

## Solid State Broadband High Power Amplifier

**1047 - BBM4A6AAJ**
**1000 – 3000 MHz / 10 Watts**

The BBM4A6AAJ (SKU 1047) is suitable for high power broadband and band specific linear applications. This amplifier is utilizing 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 efficiency sequence regulator, EMI/RFI filters, machined housing, 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
- Excellent Phase Linearity and Group Delay Characteristics
- 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 @ +13.0V<sub>DC</sub>, 25°C, 50Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	1000		3000	MHz
Power Output CW	P <sub>SAT</sub>	10	12		Watt
Output Power @ 1dB Gain Compression	P <sub>1dB</sub>	8			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	ΔG			±1.5	dB
Input Return Loss	S <sub>11</sub>			-10	dB
Noise Figure	NF			10	dB
Third Order Intercept Point 2-Tone @ 28dBm/Tone, 100kHz Spacing	IP3		+50		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 @ 10W CW	I <sub>DD</sub>		4.0	4.5	Amp

### MECHANICAL SPECIFICATIONS

Parameter	Value	Unit
Dimension	6.8 x 2.7 x 0.8	Inch
Weight	1.0	Pound
RF Connectors Input/Output	Type- SMA, Female	
Cooling	External Heatsink (Not Supplied)	

### ENVIRONMENTAL CHARACTERISTICS (Design to Meet)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	T <sub>C</sub>	0		+75	°C
Non-operating Temperature	T <sub>STG</sub>	-40		+85	°C
Relative Humidity w/o condensation	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		

### LIMITS

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

# Solid State Broadband High Power Amplifier

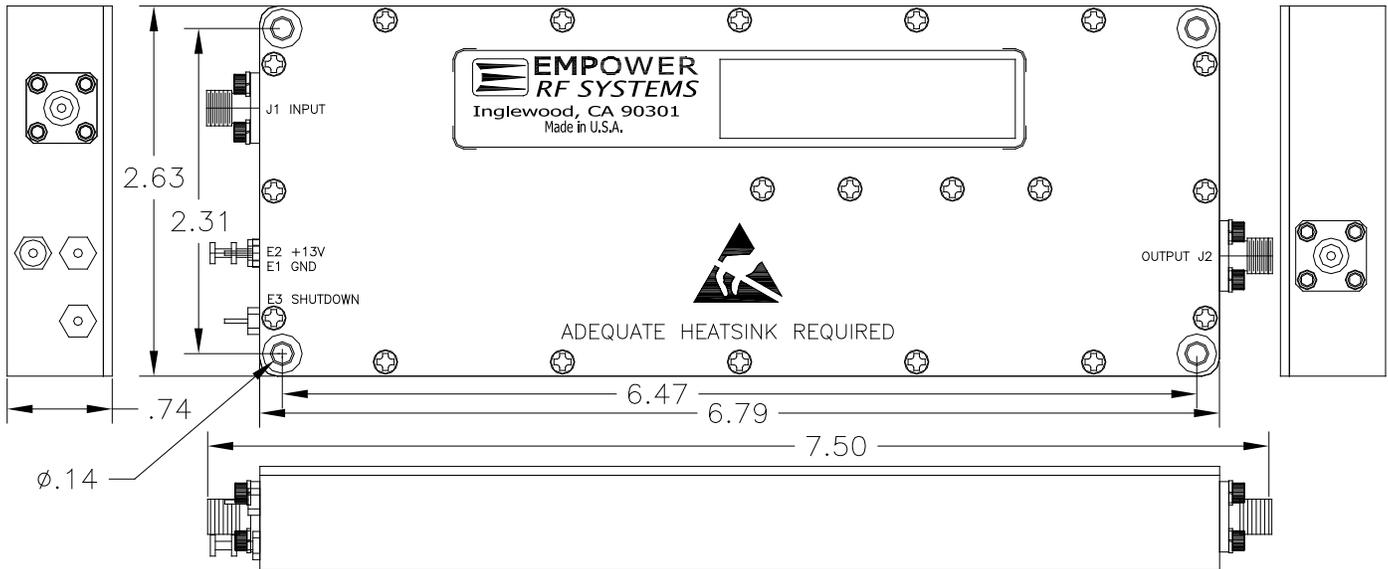
1047 - BBM4A6AAJ

1000 – 3000 MHz / 10 Watts

## DC INTERFACE CONNECTIONS

Pin #	Description	Specification
E1	GND	Ground
E2	+13V <sub>DC</sub>	+12.0-15.0V <sub>DC</sub>
E3	Shutdown	Amplifier Disable: TTL Logic High (5V) (Internally Pulled-Low)

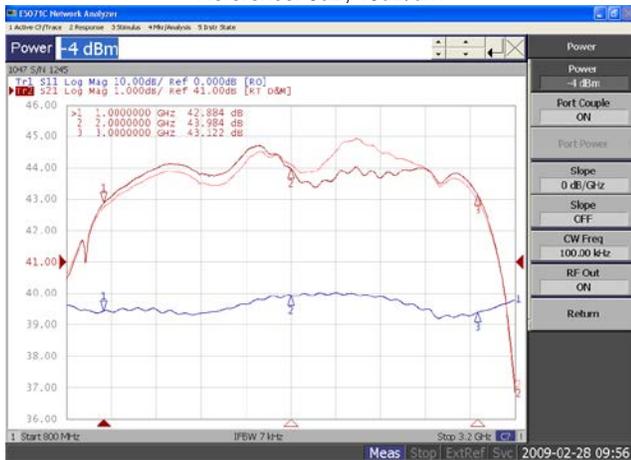
## OUTLINE DRAWING



## 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> = -4dBm  
 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> = -1dBm  
 Reference: 41dB, 1dB/div.  
 Bottom Curve: Input Return Loss  
 Reference: 0dB, 10dB/div.

