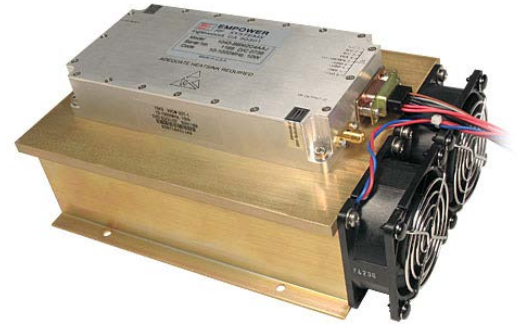


Solid State Broadband High Power Amplifier

1043 - BBM2C4AAJ
10 – 1000 MHz / 10 Watts

The BBM2C4AAJ (SKU 1043) is suitable for ultra broadband high power linear applications. This amplifier utilizes push-pull MOSFET power devices that provide high gain, wide dynamic range 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.



Shown with Option 072

- 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 @ +28.0V_{DC}, 25°C, 50Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	10		1000	MHz
Power Output CW	P _{SAT}	10	12		Watt
Output Power @ 1dB Gain Compression	P _{1dB}	8			Watt
Power Gain @ 1dB Gain Compression	G _{1dB}	40			dB
Input Power for Rated P _{SAT}	P _{IN}		0	3	dBm
Small Signal Gain Flatness	ΔG		±1.0	±1.5	dB
Gain Adjustment Range	VVA	25			dB
Input Return Loss	S ₁₁			10	dB
Noise Figure @ max. Gain	NF		7	10	dB
Harmonics @ P _{OUT} = 10W	H		-30		dBc
Third Order Intercept Point 2-Tone @ 27dBm/Tone, 100kHz Spacing	IP3		+49		dBm
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	V _{DC}	26	28	30	Volt
Quiescent Current	I _{DQ}		2.5		Amp
Current Consumption @ P _{OUT} = 10W	I _{BD}		2.5	3.0	Amp

MECHANICAL SPECIFICATIONS

Parameter	Value	Unit
Dimension	6.0 x 3.0 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)	

ENVIRONMENTAL CHARACTERISTICS (Design to Meet)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	T _C	0		+50	°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	VI/SH		Airborne		

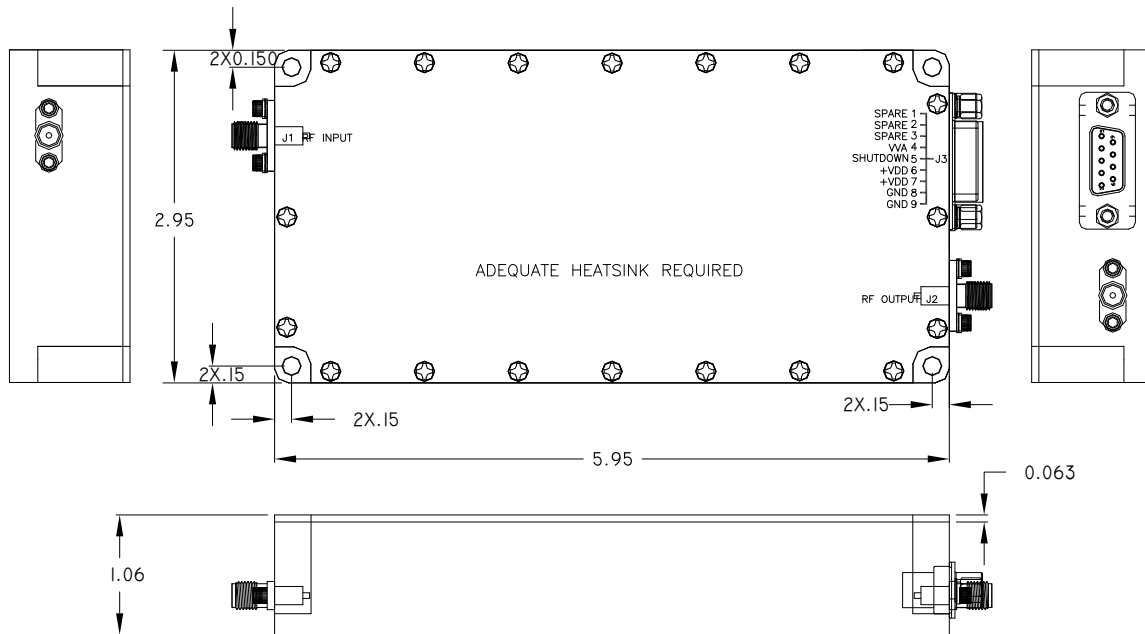
Solid State Broadband High Power Amplifier

1043 - BBM2C4AAJ
10 – 1000 MHz / 10 Watts
LIMITS

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

INTERFACE CONNECTOR – D-Sub 9-Pin, Male

Pin #	Description	Specification
1&3	N/C	No Connection
4	VVA	Control voltage range: 0-5V _{DC} Maximum Gain: 5V _{DC} , Minimum Gain: 0V _{DC}
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


Solid State Broadband High Power Amplifier

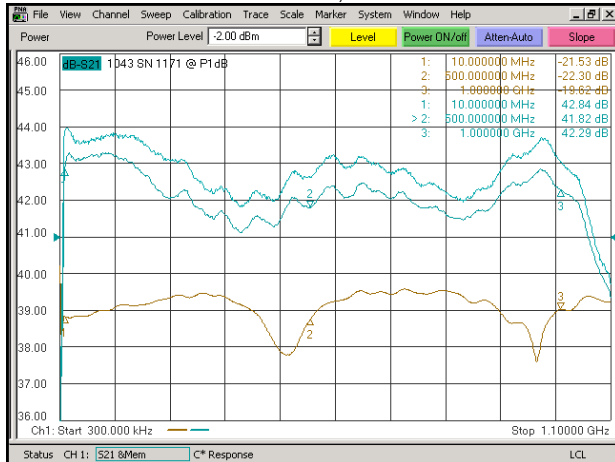
1043 - BBM2C4AAJ

10 – 1000 MHz / 10 Watts

TYPICAL PERFORMANCE PLOTS

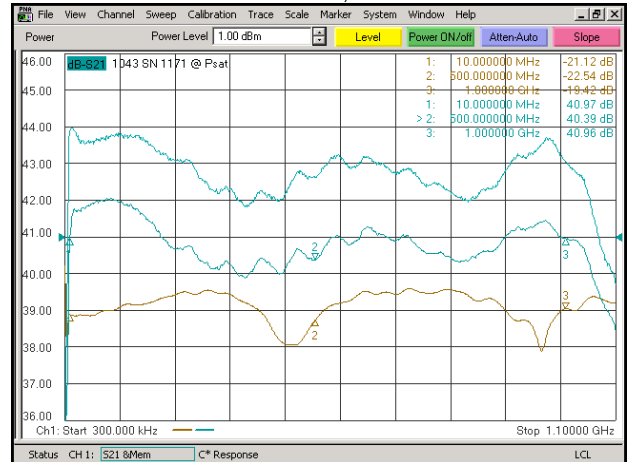
Plot 1 – Small Signal Gain and P_{1dB}

Top Curve: Small Signal Gain @ $P_{IN} = -20dBm$
 Middle Curve: Power Gain @ P_{1dB} , $P_{IN} = -2.0dBm$
 Reference: 41B, 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} , $P_{IN} = +1.0dBm$
 Reference: 41B, 1dB/div.
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/div.



Plot 3 – Gain Adjustment Range

Top Curve: Max. Gain @ $VVA_{CTRL} = 5.0V$, $P_{IN} = -20dBm$
 Bottom Curve: Min. Gain @ $VVA_{CTRL} = 0V$, $P_{IN} = -20dBm$
 Reference: 20dB, 10dB/div.
 Middle Curve: Input Return Loss @ Minimum Gain
 Reference: 0dB, 10dB/div.

