

Solid State Broadband High Power Amplifier

1058 - BBM1C3CP8
1 – 100 MHz / 300 Watts

The BBM1C3CP8 (SKU 1058) is suitable for RF & VHF high power linear applications. This amplifier utilizes push-pull MOSFET power 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 broadband
- Small and lightweight
- Built in Protection, Control & Monitoring circuits
- Suitable for CW, AM, and FM (Consult factory for other modulation types)
- 50 ohm input/output impedance
- High reliability and ruggedness

ELECTRICAL SPECIFICATIONS @ +28V_{DC}, 25°C, 50 Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	1		100	MHz
Output Power CW	P _{SAT}	300			Watt
Output Power @ 1dB Gain Compression	P _{1dB}	200			Watt
Small Signal Gain	G _{SS}	18			dB
Input Power for Rated P _{SAT}	P _{IN}		37		dBm
Small Signal Gain Flatness	ΔG		±1.0	±1.5	dB
Input Return Loss	S ₁₁			-10	dB
Harmonics @ P _{OUT} = 200W	2 nd /3 rd		-34 / -15		dBc
Third Order Intercept Point (IMD) 2-Tone @ 44dBm/Tone, 100 kHz Spacing	IMD		-28		dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	V _{DC}	26	28	30	Volt
Current Consumption @ P _{OUT} = 300W	I _{DD}			28	Amp

MECHANICAL SPECIFICATIONS

Parameter	Value	Units	Limits
Dimensions	8.3 x 6.4 x 1.2	Inch	Max
RF Connectors Input/Output	Type-SMA, Female		
DC Interface Connector	Hybrid, D-Sub 7-Pin, Male (7W2)		
Cooling	External Heatsink (Not Supplied)		

ENVIRONMENTAL CHARACTERISTICS (Design to Meet)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	T _C	0		+50	°C
Storage 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		

LIMITS

Input RF drive level without damage	+42 dBm	Max
Load VSWR @ P _{OUT} = 200W	∞ @ all load phase & amplitude for duration of 1 minute 3:1 @ all load phase & amplitude continuous	-
Thermal Overload	85°C shutdown	Max

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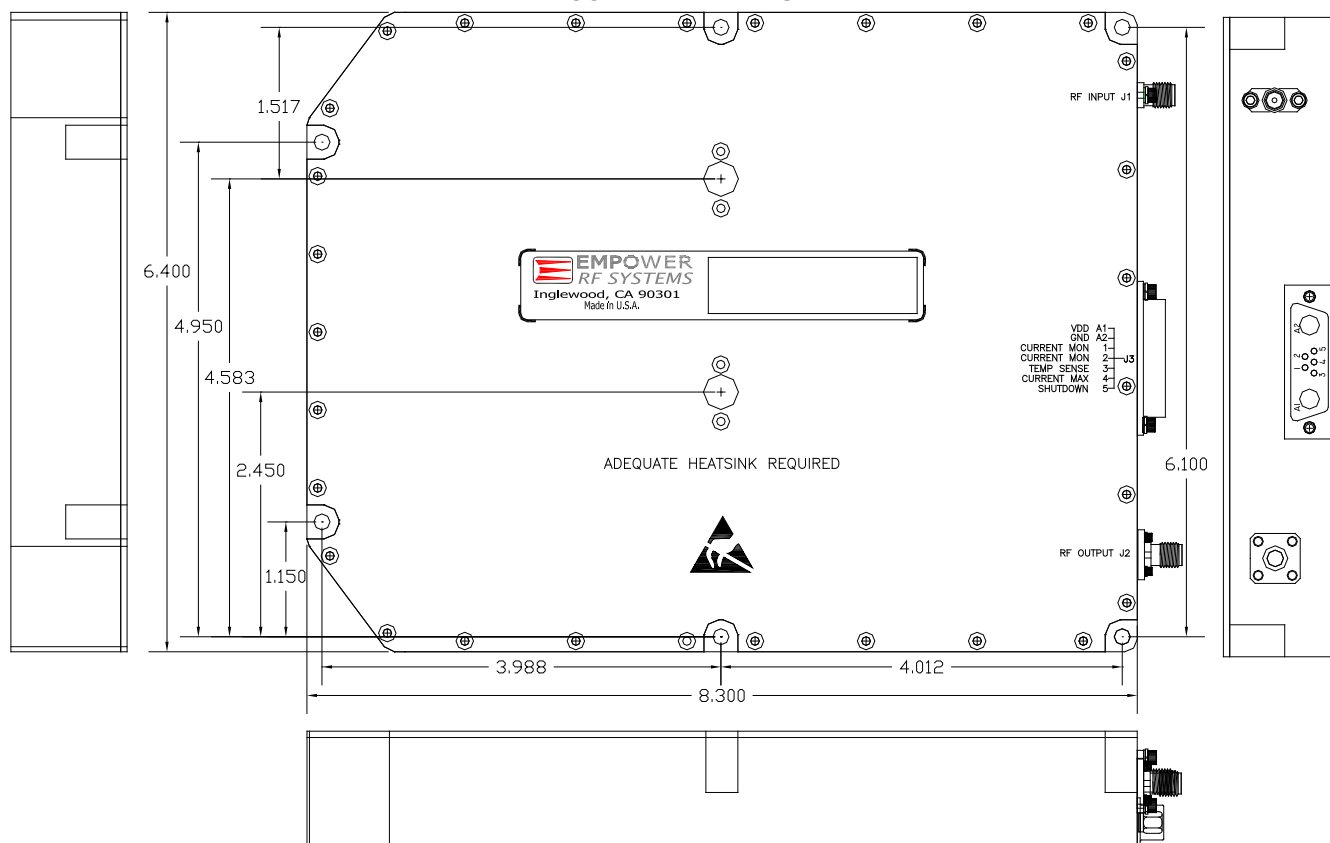
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DC INTERFACE CONNECTOR – Hybrid, D-Sub 7-Pin, Male

Pin #	Description	Specifications
A1	VDD	28.0V _{DC} ±2V
A2	GND	Ground
1	Current Mon 1	Analog voltage relative to I _{DD1} @ 10mV/100mA
2	Current Mon 2	Analog voltage relative to I _{DD2} @ 10mV/100mA
3	Temp Sense	Analog voltage relative to module's Temperature @ 10mV/°C
4	Current Max	Current Maximum (factory use)
5	Shutdown	Amplifier Disable: TTL Logic High (5V) (Internally Pulled-Low)

OUTLINE DRAWING



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TYPICAL PERFORMANCE PLOTS

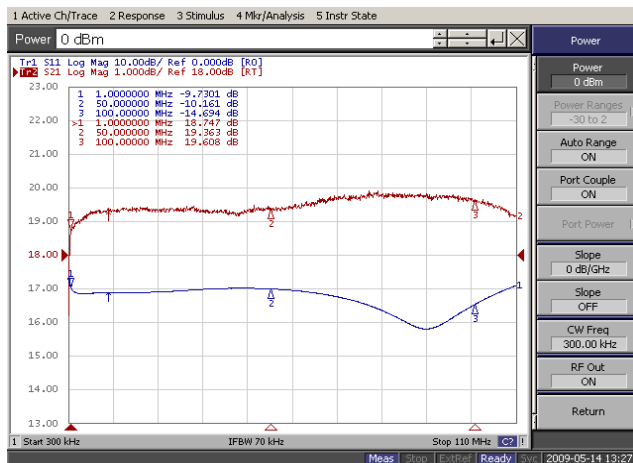
Plot 1 – Small Signal Gain

Top Curve: Small Signal Gain @ $P_{IN} = 0\text{ dBm}$

Reference: 18dB, 1dB/div.

Bottom Curve: Input Return Loss

Reference: 0dB, 10dB/div.



Plot 2 – Small Signal Gain and P_{1dB} with Driver

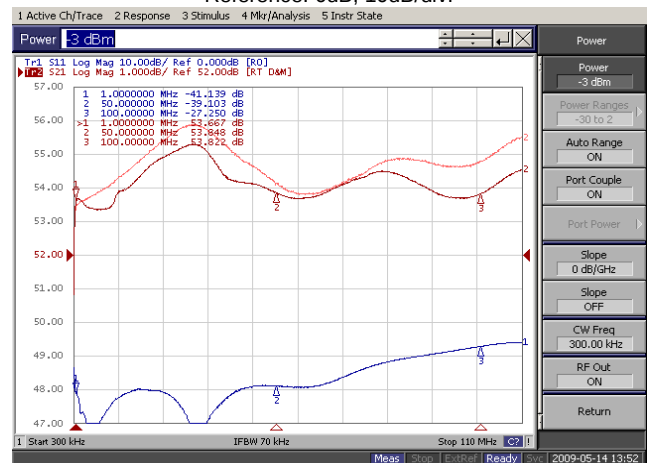
Top Curve: Small Signal Gain @ $P_{IN} = -20\text{ dBm}$

Middle Curve: Power Gain @ P_{1dB} , $P_{IN} = -3\text{ dBm}$

Reference: 52dB, 1dB/div.

Bottom Curve: Input Return Loss of Driver

Reference: 0dB, 10dB/div.



Plot 3 – Small Signal Gain and P_{SAT}

Top Curve: Small Signal Gain @ $P_{IN} = -20\text{ dBm}$

Middle Curve: Power Gain @ P_{SAT} , $P_{IN} = 6\text{ dBm}$

Reference: 52dB, 1dB/div.

Bottom Curve: Input Return Loss of Driver

Reference: 0dB, 10dB/div.

