

Solid State Broadband High Power Amplifier

1131 - BBM5K8CGM
2500 – 6000 MHz / 35 Watts

The BBM5K8CGM (SKU 1131) 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
- Small and lightweight
- Built-in control, monitoring & protection circuits
- Suitable for most modulation types
- 50 ohm input/output impedance
- High reliability and ruggedness

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

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	2500		6000	MHz
Power Output CW	P _{SAT}	35	40		Watt
Output Power @ 1 dB Gain Compression Point	P _{1dB}	10	20		Watt
Small Signal Gain	G _{1dB}	46	48		dB
Input Power for Rated Pout	P _{IN}		0		dBm
Gain Flatness @ Rated Pout	ΔG		±1.0	±1.5	dB
Gain Adjustment Range	VVA	25			dB
Input Return Loss	S ₁₁			-10	dB
Noise Figure @ max gain	NF			10	dB
Third Order Intercept Point 2-Tones @ 33 dBm/Tone, Δ = 100 KHz	IP ₃		+50		dBm
Harmonics @ rated P1 dB Gain Compression Point	2 nd / 3 rd		-25 / -40		dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	V _{DC}	27	28	29	Volt
Current Consumption @ 35 W	I _{DD}		7.5	10	Amp
Quiescent Current	I _{DQ}			6.0	Amp
Switching Speed (10% to 90%)	T _{SW}			5.0	uSec

MECHANICAL SPECIFICATIONS

Parameter	Value	Units	Limits
Dimensions	6.9 x 3.6 x 1.1	Inch	Max
Weight	2.0	lb.	Max
RF Connectors Input/Output	SMA female		
DC Connectors	Dsub, 9-Pins, Male		
Cooling	External Heatsink		

ENVIRONMENTAL CHARACTERISTICS

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	T _c	-20		+70	°C
Storage Temperature	T _{stg}	-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		

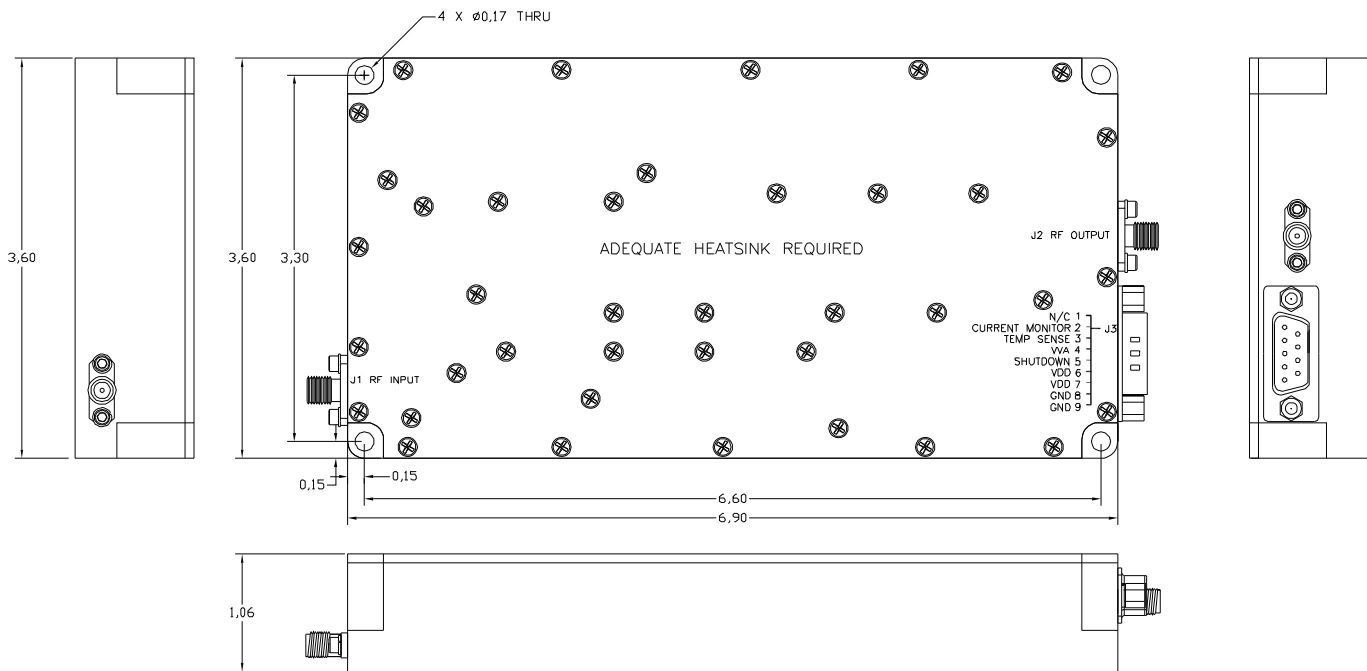
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PROTECTIONS

Input Overdrive	+10 dBm	Max
Load VSWR @ rated Pout	$\infty:1$ @ all load phase & amplitude	Nom
Thermal Overload	Graceful degradation	Max

INTERFACE CONNECTOR - Dsub, 9-Pin

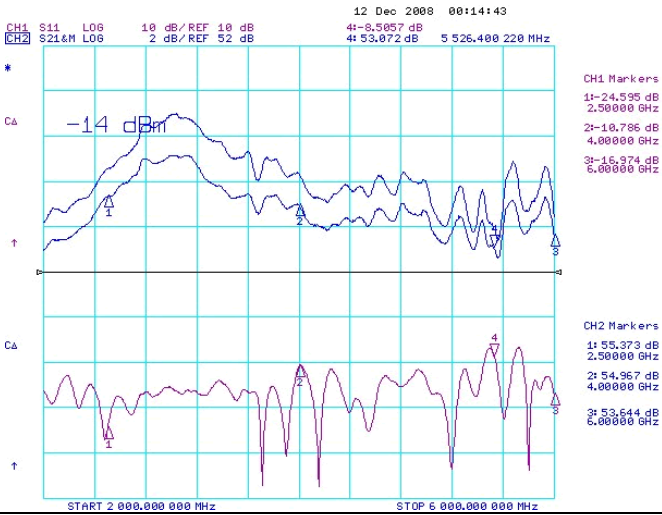
Pin #	Description	Specifications
1	N/C	Reserved
2	Current Consumption Monitor	Analog voltage relative to I_D @ 50 mV/100 mA
3	Temperature Monitor	Analog voltage relative to Module's Temperature @ 10 mV/°C
4	VVA	Controlled via Analog 0~5 VDC
5	Shutdown	Amplifier Enable: TTL "Low" (Logic 0) or Open Amplifier Disable: TTL "High" (Logic 1)
6	VDD	+28 VDC \pm 1 VDC
7	VDD	+28 VDC \pm 1 VDC
8	GND	Ground
9	GND	Ground

OUTLINE DRAWING


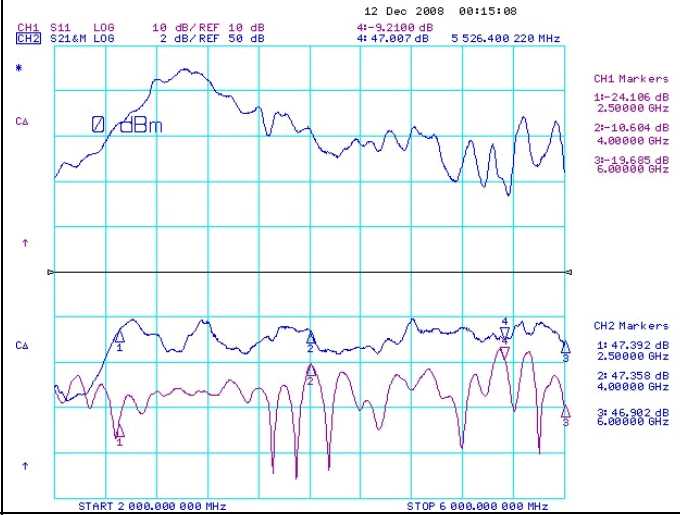
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TYPICAL PERFORMANCE PLOTS

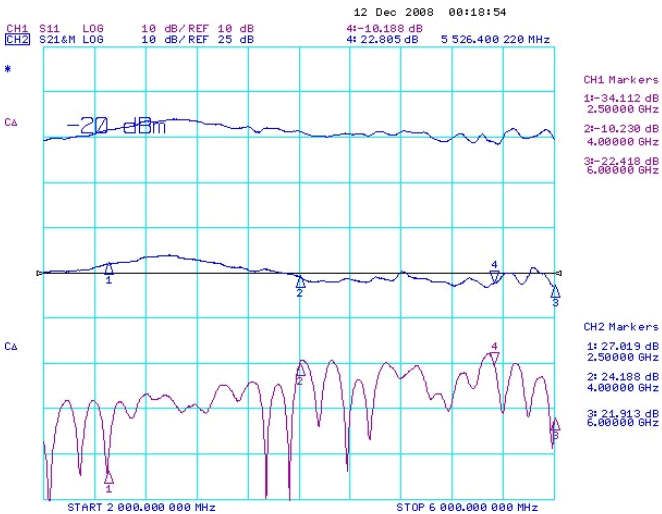
Plots 1 - Small Signal and P_{1dB} Gain
 Top Curve: Small Signal Gain @ $P_{IN} = -20dBm$
 Middle Curve: P_{1dB} @ $P_{IN} = -14dBm$
 Reference: 52dB, 2dB/div.
 Bottom Curve: Input VSWR
 Reference: 0dB, 10dB/div.



Plot 2 - Small Signal and P_{SAT}
 Top Curve: Small Signal Gain @ $P_{IN} = -20dBm$
 Bottom Curve: P_{SAT} @ $P_{IN} = +0dBm$
 Reference: 50dB, 1dB/div.
 Middle Curve: Input VSWR
 Reference: 0dB, 10dB/div.



Plot 3 - VVA Adjustment Range
 Top Curve: Max. Gain @ $VVA = 0.0V$, $P_{IN} = -20dBm$
 Middle Curve: Min. Gain @ $VVA = 5V$
 Reference: 25dB, 10dB/div.
 Bottom Curve: Input Return Loss
 Reference: 10dB, 10dB/div.



Plot 4 - Performance at 60 Deg C (Base)
 Top Curve: P_{SAT} @ $P_{IN} = +0dBm$ at 25 Deg C(Base)
 Middle Curve: P_{SAT} @ $P_{IN} = +0dBm$ at 60 Deg C(Base)
 Reference: 45dB, 1dB/Div.
 Bottom Curve: Input VSWR
 Reference: 0dB, 10dB/Div.

