

# Solid State Broadband High Power Amplifier

**1143 - BBM3K5KKO**
**500 – 2500 MHz / 100 Watts**

The BBM3K5KKO (SKU 1143) 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 most modulation types
- Small form factor and lightweight
- 50 ohm input/output impedance
- High reliability and ruggedness
- Built-in control, monitoring and protection circuits

## 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 <sub>SAT</sub>	100	125		Watt
Output Power @ 1dB Gain Compression Point	P <sub>1dB</sub>		50		Watt
Gain @ P1 dB Gain Compression Point	G <sub>1dB</sub>	50			dB
Input Power for Rated P <sub>OUT</sub>	P <sub>IN</sub>		0		dBm
Gain Flatness @ rated output power	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	IP3		+55		dBm
Harmonics @ rated output power	H		-20		dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	V <sub>DC</sub>	26	28	30	Volt
Current Consumption @ rated P <sub>OUT</sub>	I <sub>DD</sub>		10	15	Amp
Quiescent Current	I <sub>DQ</sub>		1.2		Amp
Standby Current Consumption @ Shutdown	I <sub>SD</sub>			400	mA
Switching Time, 1 KHz TTL, P <sub>IN</sub> = 0 dBm	T <sub>ON</sub> /T <sub>OFF</sub>		2.0	5.0	uSec

## ENVIRONMENTAL CHARACTERISTICS

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	10,000		30,000	Feet
Shock / Vibration (MIL-STD-810F Method 516.5)	SH / VI		Airborne		

## MECHANICAL SPECIFICATIONS

Parameter	Value	Units	Limits
Dimensions	10.0 x 5.0 x 1.0	Inch	Max
Weight	2.5	lb.	Max
RF Connectors In/Out	SMA female		
DC / Control Connector	D-Sub, 9-Pins, Male		
Cooling	External Heatsink		

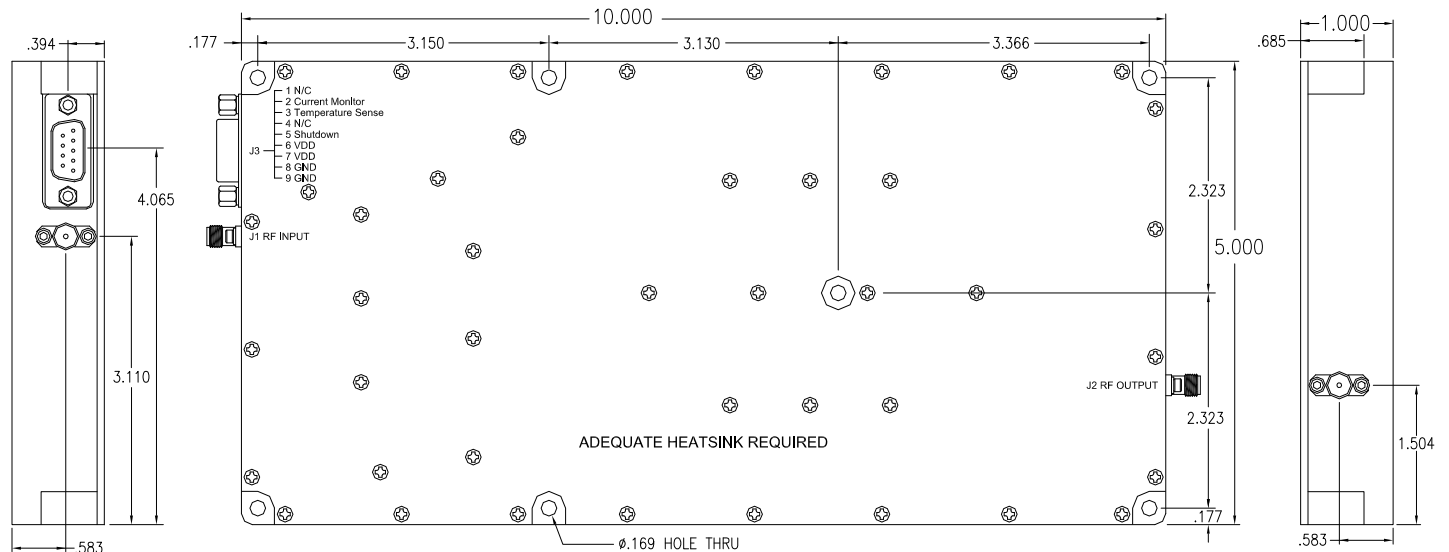
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**PROTECTIONS**

Input Overdrive	+15 dBm	Max
Load VSWR @ rated output power	$\infty$ @ all load phase & amplitude	Nom
Thermal Overload - Graceful Degradation	85°C	Max

**INTERFACE CONNECTOR - Dsub, 9 Pin**

Pin #	Description	Specifications
1	N/C	Reserved
2	Current Monitor	Analog voltage relative to $I_D$ @ 25 mV/100 mA
3	Temperature Sense	Analog voltage relative to Module's Temperature @ 10 mV/°C + 500 mV
4	N/C	Reserved
5	Shutdown	Amplifier Enable: TTL "Low" (Logic 0) or Open Amplifier Disable: TTL "High" (Logic 1)
6	VDD	+28 V <sub>DC</sub> to $\pm 2$ V
7	VDD	+28 V <sub>DC</sub> to $\pm 2$ V
8	GND	Ground
9	GND	Ground

**OUTLINE DRAWING**


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**TYPICAL PERFORMANCE PLOTS**
**Plots 1 – Small Signal and P<sub>1dB</sub> Gain**

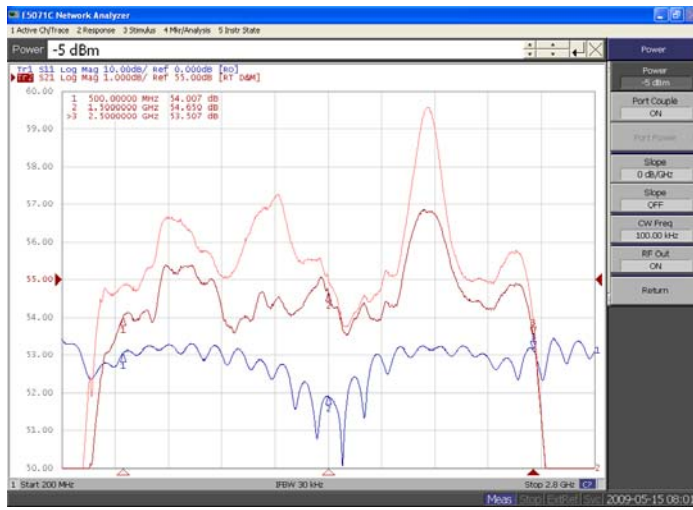
Top Curve: Small Signal Gain @ Pin = -20dBm

 Middle Curve: P<sub>1dB</sub> @ Pin = -5.0dBm

Reference: 55dB, 1dB/Div.

Bottom Curve: Input Return Loss

Reference: 10dB, 0dB/Div.


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

Top Curve: Small Signal Gain @ Pin = -20dBm

Reference: 55dB, 1dB/Div.

Middle Curve: Input Return Loss

Reference: 10dB, 0dB/Div.

 Bottom Curve: P<sub>SAT</sub> @ Pin = -1.0dBm

Reference: 55dB, 1dB/Div.

