYPICAL PERFORMANCE PLOTS

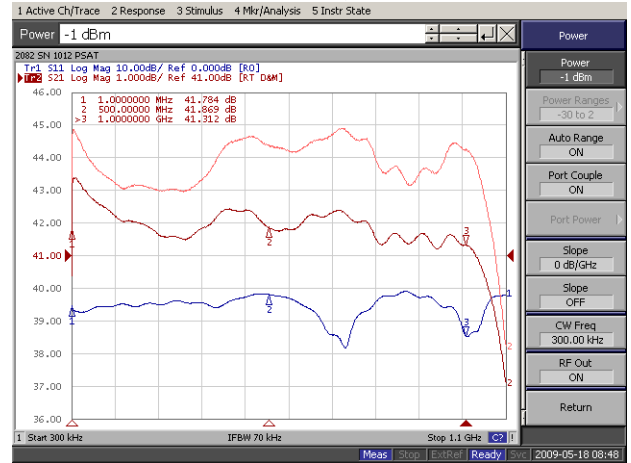
**Plot 1 – Small Signal Gain and P<sub>1dB</sub>**

Top Curve: Small Signal Gain @ P<sub>IN</sub> = -20dBm  
 Middle Curve: Power Gain @ P<sub>1dB</sub>, P<sub>IN</sub> = -4.0dBm  
 Reference: 41dB, 1dB/div.  
 Bottom Curve: Input Return Loss  
 Reference: 0dB, 10dB/div.



**Plot 2 – Small Signal Gain and P<sub>SAT</sub>**

Top Curve: Small Signal Gain @ P<sub>IN</sub> = -20dBm  
 Middle Curve: Power Gain @ P<sub>SAT</sub>, P<sub>IN</sub> = -1.0dBm  
 Reference: 41dB, 1dB/div.  
 Bottom Curve: Input Return Loss  
 Reference: 0dB, 10dB/div.



**Plot 3 – Gain Adjustment Range**

Top Curve: Maximum Gain @ P<sub>IN</sub> = -20dBm  
 Bottom Curve: Minimum Gain @ P<sub>IN</sub> = -20dBm  
 Reference: 10dB, 10dB/div.  
 Middle Curve: Input Return Loss @ Minimum Gain  
 Reference: 0dB, 10dB/div.

