

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 linear design
- Instantaneous ultra broadband
- Small form factor and lightweight
- Suitable for most modulation standards
- 50 ohm input/output impedance
- High reliability and ruggedness
- Built in control, monitoring and protection circuits

ELECTRICAL SPECIFICATIONS @ +28 VDC, 25°C, 50 Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	20		1000	MHz
Power Output CW	P _{SAT}	25			Watt
Output Power @ 1 dB Gain Compression Point	P _{1dB}	10			Watt
Power Gain @ 1 dB Gain Compression Point	G _{1dB}	46		50	dB
Input Power for Rated P _{OUT}	P _{IN}		0		dBm
Small Signal Gain Flatness	ΔG		±1.5	±2.0	dB
Input Return Loss	S ₁₁			-10	dB
Noise Figure @ minimum attenuation	NF			10	dB
Third Order Intercept Point - 2-Tones @ 2 W/Tone	IP3		+48		dBm
Harmonics @ P1 dB Gain Compression Point	H		-20		dBc
Spurious Signals	Spur			-60	dBc
Operating Voltage	V _{DC}	26	28	30	Volt
Current Consumption @ 25 W	I _{DD}			6.0	Amp
Quiescent Current Consumption	I _{DQ}		4.0		Amp
Standby Current Consumption (TTL High)	I _{SD}		300		mA
Switching Speed	T _{ON/OFF}			20	uSec

MECHANICAL SPECIFICATIONS

Parameter	Value	Units	Limits
Dimensions (excluding heatsink)	6.4 x 3.4 x 1.1	Inch	Max
Weight without HS	1.0	lb.	Max
RF Connectors In/Out	SMA female		
DC Connectors	Dsub, 9-Pins, Male		
Cooling	External Heatsink		

ENVIRONMENTAL CHARACTERISTICS

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	T _c	-20		+80	°C
Derated Linearly between 50-80°C up to 2 dB max					
Storage Temperature	T _{stg}	-40		+85	°C
Relative humidity (non-Condensing)	RH			95	%
Altitude (MIL-STD-810F Method 500.4)	ALT	10,000		30,000	Feet
Shock / Vibration (MIL-STD-810F Method 516.5)	SH / VI		Airborne		

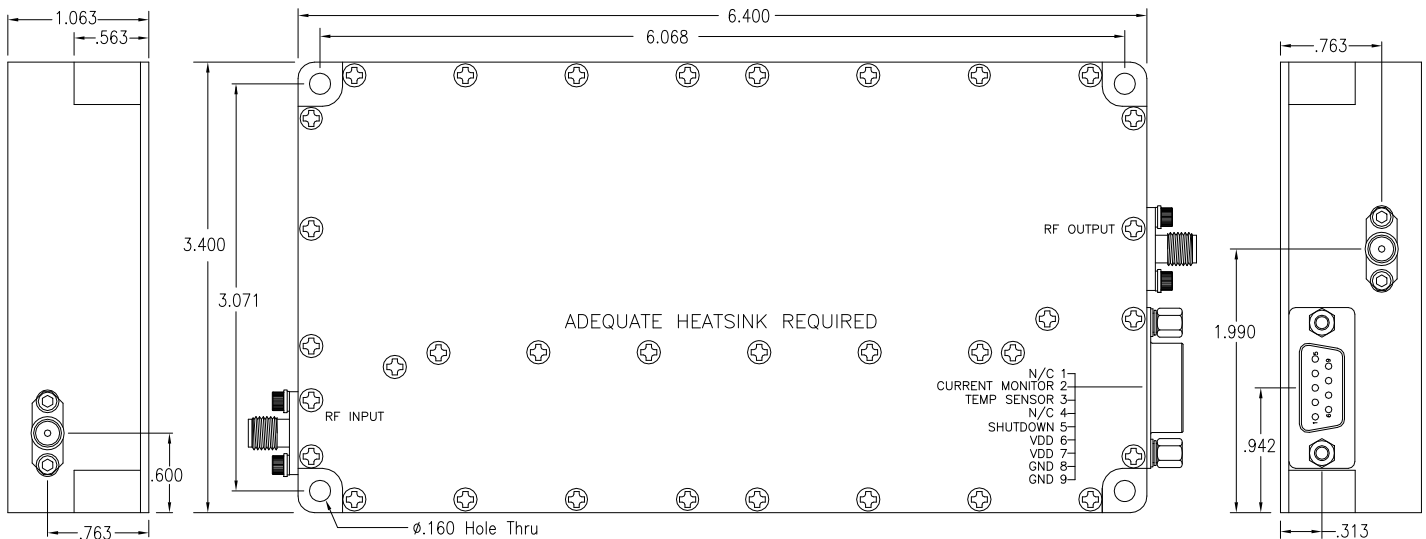
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PROTECTIONS

Input Overdrive	+15 dBm	Max
Load VSWR @ 25W	∞ @ all load phase & amplitude	Nom

INTERFACE CONNECTOR - D-Sub, 9-Pin

Pin #	Description	Specifications
1	N/C	Spare
2	Current Consumption Monitor	Analog voltage relative to I_D @ 50 mV/100 mA
3	Temperature Monitor	Analog voltage relative to Module's Temperature @ 10 mV/°C
4	N/C	Reserved
5	Shutdown	Amplifier Enable: TTL "Low" (Logic 0) or Open Amplifier Disable: TTL "High" (Logic 1)
6	VDD	+28 V _{DC} ± 2 V
7	VDD	+28 V _{DC} ± 2 V
8	GND	Ground
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

Plots 1 - Small Signal and P_{1dB} Gain

Top Curve: Small Signal Gain @ $P_{IN} = -20\text{dBm}$
 Middle Curve: Power Gain @ P_{1dB} , $P_{IN} = -7.0\text{dBm}$
 Reference: 47dB, 1dB/div.
 Bottom Curve: Input VSWR
 Reference: 0dB, 10dB/div.

Plot 2 - Small Signal and P_{SAT}

Top Curve: Small Signal Gain @ $P_{IN} = -20\text{dBm}$
 Middle Curve: P_{SAT} @ $P_{IN} = -2.0\text{dBm}$
 Reference: 47dB, 1dB/div.
 Bottom Curve: Input VSWR
 Reference: 0dB, 10dB/div.

