

## Solid State Broadband High Power Amplifier

2044 - BBS3Q5ANP

800 - 2000MHz / 200Watts

The BBS3Q5ANP (2044) is suitable for Cellular, PCS and full L-Band broadband high power linear applications. This rack mount amplifier utilizes advanced GaAsFET power devices that provide high gain, wide dynamic range, low distortions and excellent 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.



SKU#: 2044FLRBAXXX

- Solid-state class A design
- Instantaneous ultra broadband
- Standard front panel manual gain adjust
- Suitable for CW, AM and FM (Consult factory for other modulation types)
- 50 Ohm Input/Output impedance
- High reliability and ruggedness
- Built in protection and monitoring circuits

### ELECTRICAL SPECIFICATIONS @ 220V<sub>AC</sub>, 25°C, 50Ω system

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	800		2000	MHz
Power Output CW	P <sub>SAT</sub>	200			Watt
Output Power @ 1dB Gain Compression	P <sub>1dB</sub>	160			Watt
Power Gain @ 1dB Gain Compression	G <sub>1dB</sub>	52			dBm
Input Power for Rated P <sub>SAT</sub>	P <sub>IN</sub>		0	3	dBm
Small Signal Gain Flatness	ΔG			±2.0	dB
Gain Adjustment Range	FGA	20	25		dB
Input Return Loss	S <sub>11</sub>			2.0:1	-
Noise Figure @ maximum gain	NF		7	10	dB
Harmonics @ P <sub>OUT</sub> = 160W	H		-20		dBc
Third Order Intercept Point 2-Tone @ 41dBm/Tone, 100kHz Spacing	IP3		+63		dBm
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage (1-phase)	V <sub>AC</sub>	100		240	Volt
Power Consumption @ 200W CW	P <sub>D</sub>			1400	Watt

### MECHANICAL SPECIFICATIONS

Parameter	Value	Unit
Dimensions W x H x D	19 x 8.75 x 22	Inch
Weight	80	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
Storage 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 514.5/51635 – Proc 1	SH / VI		Airborne		-

### LIMITS

Input RF drive level without damage	+6 dBm	Max
Load VSWR @ P <sub>OUT</sub> = 160W	∞ @ 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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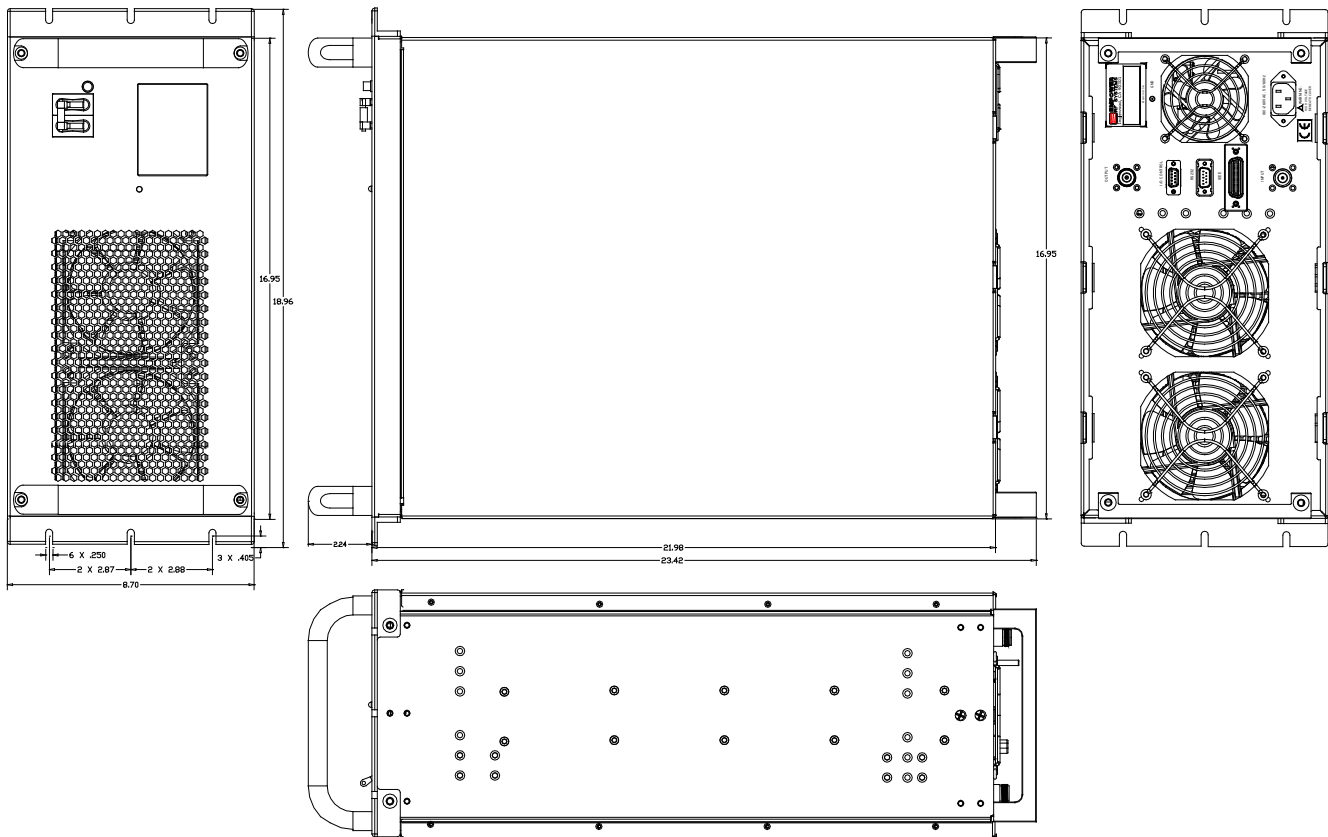
### AVAILABLE OPTION

SKU Number	Description	LCD Touchscreen
2044FLRBAXXX	LCD controller, Rear RF connectors 180-260VAC, 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>
Optional	Rack Slides (Call for price)	

### I/O CONNECTOR – D-Sub 9-Pin, Female

Pin #	Description	Specification
1	Forward Test Point	Analog Voltage 0-5V <sub>DC</sub> relative to Forward Power Level
2	Reverse Test Point	Analog Voltage 0-5V <sub>DC</sub> relative to Reverse Power Level
3	5V Test Point	Test point: 5.0V <sub>DC</sub> ±0.2V
4	N/C	No Connection
5	EXT Shutdown	Amplifier Disable: TTL Logic High (5V) (Internally Pulled-Low)
6	12V Test Point	Test point: 12.0V <sub>DC</sub> ±0.5V
7	P/S Test Point	Test point: 12.0-15.0V <sub>DC</sub>
8&9	GND	Ground

### SYSTEM DRAWING SHOWN SKU#: 2044FLRBAXXX



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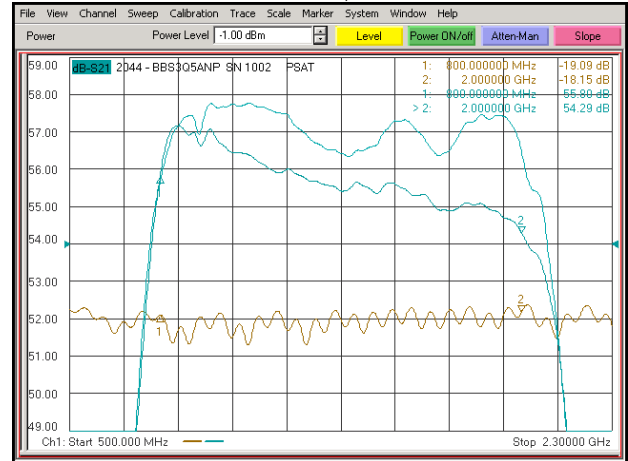
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## PERFORMANCE PLOTS

**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> = -3.2dBm  
 Reference: 55dB, 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> = -1.2dBm  
 Reference: 54dB, 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  
 Middle Curve: Minimum Gain @ P<sub>IN</sub> = -20dBm  
 Reference: 30dB, 10dB/div.  
 Bottom Curve: Input Return Loss  
 Reference: 0dB, 10dB/div.



**Plot 4 – ALC Flatness @ 100W & 20W**  
 Top Curve: ALC @ 100W, P<sub>IN</sub> = 0dBm  
 Middle Curve: ALC @ 20W, P<sub>IN</sub> = 0dBm  
 Reference: 43dB, 2dB/div.  
 Bottom Curve: Input Return Loss  
 Reference: 0dB, 10dB/div.

