

Solid State Broadband High Power Amplifier

1122 – BBM3Q5KHM
800 – 2500 MHz, 50 Watts

The BBM3Q5KHM (SKU 1122) 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 distortion. 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
- Extremely wide instantaneous bandwidth
- Compact and lightweight
- Built-in control, monitoring and protection circuits
- Suitable for most modulation types
- 50 ohm input/output impedance
- Highly rugged and reliable

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

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	800		2500	MHz
Power Output (CW)	P _{SAT}	50			Watt
Output Power @ 1 dB Gain Compression Point	P _{1dB}	20			Watt
Small Signal Gain	G _{1dB}	46	48		dB
Input Power for Rated P _{out}	P _{IN}		0		dBm
Small Signal Gain Flatness	ΔG			±2.0	dB
Input Return Loss	S ₁₁			-10	dB
Noise Figure @ Max Gain	NF			10	dB
Third Order Intercept Point	IP ₃	+50			dBm
2-Tones @ 34 dBm/Tone, Δ = 1 MHz					
Harmonics @ P _{1dB} Gain Compression Point	2 nd / 3 rd			-17/20	dBc
Spurious Signals	Spur			60	dBc
Operating Voltage	VDC	26	28	30	Volt
Current Consumption @ Nominal Output Power	I _{DD}			6.3	Amp
Quiescent Current	I _{DQ}		2.0		Amp
Switching Speed (10% to 90%)	T _{SW}		2.0		μs

MECHANICAL SPECIFICATIONS

Parameter	Value	Units	Limits
Dimensions	6.4 x 3.4 x 1.1	Inch	Max
Weight	1.0	lb.	Max
RF Connectors Input/Output	SMA female/SMA female		
DC Connectors	9 Pin Dsub, Male		
Cooling	External Heatsink		

ENVIRONMENTAL CHARACTERISTICS

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		40,000		Feet
Shock / Vibration (MIL-STD-810F Method 516.5)	SH / VI		MIL-STD-810F		

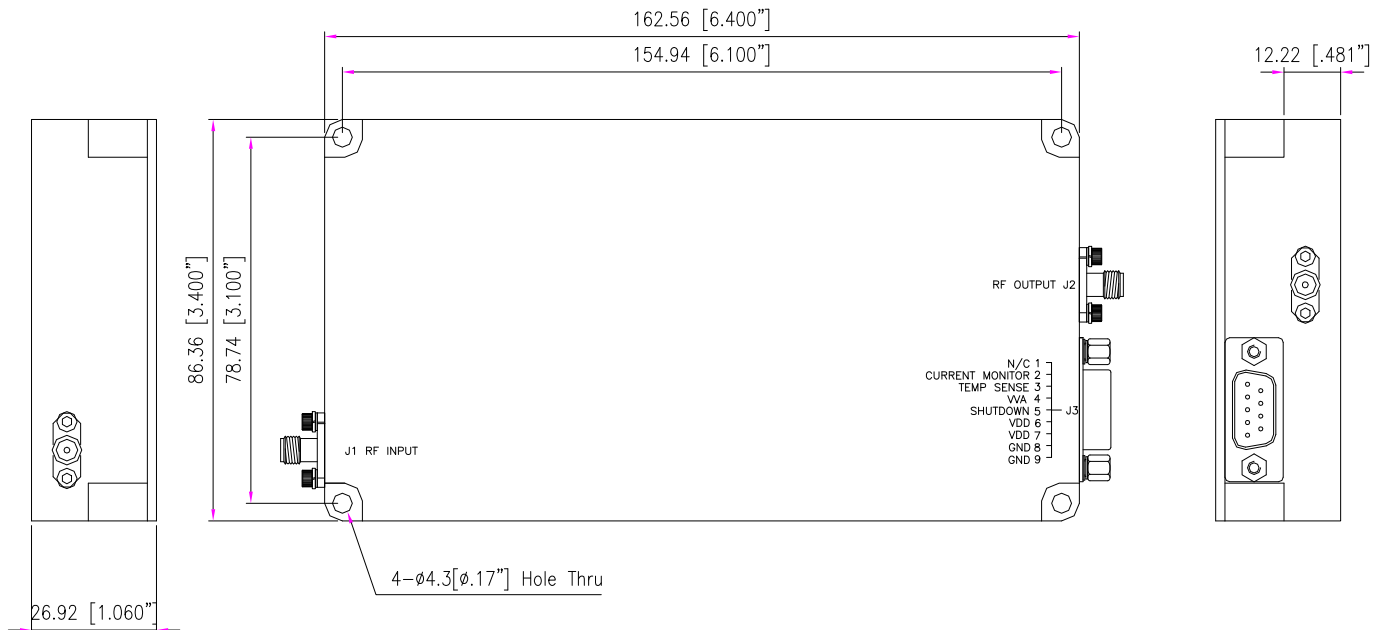
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PROTECTIONS

Input Overdrive	+15 dBm	Max
Load VSWR @ rated P _{out}	∞:1 @ all load phase & amplitude	Nom
Thermal Overload	N/A	Max

INTERFACE CONNECTOR - Dsub, 9-Pin

Pin #	Description	Specifications
1	Reserved	N/C
2	Current Consumption Monitor	Analog voltage relative to I _D @ 50 mV/100 mA
3	Temperature Monitor	Analog voltage relative to module temperature @ 10 mV/°C
4	VVA	Continuous Analog 0 – 5 VDC levels Maximum Attenuation: 5 VDC Minimum Attenuation: 0 VDC
5	Shutdown	Amplifier Enable: TTL “Low” (Logic 0) or Open Amplifier Disable: TTL “High” (Logic 1)
6, 7	VDD	+28 VDC ± 2 VDC
8, 9	GND	Ground

OUTLINE DRAWING


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TYPICAL PERFORMANCE PLOTS
Plots 1 – Small Signal and P1dB Gain

Top Curve: Small Signal Gain @ Pin = -20dBm
 Middle Curve: P1dB @ Pin = -5dBm
 Reference: 49dB, 1dB/Div.
 Bottom Curve: Input Return Loss
 Reference: 10dB, 0dB/Div.

Plot 2 – Small Signal and Psat

Top Curve: Small Signal Gain @ Pin = -20dBm
 Middle Curve: Psat @ Pin = +1dBm
 Reference: 48dB, 1dB/Div.
 Bottom Curve: Input Return Loss
 Reference: 10dB, 0dB/Div.

