

Solid State Broadband High Power Amplifier

1119 - BBM3K5KHM
500 – 2500 MHz / 50 Watts

The BBM3K5KHM (SKU 1119) is suitable for broadband mobile Jamming and band specific high power linear applications in the P/L/S frequency bands. This compact module utilizes high power advanced GaN devices that provide excellent power density, high efficiency, wide dynamic range and low distortions. 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 and lightweight
- Suitable for CW, AM, and FM (for other modulation types, consult factory)
- 50 ohm input/output impedance
- High reliability and ruggedness
- Built-in control, monitoring and protection circuits

RoHS Compliant available
 SKU# 1119-0001

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

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	500		2500	MHz
Power Output CW	P _{SAT}	50		70	Watt
Output Power @ 1 dB Gain Compression Point	P _{1dB}		20		Watt
Small Signal Gain	G _{SS}	46	48		dB
Input Power for Rated Pout	P _{IN}		0		dBm
Gain Flatness @ rated output power	ΔG _P			±1.5	dB
Input Return Loss	S ₁₁			-10	dB
Noise Figure	NF			11.5	dB
Third Order Intercept Point 2-Tones @ 41dBm/Tone, Δ=100KHz	IP3	+48	+53		dBm
Harmonics @ rated output power	H		-20	-13	dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	VDC	26	28	30	Volt
Current Consumption @ rated Pout	I _{DD}			6.0	Amp
Quiescent Current	I _{DQ}		2.0		Amp
Standby Current Consumption @ Shutdown	I _{SD}			400	mA
Switching Time, 1 KHz TTL, P _{IN} = 0 dBm	T _{ON} /T _{OFF}		2	5	uSec

MECHANICAL SPECIFICATIONS

Parameter	Value	Units	Limits
Dimensions	7.4 x 3.6 x 1.1	Inch	Max
Weight	1.0	lb.	Max
RF Connectors In/Out	SMA female		
DC / Control Connector	Dsub, 9-Pins, Male		
Cooling	External Heatsink		

ENVIRONMENTAL CHARACTERISTICS (Design to Meet)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	T _c	-40		+80	°C
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		

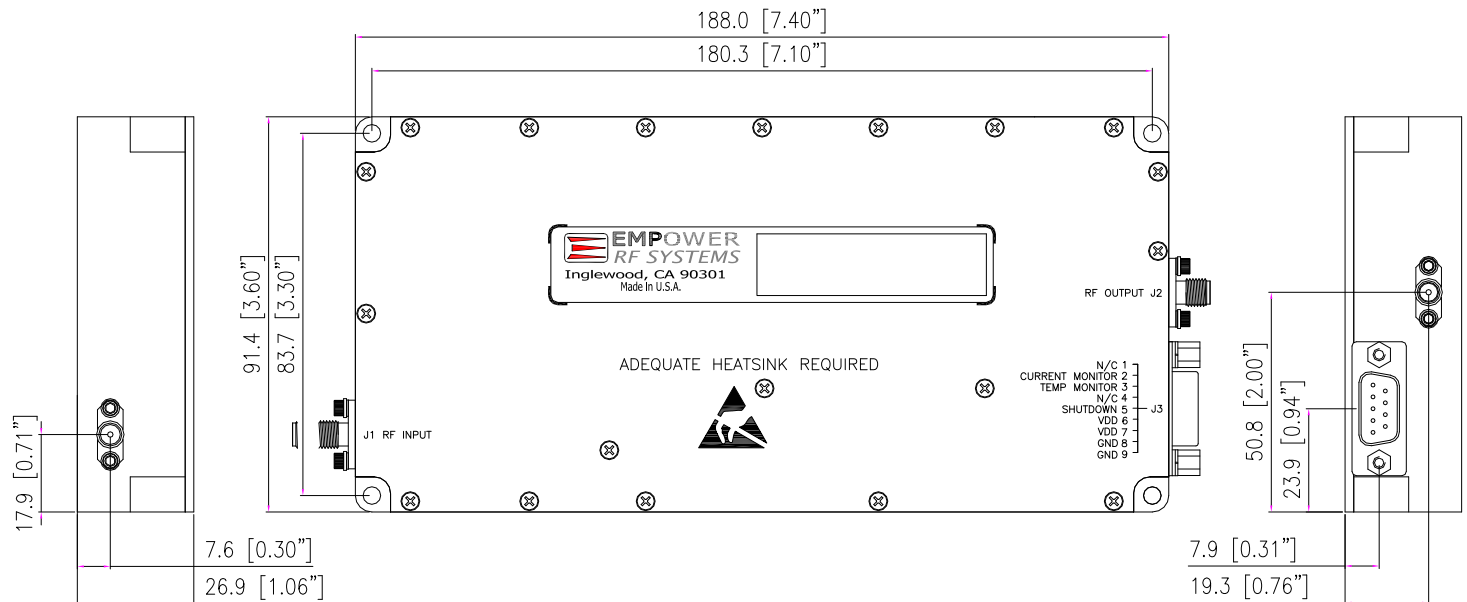
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PROTECTIONS

Input Overdrive	+10 dBm	Max
Load VSWR @ rated output power	∞ @ All load phase & amplitude for duration of 1 minute 3:1 @ all load phase & amplitude continuous	Nom
Thermal Overload	85°C	Typ

INTERFACE CONNECTOR - D-Sub, 9 Pin

Pin #	Description	Specifications
1	N/C	Reserved
2	Current Monitor	Analog voltage relative to ID @ 50mV/100mA
3	Temperature Sense	Analog voltage relative to Module's Temperature @ 10mV/°C
4	N/C	Reserved
5	Shutdown	Amplifier Enable: TTL "Low" (Logic 0) or Open Amplifier Disable: TTL "High" (Logic 1)
6, 7	VDD	+28VDC to ±2VDC
8, 9	GND	Ground

OUTLINE DRAWING


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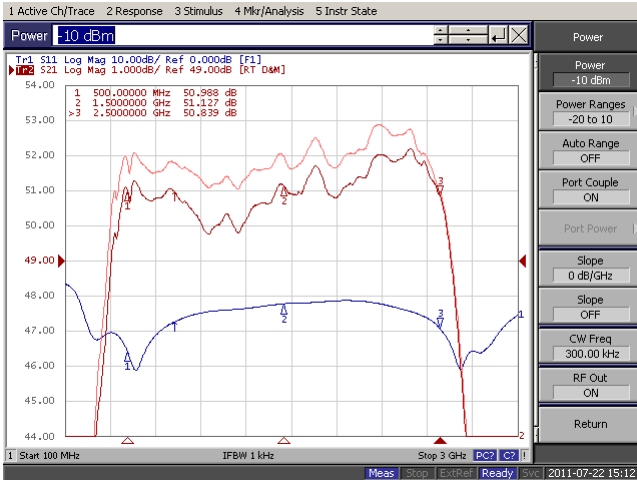
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TYPICAL PERFORMANCE PLOTS

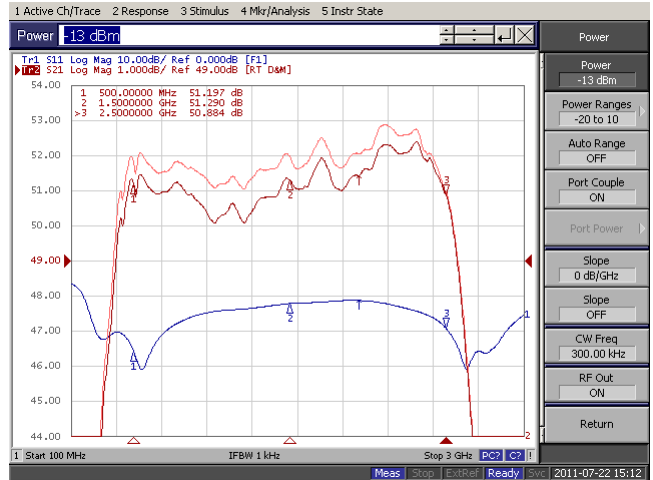
Plots 1 - Small Signals

Top Curve: Small Signal Gain @ $P_{IN} = -20\text{dBm}$
 Middle Curve: Small Signal Gain @ $P_{IN} = -10\text{dBm}$
 Reference: 49dB, 1dB/div.
 Bottom Curve: Input Return Loss
 Reference: 10dB, 10dB/div.



Plot 2 - Small Signal and P_{1dB} Gain

Top Curve: Small Signal Gain @ $P_{IN} = -20\text{dBm}$
 Middle Curve: Power Gain @ P_{1dB} , $P_{IN} = -13.0\text{dBm}$ (Note 2)
 Reference: 49dB, 1dB/div.
 Bottom Curve: Input Return Loss
 Reference: 10dB, 10dB/div.



Plot 3 - Small Signal and P_{SAT}

Top Curve: Small Signal Gain @ $P_{IN} = -20\text{dBm}$
 Middle Curve: P_{SAT} @ $P_{IN} = 0.0\text{dBm}$ (Note 2)
 Reference: 48dB, 1dB/div.
 Bottom Curve: Input Return Loss
 Reference: 10dB, 10dB/div.

