

Solid State Broadband High Power Amplifier

2111 - BBS3O6AHM
700 - 3000MHz / 50Watts

The BBS3O6AHM (2111) is suitable for ultra broadband high power applications, laboratory, and RFI/EMC susceptibility testing. This amplifier utilizes high power GaAsFET devices that provide wide frequency response and dynamic range, high gain, low distortions, and excellent linearity. Employing advanced broadband RF matching networks and combining techniques, EMI/RFI filters, and all qualified components achieve exceptional performance, and high efficiency. The system includes a universal voltage, single phase, power supply and a built-in forced air-cooling system. Empower RF's ISO9001 Quality Assurance Program assures consistent performance and the highest reliability.

- Solid-state Class A design
- Instantaneous ultra broadband
- Small and lightweight
- Front panel manual gain adjust
- Suitable for CW, AM, and FM (Consult factory for other modulation type)
- 50 Ohm Input/Output impedance
- High reliability and ruggedness

ELECTRICAL SPECIFICATIONS @ 120V_{AC}, 25°C, 50Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	800	700-3000	3000	MHz
Output Power CW	P _{SAT}	40	50		Watt
Output Power @ 1dB Gain Compression	P _{1dB}	30	40		Watt
Power Gain @ 1dB Gain Compression	G _{1dB}	46	48		dB
Input Power for Rated P _{SAT}	P _{IN}		0		dBm
Small Signal Gain Flatness	ΔG _{SS}			±2.0	dB
Gain Adjustment Range	FGA	25			dB
Input Return Loss	S ₁₁			-10	dB
Noise Figure @ Maximum Gain	NF		10		dB
Third Order Intercept Point 2-tone, 37dBm/Tone, 100kHz Spacing	IP3		+56		dBm
Harmonics @ P _{OUT} = 30W	H		-20		dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage (1-phase)	V _{AC}	100		240	Volt
Power Consumption @ P _{OUT} = 40W CW	P _D			600	Watt

ENVIRONMENTAL CHARACTERISTICS (Design to Meet)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Ambient Temperature	T _A	0		+50	°C
Non-operating Temperature	T _{STG}	-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	VI /SH		Airborne		

MECHANICAL SPECIFICATIONS

Parameter	Value	Unit
Dimensions	19 x 5.25 x 22	Inch
Weight	50	Pound
RF Connectors Input/Output	Type-N, Female	
Cooling	Built-in forced air cooling system	

LIMITS

Input RF drive level without damage	+6dBm	Max
Load VSWR @ P _{OUT} = 50W	∞ @ 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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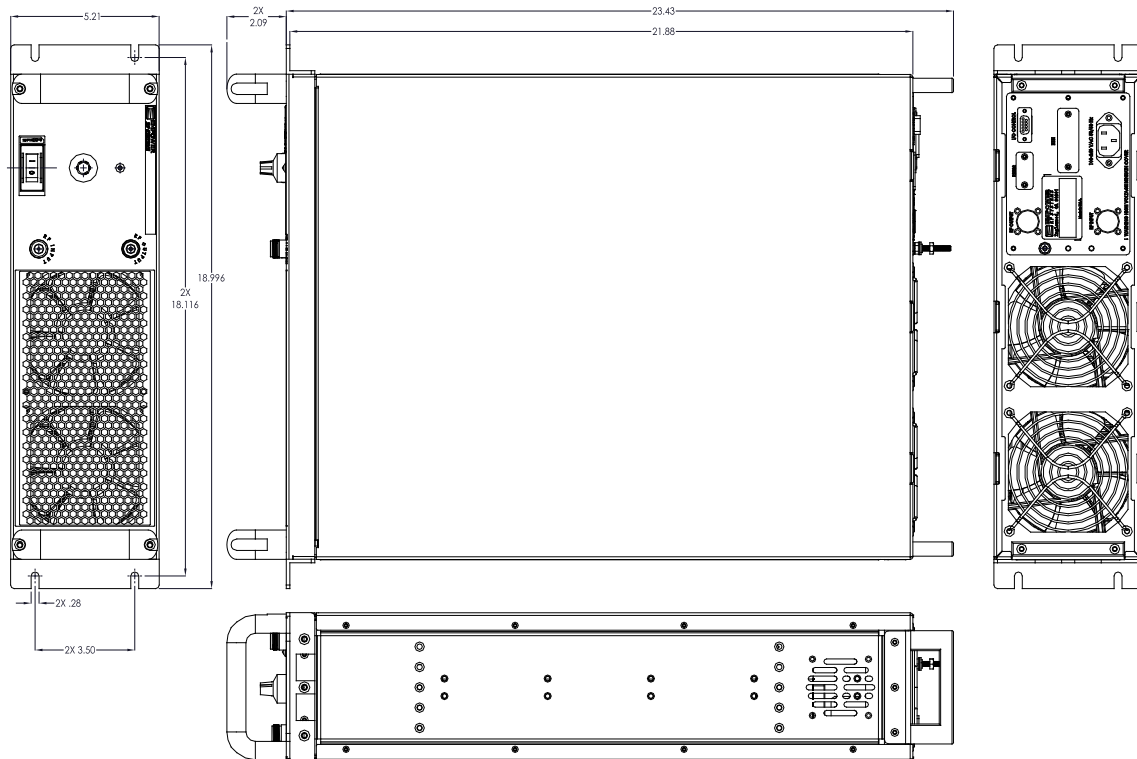
AVAILABLE OPTION

SKU #	Description
2111DFFAAXXXX	FGA (Front Gain Adjust) Front RF Connectors, 100-240VAC, 50/60Hz
Optional	Rack Slides (Call for price)

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

Pin #	Description	Specification
1	N/C	No Connection
2	N/C	No Connection
3	5V TP	Test point: 5.0V _{DC} ±0.2V
4	VVA TP	Test point: 5.6V _{DC} ±0.2V
5	EXT Shutdown	Amplifier Disable: TTL Logic High (5V) (Internally Pulled-Low)
6	12V TP	Test point: 12.0V _{DC} ±0.5V
7	P/S TP	Test point: 12.0-15.0V _{DC}
8&9	GND	Ground

SYSTEM OUTLINE SHOWN SKU#: 2111DFFAAXXXX



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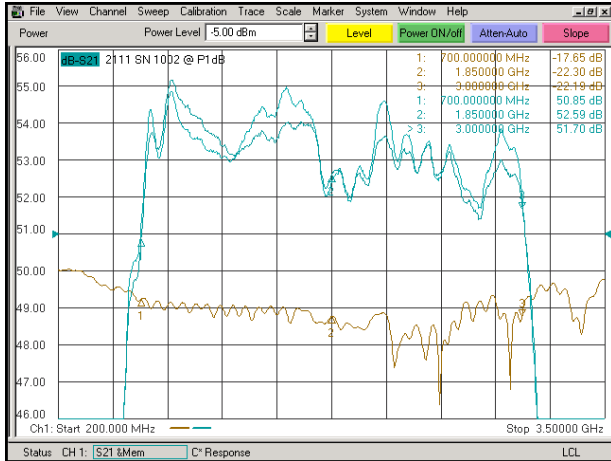
2111 - BBS306AHM

700 - 3000MHz / 50Watts

TYPICAL PERFORMANCE PLOTS

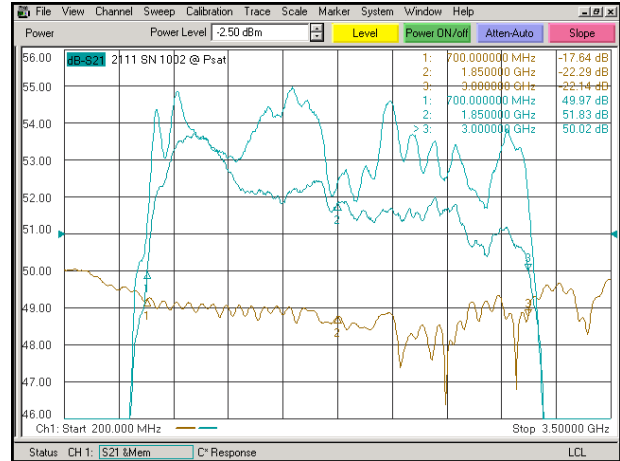
Plot 1 – Small Signal Gain and P_{1dB}

Top Curve: Small Signal gain @ $P_{IN} = -20dBm$
 Middle Curve: Power Gain @ P_{1dB} , $P_{IN} = -5.0dBm$
 Reference: 51dB, 1dB/div
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/div



Plot 2 – Small Signal Gain and P_{SAT}

Top Curve: Small Signal Gain @ $P_{IN} = -20dBm$
 Middle Curve: Power Gain @ P_{3dB} , $P_{IN} = -2.50dBm$
 Reference: 51dB, 1dB/div
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/div



Plot 3 – Gain Adjustment Range

Top curve: Maximum Gain @ $P_{IN} = -20dBm$
 Middle Curve: Minimum gain @ $P_{IN} = -20dBm$
 Reference: 31dB, 10dB/div.
 Bottom curve: Input Return Loss @ Minimum Gain
 Reference: 0dB, 10dB/div

