

## Solid State Broadband High Power Amplifier

**1179-0001 – BBM3K5KKO**
**500 – 2500 MHz / 100 Watts**

The BBM3K5KKO (SKU 1179-0001) 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

### ELECTRICAL SPECIFICATIONS @ +28.0V<sub>DC</sub>, 25°C, 50 Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	500		2500	MHz
Power Output CW	P <sub>SAT</sub>	100	125		Watt
Output Power @ P <sub>1dB</sub> Gain Compression	P <sub>1dB</sub>		50		Watt
Gain @ P <sub>1dB</sub> Gain Compression	G <sub>p</sub>	50			dB
Input Power for Rated P <sub>SAT</sub>	P <sub>IN</sub>		0		dBm
Gain Flatness @ Rated P <sub>SAT</sub>	ΔG <sub>p</sub>			±1.0	dB
Input Return Loss	S <sub>11</sub>			-10	dB
Noise Figure	NF			10	dB
Third Order Intercept Point 2-Tone @ 37dBm/Tone, 1MHz Spacing	IP3		+55		dBm
Harmonics @ P <sub>OUT</sub> = 100W	H		-20		dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	V <sub>DC</sub>	26	28	30	Volt
Current Consumption @ P <sub>OUT</sub> = 100W	I <sub>DD</sub>		10	15	Amp
Quiescent Current	I <sub>DQ</sub>		1.2		Amp
Shutdown Current	I <sub>SD</sub>			400	mA
Switching Time, 1kHz TTL, P <sub>IN</sub> = 0 dBm	T <sub>ON</sub> /T <sub>OFF</sub>		2.0	5.0	uSec
Phase Tracking @ P <sub>SAT</sub> (All module)	ΔPT			±10	Deg
Gain Tracking @ P <sub>SAT</sub> (All module)	ΔGT			±0.75	dB

### ENVIRONMENTAL CHARACTERISTICS (Design to Meet)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	T <sub>C</sub>	-40		+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

1179-0001 – BBM3K5KKO

500 – 2500 MHz / 100 Watts

### MECHANICAL SPECIFICATIONS

Parameter	Value	Units	Limits
Dimensions	7.874 x 4.134 x 1.06	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)		

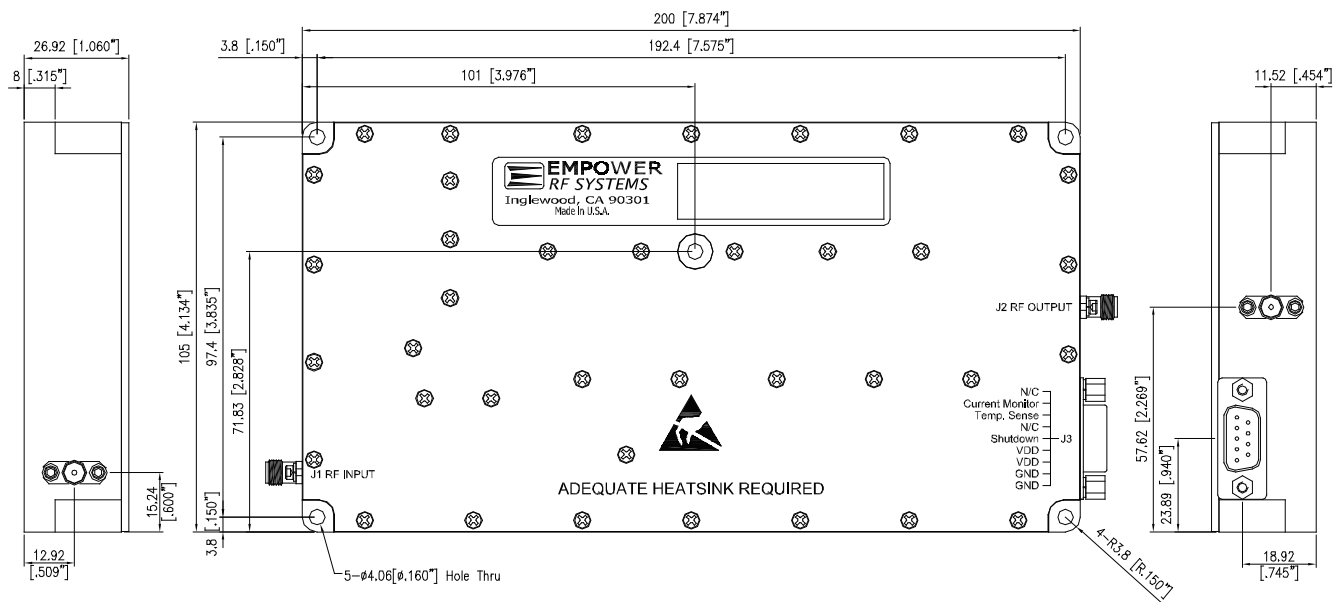
### LIMITS

Input RF drive level without damage	+15 dBm	Max
Load VSWR @ P <sub>OUT</sub> = 100W	∞ @ any angle & amplitude for duration of 1 minute 3:1 @ any angle & amplitude continuous	-
Thermal Overload	85°C Graceful Degradation	Typ

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

Pin #	Description	Specifications
1	N/C	No Connection
2	Current Monitor	Analog voltage relative to I <sub>D</sub> @ 25 mV/100 mA
3	Temperature Sense	Analog voltage relative to Module's Temperature @ 10 mV/°C (-500 mV)
4	N/C	No Connection
5	Shutdown	Amplifier Disable: TTL Logic High (5V) (Internally Pulled-low)
6, 7	VDD	+26.0 – 30V <sub>DC</sub>
8, 9	GND	Ground

### OUTLINE DRAWING



## Solid State Broadband High Power Amplifier

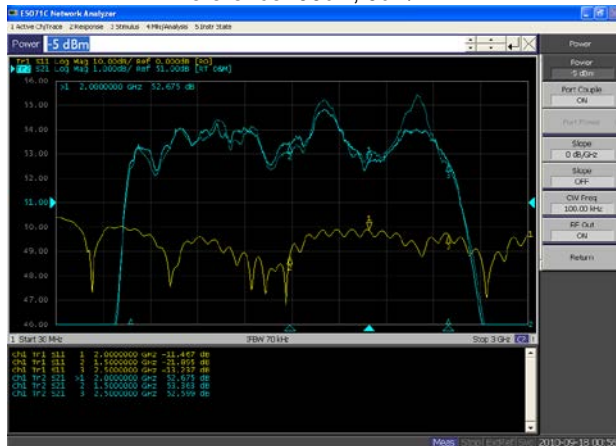
1179-0001 – BBM3K5KKO

500 – 2500 MHz / 100 Watts

### TYPICAL PERFORMANCE PLOTS

#### Plot 1 – Small Signal Gain and P<sub>1dB</sub>

Top Curve: Small Signal Gain @ P<sub>IN</sub> = -20dBm  
 Middle Curve: Power Gain @ P<sub>1dB</sub>, P<sub>IN</sub> = -5.0dBm  
 Reference: 51dB, 1dB/Div.  
 Bottom Curve: Input Return Loss  
 Reference: 00dB, 0dB/Div.



#### Plot 2 – Small Signal Gain and P<sub>SAT</sub>

Top Curve: Small Signal Gain @ P<sub>IN</sub> = -20dBm  
 Middle Curve: Power Gain @ P<sub>SAT</sub>, P<sub>IN</sub> = 1.0dBm  
 Reference: 51dB, 1dB/Div.  
 Bottom Curve: Input Return Loss  
 Reference: 0dB, 0dB/Div.

