

# Solid State Broadband High Power Amplifier

**1208 – BBM3K5OKO**
**500 – 2700 MHz / 100 Watts**

The BBM3K5OKO (SKU 1208) is suitable for broadband mobile Jamming and band specific high power 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 ISO9001:2015 Quality Assurance Program assures consistent performance and the highest reliability.



- Solid-state Class AB 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

MOUNTING HOLES OPTIONS		
SKU No.	Hole Size	Screw Size
1208	0.160 in.	# 6
1208-001	0.180 in.	# 8

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

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	500		2700	MHz
Output Power CW	P <sub>SAT</sub>	90	100		Watt
Output Power @ 1dB Gain Compression	P <sub>1dB</sub>		50		Watt
Power Gain @ P <sub>1dB</sub>	G <sub>p</sub>	50	56		dB
Input Power for Rated P <sub>SAT</sub>	P <sub>IN</sub>		-5	0	dBm
Small Signal Gain Flatness @ P <sub>IN</sub> = -20dBm	ΔG <sub>SS</sub>		±1.8	±2.5	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		+50		dBm
Harmonics @ P <sub>OUT</sub> = 90W	2 <sup>ND</sup> / 3 <sup>RD</sup>		-20		dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	V <sub>DC</sub>	26	28	30	Volt
Current Consumption @ P <sub>OUT</sub> = 90W	I <sub>DD</sub>		11.5	13	Amp
Quiescent Current	I <sub>DQ</sub>		1.5	2.0	Amp
Current Consumption @ Shutdown	I <sub>SD</sub>			600	mA
Switching Time @ 1kHz TTL, P <sub>IN</sub> = 0dBm	T <sub>ON</sub> /T <sub>OFF</sub>		2.0	5.0	uSec

## MECHANICAL SPECIFICATIONS

Parameter	Value	Unit
Dimensions	8.2 X 3.6 X 1.06	Inch
Weight	2.75	Pound
RF Connectors Input/Output	Type-SMA, Female	RF Input / RF Output
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>	-40		+85	°C
Non-operating 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		

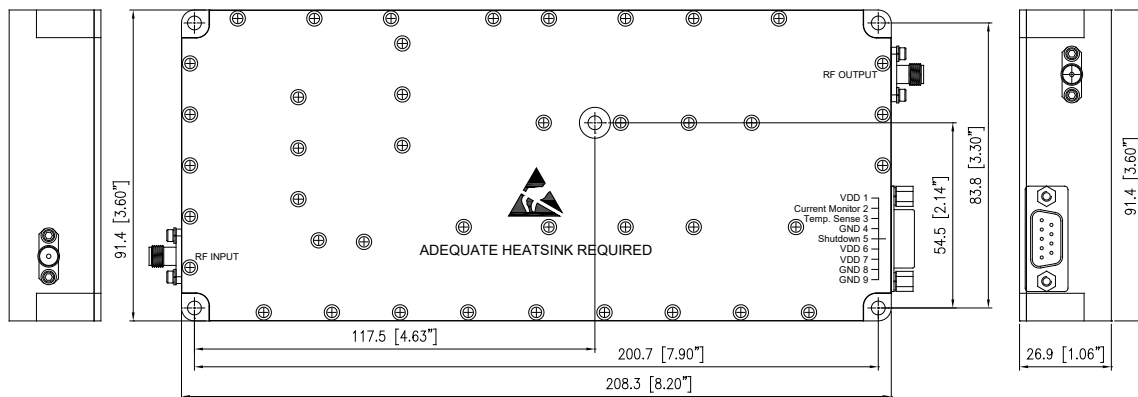
# Solid State Broadband High Power Amplifier

**1208 – BBM3K50KO**
**500 – 2700 MHz / 100 Watts**
**LIMITS**

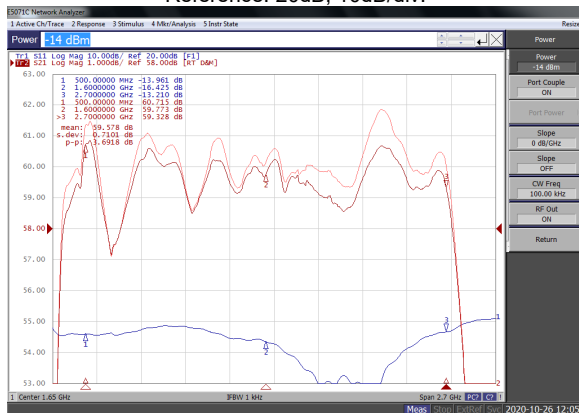
Input RF drive level without damage	+10 dBm	Max
Load VSWR @ P <sub>OUT</sub> = 90W	∞ @ all load phase & amplitude for duration of 1 minute 3:1 @ all load phase & amplitude continuous	-
Thermal Overload	85°C Graceful Degradation	Typ

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

Pin #	Description	Specification
2	Current Monitor	Analog voltage relative to I <sub>DD</sub> @ 25mV/100mA
3	Temp. Sense	Analog voltage relative to Unit's Temperature @ 10mV/°C (0.50V <sub>OFFSET</sub> ) ;(V <sub>MEASURED</sub> - 0.50)/0.01= °C, Example; (1.00V-0.50)/0.01= 50°C
5	Shutdown	Amplifier Disable: TTL Logic High (5V) (Internally Pulled-Low)
1, 6, 7	VDD	+26.0-30.0V <sub>DC</sub>
4, 8, 9	GND	Ground

**OUTLINE DRAWING**

**TYPICAL PERFORMANCE**
**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> = -14dBm  
 Reference: 58dB, 1dB/div.  
 Bottom Curve: Input Return Loss  
 Reference: 20dB, 10dB/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> = -5dBm  
 Reference: 58dB, 1dB/div.  
 Bottom Curve: Input Return Loss  
 Reference: 20dB, 10dB/div.

