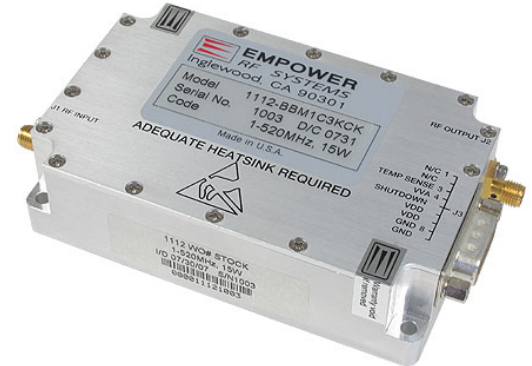


## Solid State Broadband High Power Amplifier

**1112 - BBM1C3KCK**
**1 – 520 MHz / 15 Watts**

The BBM1C3KCK (SKU 1112) is suitable for high power ultra broadband and band specific 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 Class A linear design
- Instantaneous ultra broadband
- Small and lightweight
- Built in voltage variable attenuator
- Built in functions and protection 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<sub>DC</sub>, 25°C, 50 Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	1		520	MHz
Output Power CW	P <sub>SAT</sub>	13	20		Watt
Output Power @ 1dB Gain Compression	P <sub>1dB</sub>	10	12		Watt
Power Gain @ 1dB Gain Compression	G <sub>1dB</sub>	42			dB
Input Power for Rated P <sub>SAT</sub>	P <sub>IN</sub>		0		dBm
Small Signal Gain Flatness	ΔG		±1.0	±1.5	dB
Gain Adjustment Range (Analog 0-5 V)	VVA	25			dB
Input Return Loss	S <sub>11</sub>			-10	dB
Noise Figure @ max gain	NF		7	10	dB
Third Order Intercept Point 2-Tone @ 27dBm/Tone, 100kHz Spacing	IP3		+49		dBm
Harmonics @ P <sub>OUT</sub> = 10W	H		-20		dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	V <sub>DC</sub>	26	28	30	Volt
Current Consumption	I <sub>DD</sub>		2.0	3.0	Amp

### MECHANICAL SPECIFICATIONS

Parameter	Value	Unit
Dimensions	4.0 x 2.5 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 <sub>C</sub>	0		+80	°C
Storage Temperature	T <sub>STG</sub>	-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

**1112 - BBM1C3KCK**
**1 – 520 MHz / 15 Watts**

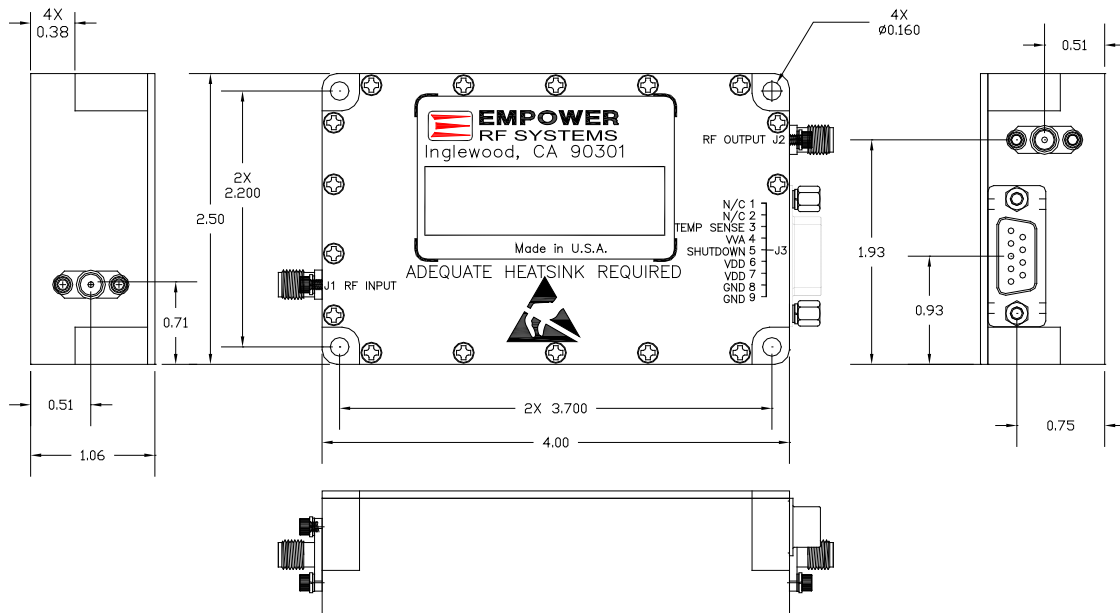
### LIMITS

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

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

Pin #	Description	Specifications
1&2	N/C	No Connection
3	Temp Sense	Analog voltage relative to Module's Temperature @ 10mV/°C
4	VVA	VVA Control Voltage: Max. Gain = 0V <sub>DC</sub> , Min. Gain = 5.0V <sub>DC</sub>
5	Shutdown	Amplifier Disable: TTL Logic High (5V)
6&7	VDD	26.0-30.0V <sub>DC</sub>
8&9	GND	Ground

### OUTLINE DRAWING



# Solid State Broadband High Power Amplifier

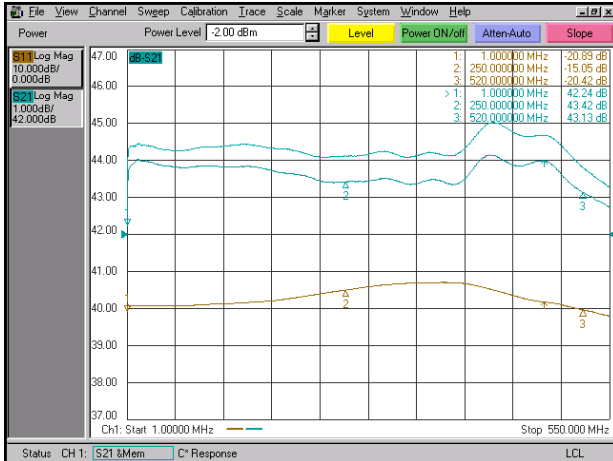
1112 - BBM1C3KCK

1 – 520 MHz / 15 Watts

## TYPICAL PERFORMANCE PLOTS

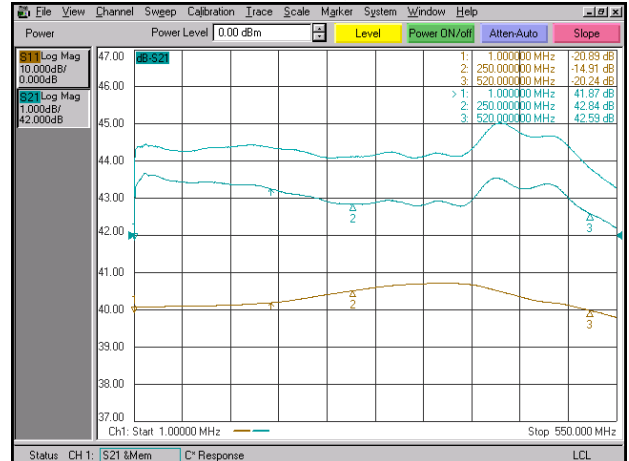
**Plot 1 – Small Signal Gain and  $P_{1dB}$**

Top Curve: Small Signal Gain @  $P_{IN} = -20dBm$   
 Middle Curve: Power Gain @  $P_{1dB}$ ,  $P_{IN} = -2.0dBm$   
 Reference: 42dB, 1dB/div.  
 Bottom Curve: Input Return Loss  
 Reference: 0dB, 10dB/div.



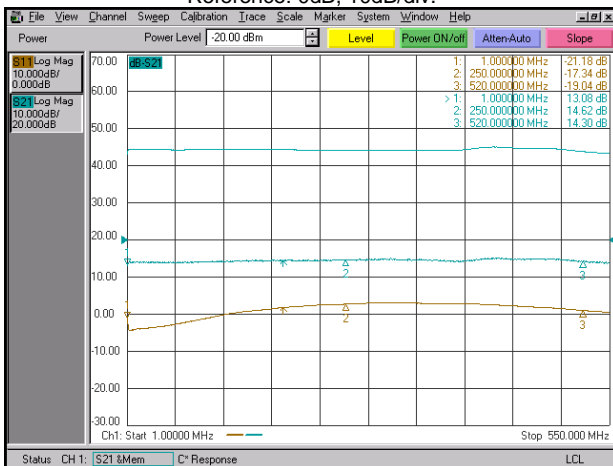
**Plot 2 – Small Signal Gain and  $P_{SAT}$**

Top Curve: Small Signal Gain @  $P_{IN} = -20dBm$   
 Middle Curve: Power Gain @  $P_{SAT}$ ,  $P_{IN} = 0.0dBm$   
 Reference: 42dB, 1dB/div.  
 Bottom Curve: Input Return Loss  
 Reference: 0dB, 10dB/div.



**Plot 3 – VVA Gain Adjustment Range**

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



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