

Solid State Broadband High Power Amplifier

2136-BBS5K8CGM
2500 – 6000 MHz / 35 Watts

The BBS5K8CGM (2136) is suitable for broadband mobile Jamming and band specific high power applications in the P/L/S frequency bands. This amplifier utilizes high power GaN devices that provide wide frequency response and dynamic range, high gain, high efficiency, and good linearity. Exceptional performance, long-term reliability, and high efficiency are achieved by employing advanced broadband RF matching networks and combining techniques, built-in high quality power supply, EMI/RFI filters, machined housing, and qualified components. Empower RF's ISO9001 Quality Assurance Program assures consistent performance and the highest reliability.



SKU#: 2136CFFAAXLXX

- Solid-state Class AB design
- Instantaneous ultra broadband
- Small and lightweight
- Front panel manual gain adjust
- Suitable for CW, AM, and FM (Consult factory for other modulation types)
- 50 ohm input/output impedance
- High reliability and ruggedness

ELECTRICAL SPECIFICATIONS @ 120V_{AC}, 25°C, 50Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	2500		6000	MHz
Output Power CW	P _{SAT}	35			Watt
Output Power @ 1dB Gain Compression	P _{1dB}	10	20		Watt
Power Gain @ 1dB Gain Compression	G _{1dB}	46	48		dB
Input Power for Rated P _{SAT}	P _{IN}		0		dBm
Small Signal Gain Flatness	ΔG		±1.5	±2.0	dB
Gain Adjustment Range	FGA	20	25		dB
Input Return Loss	S ₁₁			-10	dB
Noise Figure @ maximum gain	NF			10	dB
Third Order Intercept Point 2-Tone @ 33dBm/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 (1-phase)	V _{AC}	100		240	Volt
Power Consumption @ P _{OUT} = 35W CW	P _D			450	Watt

MECHANICAL SPECIFICATIONS

Parameter	Value	Unit
Dimensions	19 x 3.5 x 18.5	Inch
Weight	27	Pound
RF Connectors Input/Output	Type-N, Female	
Cooling	Built-in forced air cooling system	

ENVIRONMENTAL CHARACTERISTICS (Design to Meet)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Ambient Temperature	T _A	0		+50	°C
Non-operating 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 1	VI / SH		Airborne		

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LIMITS

Input RF drive level without damage	+10 dBm	Max
Load VSWR @ P _{OUT} = 20W	∞ @ all load phase & amplitude for duration of 1 minute 3:1 @ all load phase & amplitude continuous	-
Thermal Overload	85°C shutdown	Max

AVAILABLE OPTION

SKU #	Description	LCD Touchscreen
2136CFFAAXLXX	FGA (Front Gain Adjust) Front RF Connectors, 100-240VAC, 50/60Hz	
Optional	Rack Slides (Call for price)	

I/O INTERFACE CONNECTOR – D-sub 9-pin, Female

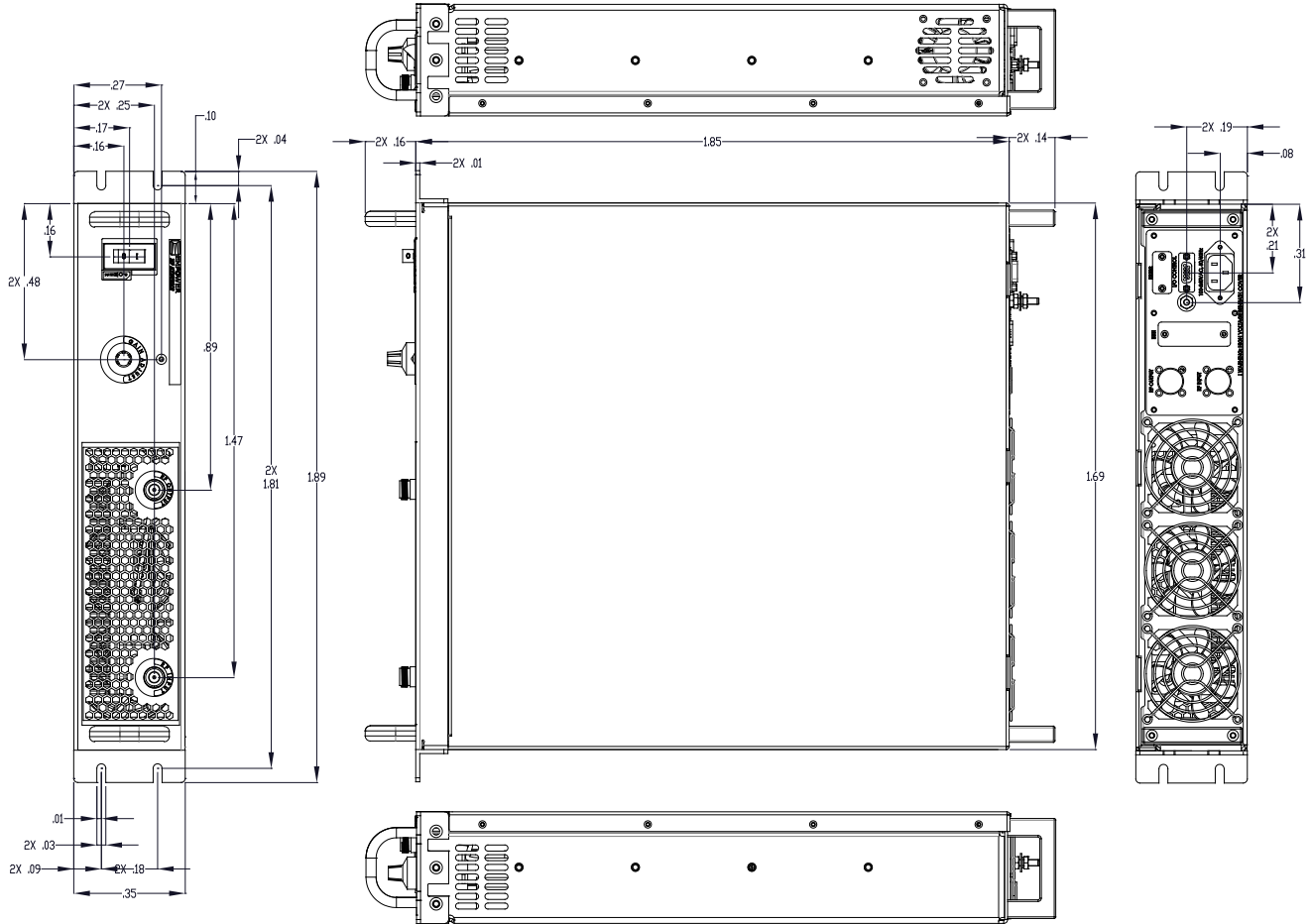
Pin#	Description	Specification
1	N/C	No Connection
2	N/C	No Connection
3	5V Test Point	Test point: 5.0V _{DC} ±0.2V
4	VVA Test Point	Test point: 5.6V _{DC} ±0.2V
5	EXT Shutdown	Amplifier Disable: TTL Logic High (5V) (Internally Pulled-Low)
6	12V Test Point	Test point: 12.0V _{DC} ±0.5V
7	P/S Test Point	Test point: 26.0-30.0V _{DC}
8&9	GND	Ground

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SYSTEM OUTLINE SHOWN
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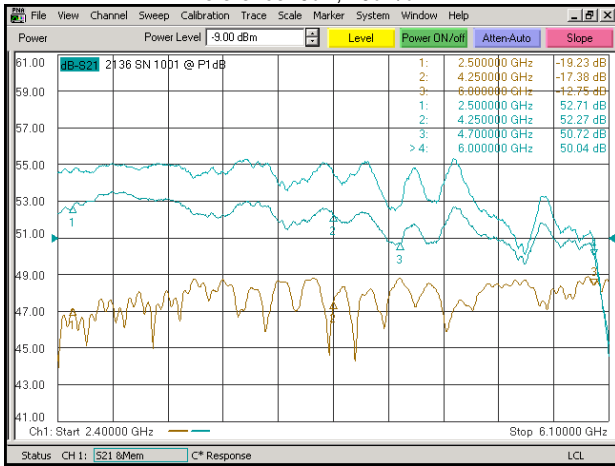
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PERFORMANCE PLOTS

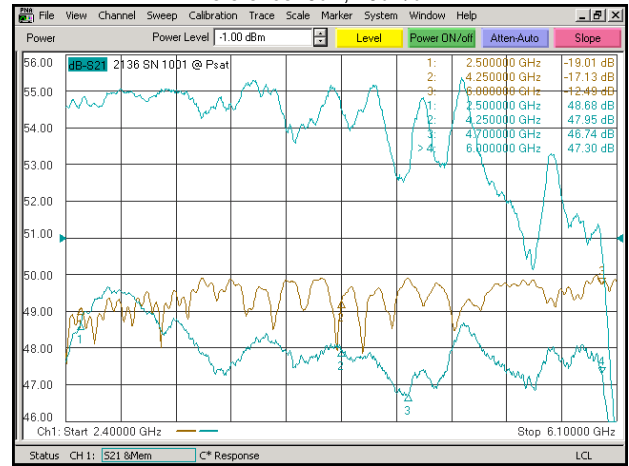
Plot 1 – Small Signal Gain and P_{1dB}

Top Curve: Small Signal Gain @ $P_{IN} = -20dBm$
 Middle Curve: Power Gain @ P_{1dB} , $P_{IN} = -9.0dBm$
 Reference: 51dB, 2dB/div.
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/div.



Plot 2 – Small Signal Gain and P_{SAT}

Top Curve: Small Signal Gain @ $P_{IN} = -20dBm$
 Bottom Curve: Power Gain @ P_{SAT} , $P_{IN} = -1.0dBm$
 Reference: 51dB, 1dB/div.
 Middle Curve: Input Return Loss
 Reference: 0dB, 10dB/div.



Plot 3 – Gain Adjustment Range

Top Curve: Maximum Gain @ $P_{IN} = -20dBm$
 Middle Curve: Minimum Gain @ $P_{IN} = -20dBm$
 Reference: 25dB, 10dB/div.
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/div.

