

Solid State Broadband High Power Amplifier

1189 – BBM3K5KKO
500 – 2500 MHz / 100 Watts

The BBM3K5KKO (SKU 1189) 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
- Suitable for CW, AM, and FM (Consult factory for other modulation types)
- Small and lightweight
- 50 ohm input/output impedance
- High reliability and ruggedness
- Built-in control, monitoring and protection circuits

RoHS Compliant available
SKU# 1189-0003

ELECTRICAL SPECIFICATIONS @ +28.0V_{DC}, 25°C, 50 Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	500		2500	MHz
Output Power CW	P _{SAT}	100	125		Watt
Output Power @ 1dB Gain Compression	P _{1dB}		50		Watt
Power Gain @ P _{1dB}	G _p	50			dB
Input Power for Rated P _{SAT}	P _{IN}		0		dBm
Gain Flatness @ Rated P _{SAT}	ΔG _p			±1.0	dB
Input Return Loss	S ₁₁			-10	dB
Noise Figure	NF			10	dB
Third Order Intercept Point	IP3		+50		dBm
2-Tone @ 37dBm/Tone, 1MHz Spacing					
Harmonics @ P _{OUT} = 100W	H		-20		dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	V _{DC}	26	28	30	Volt
Current Consumption @ P _{OUT} = 100W	I _{DD}		10	12	Amp
Quiescent Current	I _{DQ}		1.5	2.0	Amp
Current Consumption @ Shutdown	I _{SD}			300	mA
Switching Time @ 1kHz TTL, P _{IN} = 0dBm	T _{ON} /T _{OFF}		2.0	5.0	uSec

MECHANICAL SPECIFICATIONS

Parameter	Value	Units	Limits
Dimensions	187.96 x 91.44 x 26.924 [7.4 x 3.6 x 1.06]	mm [Inch]	Max
Weight	2	lb.	Max
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	-40		+85	°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	VI/SH		Airborne		
MIL-STD-810F - Method 514.5/516.5 – Proc I					

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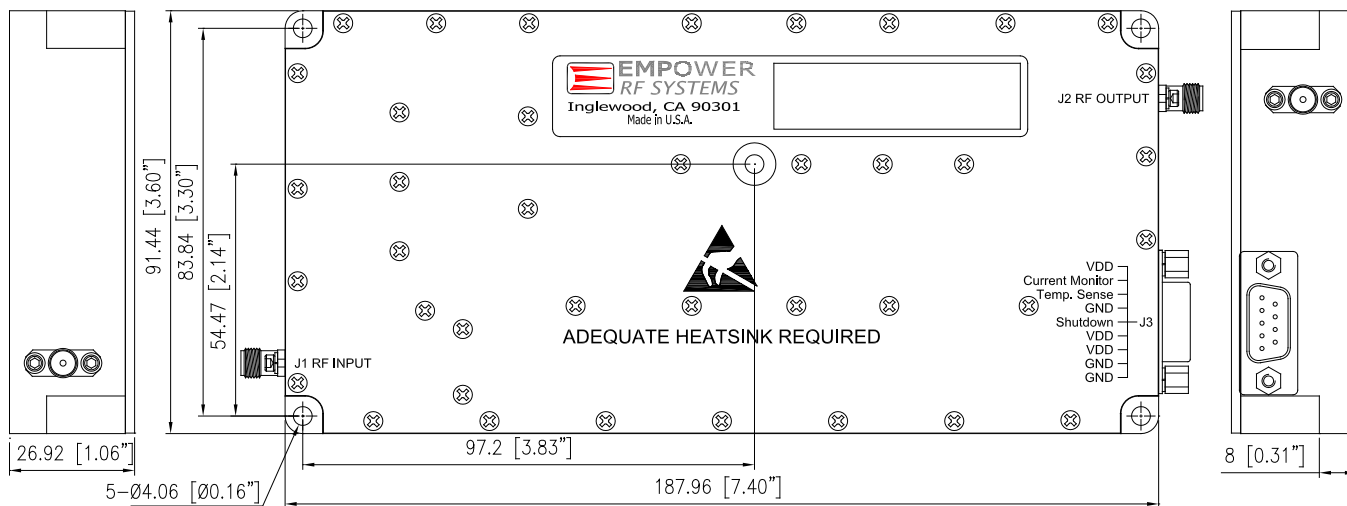
LIMITS

Input RF drive level without damage	+10 dBm	Max
Load VSWR @ P _{OUT} = 100W	∞ @ all load phase & amplitude for duration of 1 minute 3:1 @ all load phase & amplitude continuous	-
Thermal Overload	85°C Graceful Degradation	Typ

DC INTERFACE CONNECTOR – D-sub, 9-Pin, Male

Pin #	Description	Specifications
2	Current Monitor	Analog voltage relative to I _{DD} @ 25mV/100mA
3	Temp. Sense	Analog voltage relative to Unit's Temperature @ 10 mV/°C (-500mV)
5	Shutdown	Amplifier Disable: TTL Logic High (5V) (Internally Pulled-Low)
1, 6, 7	VDD	+28.0V _{DC} ±2V
4, 8, 9	GND	Ground

OUTLINE DRAWING



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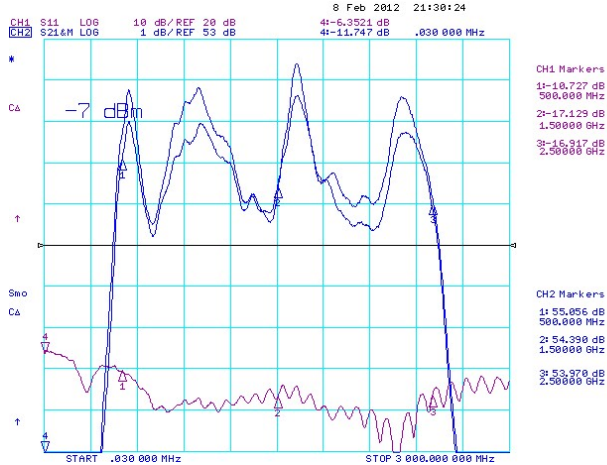
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TYPICAL PERFORMANCE PLOTS

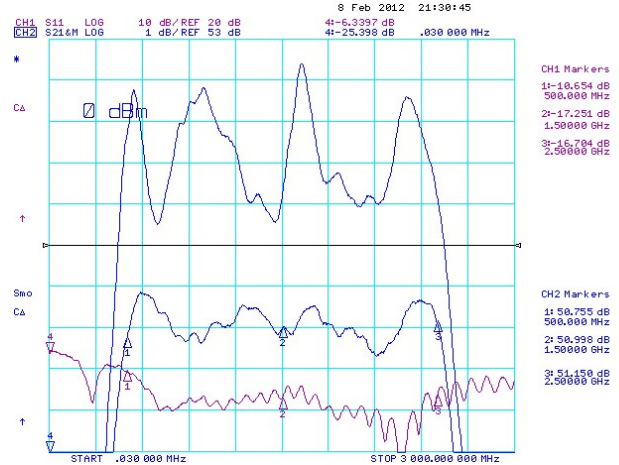
Plot 1 – Small Signal Gain and P_{1dB}

Top Curve: Small Signal Gain @ $P_{IN} = -20\text{dBm}$
 Middle Curve: Power Gain @ P_{1dB} , $P_{IN} = -7\text{dBm}$
 Reference: 53dB, 1dB/div.
 Bottom Curve: Input Return Loss
 Reference: 20dB, 10dB/div.



Plot 2 – Small Signal Gain and P_{SAT}

Top Curve: Small Signal Gain @ $P_{IN} = -20\text{dBm}$
 Middle Curve: Power Gain @ P_{SAT} , $P_{IN} = 0\text{dBm}$
 Reference: 53dB, 1dB/div.
 Bottom Curve: Input Return Loss
 Reference: 20dB, 10dB/div.



Plot 3 – Noise Figure

Noise Figure Curve
 Reference: 7dB, 1dB/div.

