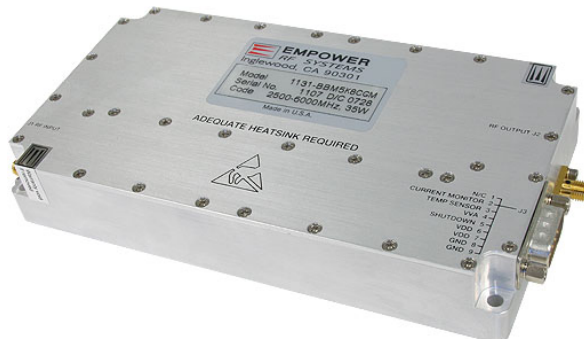


Solid State Broadband High Power Amplifier

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 and protection circuits
- Suitable for CW, AM and FM (Contact factory for other modulation types)
- 50 ohm input/output impedance
- High reliability and ruggedness

ELECTRICAL SPECIFICATIONS @ +28.0V_{DC}, 25°C 50Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	2500		6000	MHz
Output Power CW	P _{SAT}	35	40		Watt
Output Power @ 1dB Gain Compression	P _{1dB}		10		Watt
Power Gain @ P _{1dB}	G _{1dB}	46	48		dB
Input Power for Rated P _{SAT}	P _{IN}		0		dBm
Gain Flatness @ Rated P _{SAT}	ΔG		±1.0	±2.0	dB
Gain Adjustment Range	VVA	25			dB
Input Return Loss	S ₁₁			-10	dB
Noise Figure @ Full Gain	NF			10	dB
Third Order Intercept Point 2-Tone @ 39.5 dBm/Tone, 100kHz Spacing	IP3		+50		dBm
Harmonics @ P _{OUT} = 10W	2 nd / 3 rd		-25 / -40		dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	V _{DC}	27	28	29	Volt
Current Consumption @ P _{OUT} = 35W	I _{DD}		7.5	10	Amp
Quiescent Current	I _{DQ}		4.0	6.0	Amp
Switching Time @ 1kHz TTL, P _{IN} = 0dBm	T _{ON} / T _{OFF}			5.0	μs

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	Type-SMA, Female		
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 _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			30,000	Feet
Vibration/Shock MIL-STD-810F - Method 514.5/516.5 – Proc I	VI/SH		Airborne		

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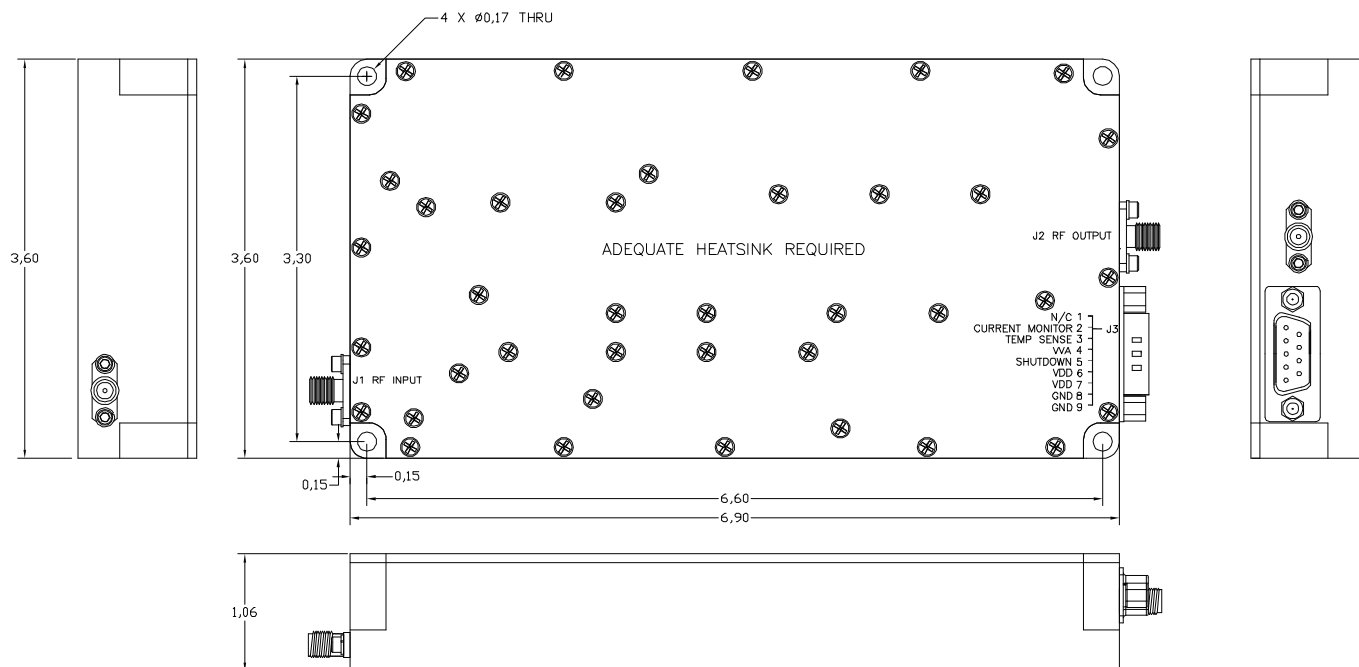
LIMITS

Input RF drive level without damage	+10 dBm	Max
Load VSWR @ P _{OUT} = 35W	∞ @ all load phase & amplitude for duration of 1 minute 3:1 @ all load phase & amplitude continuous	-
Thermal Degradation	85°C	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 _{DD} @ 50mV/100mA
3	Temp Sense	Analog voltage relative to Module's temperature @ 10mV/°C
4	VVA	Control Voltage: Analog 0~5 V _{DC} Maximum Gain: 0V _{DC} , Minimum Gain: 5V _{DC}
5	Shutdown	Amplifier Disable: TTL Logic High (5V) (Internally Pulled-Low)
6, 7	VDD	+28.0V _{DC} ±1V
8, 9	GND	Ground

OUTLINE DRAWING



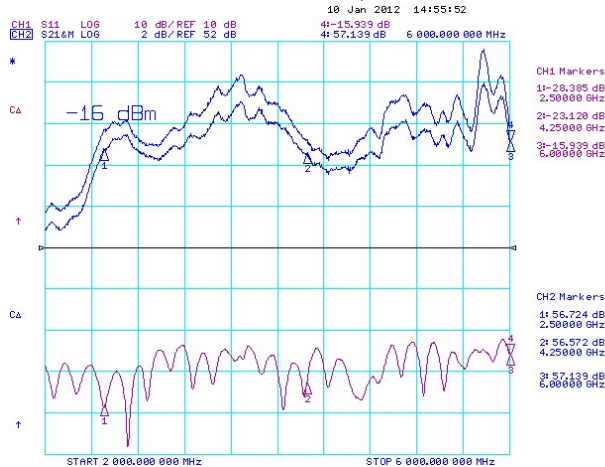
Solid State Broadband High Power Amplifier

1131 - BBM5K8CGM
2500 – 6000 MHz / 35 Watts

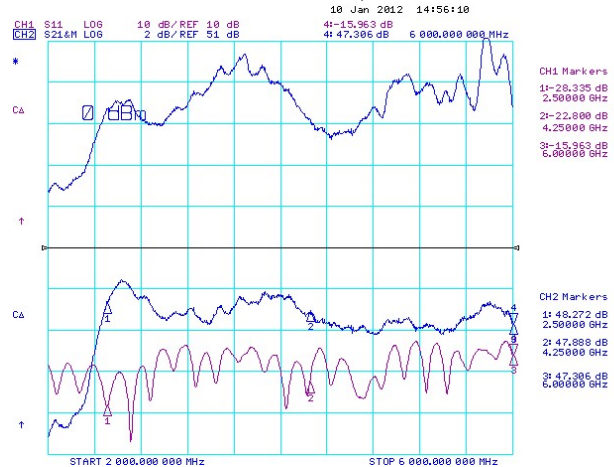
TYPICAL PERFORMANCE PLOTS

Plot 1 – Small Signal Gain and P_{1dB} Gain

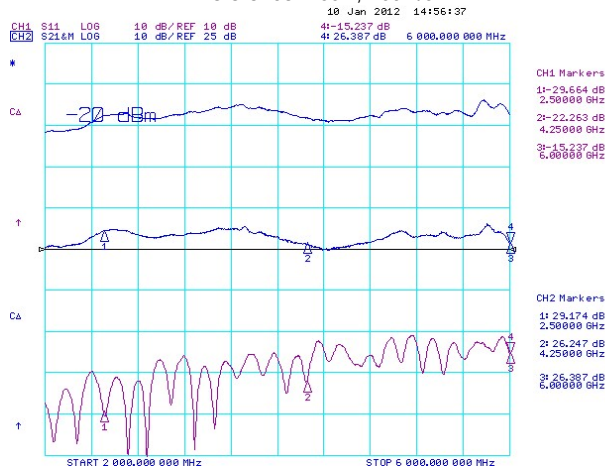
Top Curve: Small Signal Gain @ $P_{IN} = -20dBm$
 Middle Curve: Power Gain @ P_{1dB} , $P_{IN} = -16dBm$
 Reference: 52dB, 2dB/div.
 Bottom Curve: Input Return Loss
 Reference: 10dB, 10dB/div


Plot 2 – Small Signal Gain and P_{SAT}

Top Curve: Small Signal Gain @ $P_{IN} = -20dBm$
 Bottom Curve: Power Gain @ P_{SAT} , $P_{IN} = 0dBm$
 Reference: 51dB, 2dB/div.
 Middle Curve: Input Return Loss
 Reference: 10dB, 10dB/div.


Plot 3 – Gain Adjustment Range

Top Curve: Max. Gain @ $V_{A_{CTRL}} = 0V$, $P_{IN} = -20dBm$
 Middle Curve: Min. Gain @ $V_{A_{CTRL}} = 5V$
 Reference: 25dB, 10dB/div.
 Bottom Curve: Input Return Loss @ Minimum Gain
 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: 46dB, 1dB/Div.
 Bottom Curve: Input Return Loss
 Reference: 10dB, 10dB/Div.

