

Solid State Broadband High Power Amplifier

1097 - BBM2E4AEM
20 – 1000 MHz / 25 Watts

The BBM2E4AEM (SKU 1097) is suitable for ultra broadband or band specific high power linear applications. This amplifier utilizes Silicon RF Power 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, 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 AB design
- Instantaneous ultra broadband
- Small form factor and lightweight
- Suitable for CW, AM, and FM (Consult factory for other modulation type)
- 50 ohm input/output impedance
- High reliability and ruggedness
- Built-in control, monitoring and protection circuits

ELECTRICAL SPECIFICATIONS @ +28.0V_{DC}, 25°C, 50 Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	20		1000	MHz
Output Power CW	P _{SAT}	25			Watt
Output Power @ 1dB Gain Compression	P _{1dB}	10			Watt
Power Gain @ 1dB Gain Compression	G _{1dB}	46		50	dB
Input Power for Rated P _{SAT}	P _{IN}	-6		3	dBm
Small Signal Gain Flatness	ΔG		±1.5	±2.0	dB
Input Return Loss	S ₁₁			-10	dB
Noise Figure @ max. gain	NF			10	dB
Third Order Intercept Point 2-Tone @ 33dBm/Tone, 100kHz Spacing	IP3		+48		dBm
Harmonics @ P _{OUT} = 10W	H		-20		dBc
Spurious Signals	Spur			-60	dBc
Operating Voltage	V _{DC}	26	28	30	Volt
Current Consumption @ P _{OUT} = 25W CW	I _{DD}			6.0	Amp
Quiescent Current	I _{DQ}		4.0		Amp
Current Consumption @ Shutdown	I _{SD}		300		mA
Switching Speed, 1kHz TTL @ P _{IN} = 0dBm	T _{ON/OFF}			20	uSec

MECHANICAL SPECIFICATIONS

Parameter	Value	Unit
Dimension (L x W x H)	6.4 x 3.4 x 1.1	Inch
Weight	1.0	Pound
RF Connectors Input/Output	Type-SMA, Female	
DC Interface Connector	D-Sub 9-Pin, Male	
Cooling	External Heatsink (Not Supplied)	

LIMITS

Input RF drive level without damage	+15 dBm	Max
Load VSWR @ P _{OUT} = 25W	∞ @ all load phase & amplitude for duration of 1 minute 3:1 @ all load phase & amplitude continuous	-

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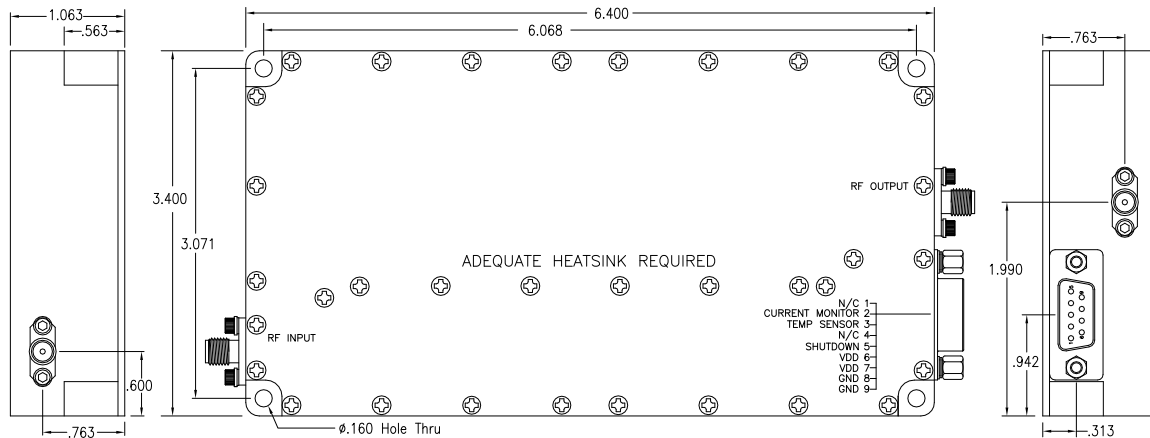
ENVIRONMENTAL CHARACTERISTICS (Design to Meet)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature Derated Linearly between 50-80°C up to 2dB max	T _C	-20		+80	°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	SH / VI		Airborne		

DC INTERFACE CONNECTOR – D-Sub 9-Pin, Male

Pin #	Description	Specification
1	N/C	No Connection
2	Current Monitor	Analog voltage relative to I _{DD} @ 50mV/100mA
3	Temp Sensor	Analog voltage relative to Module's Temperature @ 10mV/°C
4	N/C	No Connection
5	Shutdown	Amplifier Disable: TTL Logic High (5V) (Internally Pulled-Low)
6&7	VDD	+26.0-30.0V _{DC}
8&9	GND	Ground

OUTLINE DRAWING



Features:

- Fast switching - Mute function
- Reverse polarity protection
- Temperature protection - Disabled
- Temperature indication
- Current limit protection
- Current consumption indicator

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PERFORMANCE PLOTS

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

Top Curve: Small Signal Gain @ $P_{IN} = -20dBm$
 Middle Curve: Power Gain @ P_{1dB} , $P_{IN} = -7.0dBm$
 Reference: 47dB, 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_{SAT} , $P_{IN} = -2.0dBm$
 Reference: 47dB, 1dB/div.
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/div.

