EMPOWER
RF SYSTEMS, INC.

Solid State Broadband High Power Amplifier

2092 - BBS5K8CAJ

2500 - 6000MHz / 10Watts

The BBS5K8CAJ (SKU # 2092) is suitable for C-Band broadband high power linear applications. This amplifier utilizes high power GaN devices that provide wide frequency response and dynamic range, high gain, low distortions, and good linearity. Employing advanced broadband RF matching networks and combining techniques, EMI/RFI filters, and all qualified components achieve exceptional performance, and high efficiency. The system includes a universal voltage, single phase, power supply and a built in forced air-cooling system. Empower RF's ISO9001 Quality Assurance Program assures consistent performance and the highest reliability.

Shown with Option Package 05

- Solid-state class AB linear design
- Instantaneous ultra broadband
- Small and lightweight
- Standard front panel manual gain adjust
- Suitable for all modulation standards
- 50 Ohm Input/Output impedance
- High reliability and ruggedness
- Built in control, monitoring and protection circuits

ELECTRICAL SPECIFICATIONS @ 120VAC, 25°C, 50Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	2500		6000	MHz
Output Power CW	P_{SAT}	10	12		Watt
Output Power @ 1dB G.C.P	P_{1dB}		8		Watt
Power Gain @ 1dB G.C.P	G_{1dB}	40			dB
Input Power for Nominal Pout	P_{IN}		0		dBm
Small Signal Gain Flatness	ΔG		±1.0	±1.5	dB
Gain Adjustment Range	FGA	25			dB
Input/Output Return Loss	S11/S22			-10	dB
Noise Figure @ max Gain	NF			10	dB
2-Tones IMD, 30dBm/Tone, Δ = 100KHz	IMD		-36		dBc
	IP3		+48		dBm
Harmonics @ rated 1dB G.C.P	H		-20	-15	dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage (single phase)	VAC	100		240	Volt
AC Power Consumption	P_D			120	Watt
Switching Time, 1KHz TTL, P_{IN} = 0dBm	$T_{ON/OFF}$			5	uSec

ENVIRONMENTAL CHARACTERISTICS

Parameter	Symbol	Min	Typ	Max	Unit
Operating Temperature	Tc	-10		+55	°C
Non-operating Temperature	Tstg	-40		+85	°C
Relative humidity w/o condensation	RH	95			%
Altitude	ALT	10,000	30,000		Feet
Shock & Vibration	SH / VI		Airborne		

MECHANICAL SPECIFICATIONS

Parameter	Value	Units	Limits
Dimensions	19 x 3.5 x 18	Inch	Max
Weight	30	lb.	Max
RF Connectors Input/Output	Type-N female		-
Cooling	Built in internal forced air cooling system		-

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PROTECTIONS

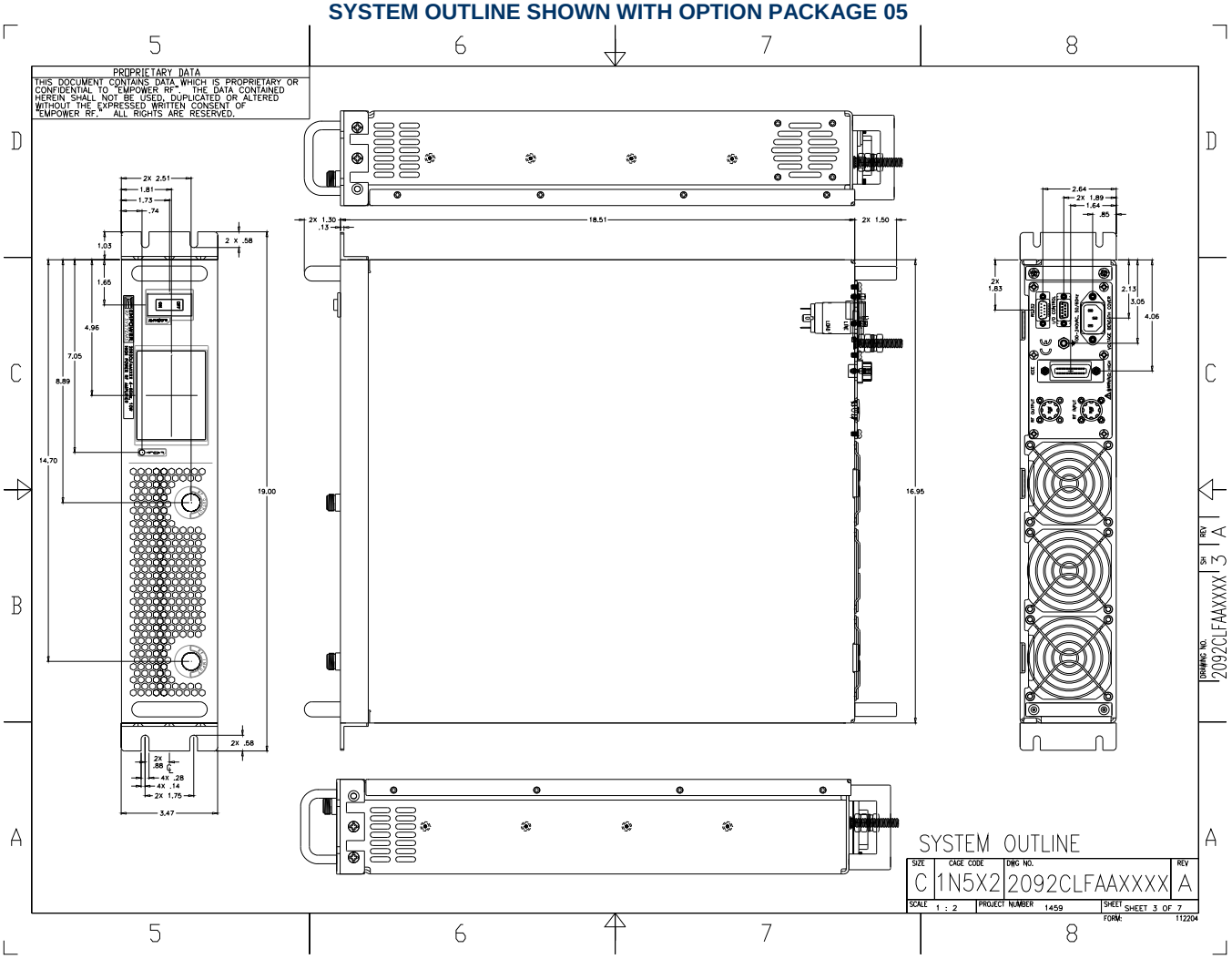
Input Overdrive	+10dBm		Max
Load VSWR	∞ @ any angle & amplitude		Nom
Thermal Overload	85°C shutdown		Max

AVAILABLE OPTIONS (Refer to **www.empowerrf.com** for detailed systems options)

Option	Number	Description	Price
FGA	**061**	Front panel 10 turns manual gain adjustment.	Standard
LCD	**062**	Touchscreen Digital Display, including Fwd/Rev Power indication (dB or Watt scale), Gain Adjustment, ALC Fast/Slow, On/Off, Standby mode, Fault indication, Rear panel HPIB IEEE-488.2 or Full Duplex RS232 remote interface. **Note: Output Power is lowered by 0.5 - 0.75dB with this option.**	Call
FCN	**051**	Front Panel Type-N female	N/C
RCN	**052**	Rear Panel Type-N female	N/C

Available Option Packages: 01, 02, 03, 04, 05, 06

SYSTEM OUTLINE SHOWN WITH OPTION PACKAGE 05



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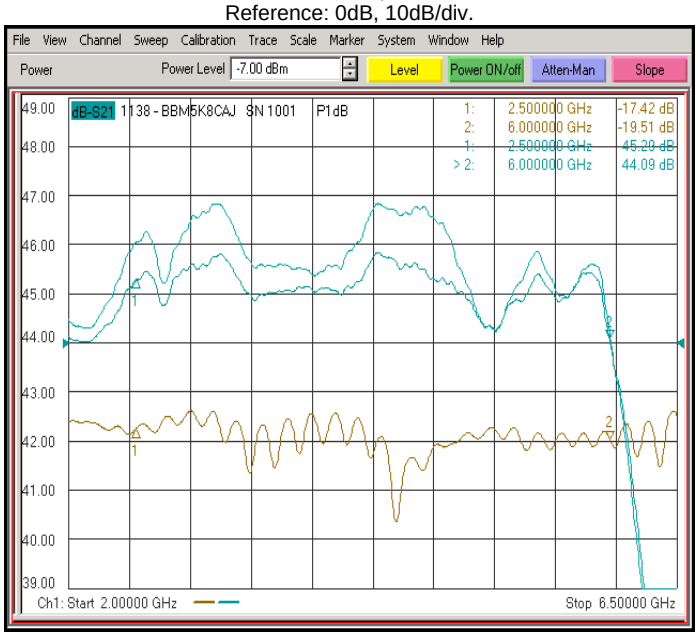
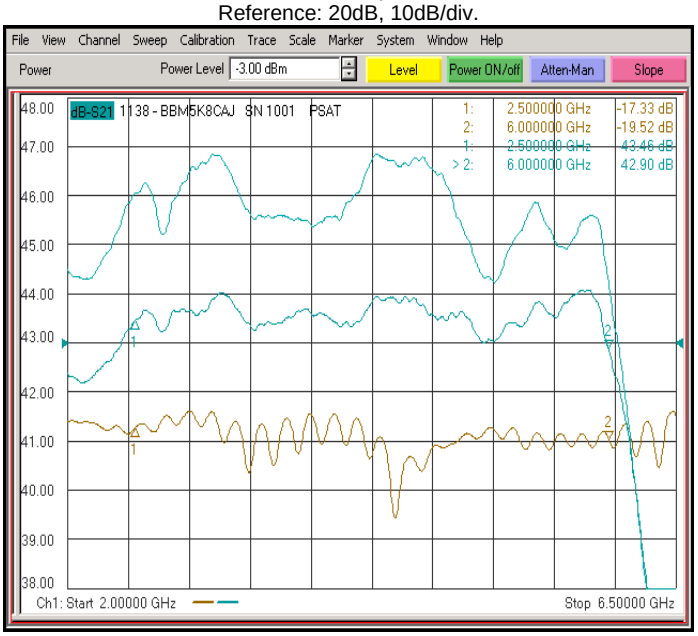
TYPICAL PERFORMANCE PLOTS

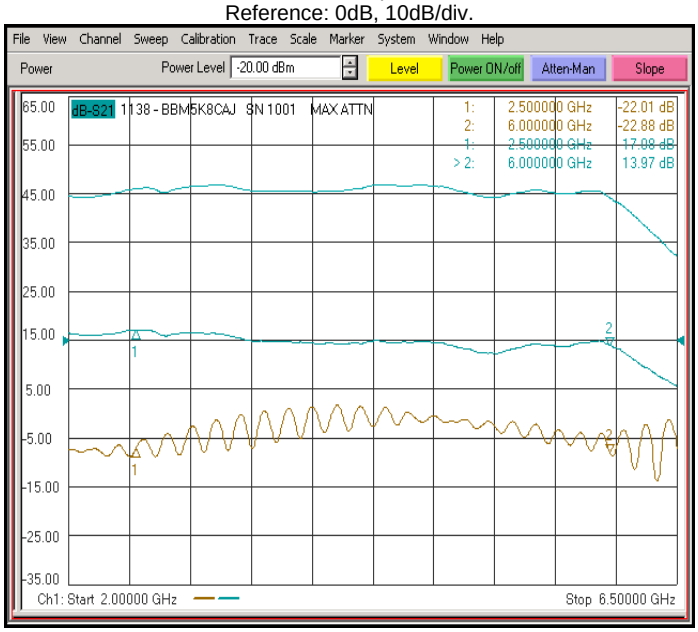
Plots 1 - Small Signal and P_{1dB} Gain
Top Curve: Small Signal Gain @ P_{IN} = -20dBm
Middle Curve: Power Gain @ P_{1dB}, P_{IN} = -7.2dBm
Reference: 44dB, 1dB/div.
Bottom Curve: Input VSWR
Reference: 0dB, 10dB/div.



Plot 2 - Small Signal and P_{SAT}
Top Curve: Small Signal Gain @ P_{IN} = -20dBm
Middle Curve: P_{SAT} @ P_{IN} = -3.2dBm
Reference: 43dB, 1dB/div.
Bottom Curve: Input VSWR
Reference: 20dB, 10dB/div.



Plot 3 - VVA Adjustment Range
Top Curve: Max. Gain @ VVA = 0.0V, P_{IN} = -20dBm
Middle Curve: Min. Gain @ VVA = 5.0V
Reference: 15dB, 10dB/div.
Bottom Curve: Input VSWR
Reference: 0dB, 10dB/div.



Plot 4 - Small Signal and P_{SAT}
Top Curve: Small Signal Gain @ P_{IN} = -20dBm
Middle Curve: P_{SAT} @ P_{IN} = -2.2dBm
Reference: 43dB, 1dB/div.
Bottom Curve: Input VSWR
Reference: 20dB, 10dB/div.