

## Solid State Broadband High Power Amplifier

**1026 - BBM4A5AAJ**
**1000 – 2000 MHz / 10 Watts**

The BBM4A5AAJ (SKU 1026) is suitable for L-Band broadband or band specific high power linear applications. This amplifier utilizes 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, EMI/RFI filters, machined housings and qualified components. Empower RF's ISO9001 Quality Assurance Program assures consistent performance and the highest reliability.



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

### ELECTRICAL SPECIFICATIONS @ +13V<sub>DC</sub>, 25°C, 50 Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	1000		2000	MHz
Power Output CW	P <sub>SAT</sub>	10			Watt
Output Power @ 1dB Gain Compression	P <sub>1dB</sub>	8			Watt
Power Gain @ 1dB Gain Compression	G <sub>1dB</sub>	40		46	dB
Input Power for Rated P <sub>SAT</sub>	P <sub>IN</sub>		0	3	dBm
Small Signal Gain Flatness	ΔG <sub>SS</sub>			±1.5	dB
Input Return Loss	S <sub>11</sub>			-10	dB
Noise Figure	NF			10	dB
Third Order Intercept Point					
2-Tone @ 30dBm/Tone, 100kHz Spacing	IP3		+53		dBm
Harmonics @ P <sub>OUT</sub> = 8W	H		-20		dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	V <sub>DC</sub>	12	13	15	Volt
Current Consumption @ P <sub>OUT</sub> = 10W	I <sub>DD</sub>			3.0	Amp
Current Consumption @ Shutdown	I <sub>SD</sub>		50		mA

### MECHANICAL SPECIFICATIONS

Parameter	Value	Unit
Dimension	6.0 x 2.15 x 0.72	Inch
Weight	1.0	Pound
RF Connectors Input / Output	Type-SMA, Female	
DC Interface Connections	Feed Thru	
Cooling	External Heatsink (not supplied)	

### ENVIRONMENTAL CHARACTERISTICS (Design to Meet)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	T <sub>C</sub>	-40		+80	°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 514.5/516.5 – Proc I	SH / VI		Airborne		

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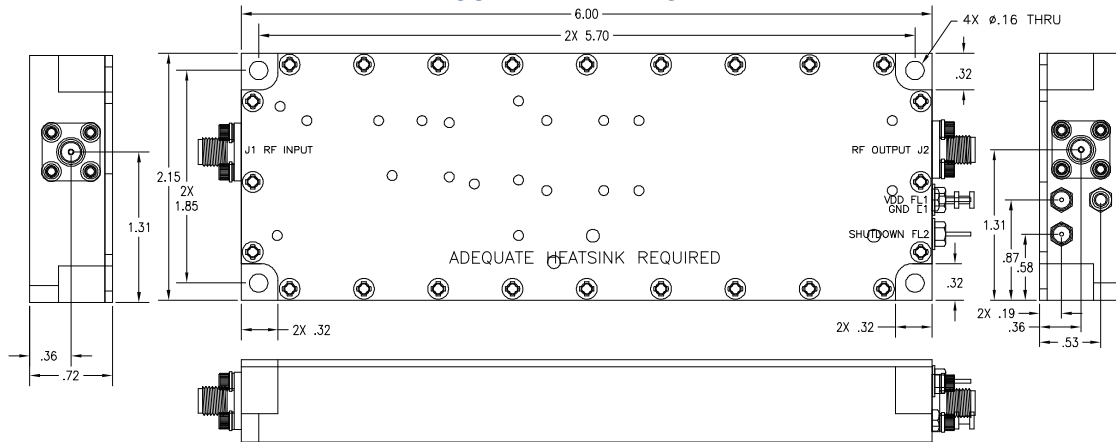
### LIMITS

Input RF drive level without damage	+10 dBm	Max
Load VSWR @ P <sub>OUT</sub> = 8W	∞ @ all load phase & amplitude for duration of 1 minute 3:1 @ all load phase & amplitude continuous	-
Thermal Overload	85°C shutdown	Max

### DC INTERFACE CONNECTIONS – Feed Thru

Pin #	Description	Specification
FL1	VDD	+12.0-15.0V <sub>DC</sub>
FL2	Shutdown	Amplifier Disable: TTL Logic High (5V) (Internally Pulled-low)
E1	GND	Ground

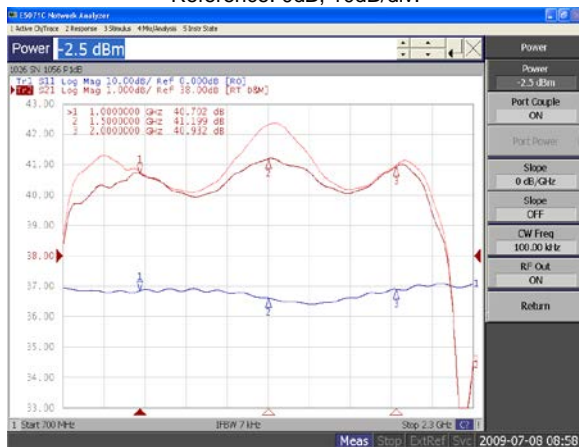
### OUTLINE DRAWING



### TYPICAL PERFORMANCE PLOTS

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

Top Curve: Small Signal Gain @ P<sub>IN</sub> = -20dBm  
 Middle Curve: Power Gain @ P<sub>1dB</sub>, P<sub>IN</sub> = -2.5dBm  
 Reference: 38dB, 1dB/div.  
 Bottom Curve: Input Return Loss  
 Reference: 0dB, 10dB/div.



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

Top Curve: Small Signal Gain @ P<sub>IN</sub> = -20dBm  
 Middle Curve: P<sub>SAT</sub> @ P<sub>IN</sub> = 0.0dBm  
 Reference: 38dB, 1dB/div.  
 Bottom Curve: Input Return Loss  
 Reference: 0dB, 10dB/div.

