

Solid State Broadband High Power Amplifier

1133 - BBM2E4AEM
20 – 1000 MHz, 25 Watts

PRELIMINARY INFORMATION

The BBM2E4AEM (SKU 1133) is suitable for ultra broadband or band specific high power linear applications. This amplifier utilizes advanced high power GaN 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 linear design
- Instantaneous ultra broadband
- Small and lightweight
- Suitable for all 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 | 30 | | Watt |
| Output Power @ 1dB Gain Compression Point | P _{1dB} | | 20 | | Watt |
| Power Gain @ 1 dB Gain Compression Point | G _{1dB} | 43 | 46 | 49 | dB |
| Input Power for Rated P _{out} | P _{IN} | | 0 | | dBm |
| Small Signal Gain Flatness | ΔG | | ±1.5 | ±2.0 | dB |
| Gain Adjustment Range | VVA | 25 | 30 | | dB |
| Input Return Loss | S11 | | | 10 | dB |
| Noise Figure @ Minimum Attenuation | NF | | | 10 | dB |
| Third Order Intercept Point | | | +52 | | dBm |
| 2-Tones @ 2 watts/tone | IP3 | | | | dBm |
| Harmonics @ P _{1dB} Gain Compression Point | H | | 30 | | dBc |
| Spurious Signals | Spur | | | 60 | dBc |
| Operating Voltage | VDC | 26 | 28 | 30 | Volt |
| Supply Current @ Nominal P _{out} | I _{DD} | | 3.0 | 3.25 | Amp |
| Standby Current Consumption | P _{DQ} | | 100 | | mA |
| Switching Time, 1 kHz TTL, P _{IN} = -3 dBm | T _{ON} /T _{OFF} | | | 1.0 | μs |

ENVIRONMENTAL CHARACTERISTICS

| Parameter | Symbol | Min | Typ | Max | Unit |
|------------------------------------|------------------|-----|----------|-----|------|
| Operating Case Temperature | T _c | -20 | | +75 | °C |
| Storage Temperature | T _{stg} | -40 | | +85 | °C |
| Relative humidity w/o condensation | RH | 95 | | | % |
| Altitude | ALT | | 30,000 | | Feet |
| Shock and Vibration | SH / VI | | Airborne | | |

MECHANICAL SPECIFICATIONS

| Parameter | Value | Units | Limits |
|----------------------------|-----------------------|-------|--------|
| Dimensions | 6.0 x 3.0 x 1.1 | Inch | Max |
| Weight | 1.0 | lb. | Max |
| RF Connectors Input/Output | SMA female/SMA female | | |
| DC Connectors | 9 Pin DSUB | | |
| Cooling | External Heatsink | | |

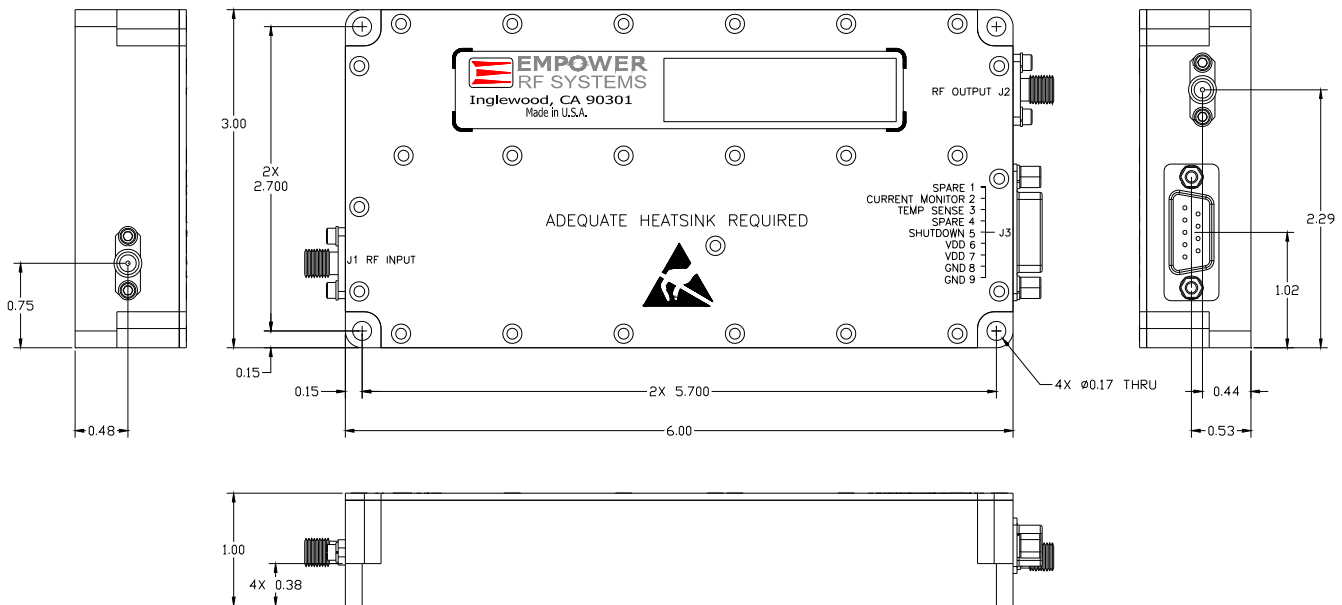
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PROTECTIONS

| | | |
|------------------------------------|----------------------------------|-----|
| Input Overdrive | +6dBm | Max |
| Load VSWR @ rated P _{1dB} | ∞:1 @ all load phase & amplitude | Nom |
| Thermal Overload | Graceful degradation | Max |

INTERFACE CONNECTOR – 9 Pin DSUB

| Pin # | Description | Specifications |
|-------|-----------------------------|--|
| 1 | N/C | |
| 2 | Current Consumption Monitor | Analog voltage relative to I _D @ 50 mV/100 mA |
| 3 | Temperature Monitor | Analog voltage relative to module temperature @ 10 mV/°C |
| 4 | VVA | Max Gain = 0 VDC Min Gain = 5 VDC |
| 5 | Mute | Enable: TTL "Low" Disable: TTL "High" |
| 6, 7 | VDD | +28 VDC ± 2 VDC |
| 8, 9 | GND | Ground |

OUTLINE DRAWING

Features:

- Built-in gain adjustment (VVA)
- Fast-switching mute function
- Reverse polarity protection
- Over-temperature protection
- Temperature indication
- Current limit protection
- Current consumption indicator

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TYPICAL PERFORMANCE PLOTS
