

Solid State Broadband High Power Amplifier

2087 - BBS0A3EVT
0.01 - 200MHz / 1200Watts

The BBS0A3EVT (Stock No. 2087) is suitable for ultra broadband high power linear applications, also suitable for RFI/EMI susceptibility and immunity testing. This amplifier utilizes high power push-pull MOSFET devices that provide high gain, wide dynamic range and good linearity. Exceptional performance and high efficiency are achieved by employing advanced broadband RF matching networks and combining techniques, built-in cooling system, EMI/RFI filters, and all qualified components. The amplifier is constructed of modular replaceable drawers and is housed in a modern rack cabinet. Each LRU includes a universal voltage, single phase, power supply and a built in forced air-cooling system. The system is provided with a combiner drawer and an optional digital controller drawer for local and remote interface. Empower RF's ISO9001 Quality Assurance Program assures consistent performance and the highest reliability.

- Solid-state linear design
- Instantaneous ultra broadband
- Three drawers modular design
- Standard front panel manual gain adjust
- Built-in control, monitoring & protection Circuits
- Suitable for CW, AM, and FM (Consult factory for other modulation types)
- 50 Ohm Input/Output impedance
- High reliability and ruggedness



ELECTRICAL SPECIFICATIONS @ 208V_{AC}, 3-Phase, 25°C, 50Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	0.01		200	MHz
Output Power CW	P _{SAT}	1200			Watt
Output Power @ 1dB Gain Compression	P _{1dB}	1000			Watt
Power Gain @ 1dB Gain Compression	G _{1dB}	60			dB
Input Power for Rated P _{SAT}	P _{IN}		0		dBm
Small Signal Gain Flatness	ΔG _{SS}		±1.5	±2.0	dB
Gain Adjustment Range	FGA	25			dB
Input Return Loss	S ₁₁			-10	dB
Noise Figure @ max gain	NF		10	18	dB
Third Order Intercept Point 2-Tone @ 50dBm/Tone, 100kHz Spacing	IP3		+66		dBm
Harmonics @ 1dB G.C.P	H		-20	-15	dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage, 3-Phase, Delta Connection (Line to Line)	V _{AC}	180		264	Volt
Power Consumption @ P _{OUT} = 1200W CW	P _D			8000	Watt

MECHANICAL SPECIFICATIONS

Parameter	Value	Limit
Dimensions W x H x D / Weight with enclosure	21.79"x33.53"x30.71" / 400 lb.	Max
Dimensions W x H x D / Weight w/o enclosure	19"x26.25"x22" / 300 lb.	Typ
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 _C	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 514.5/516.4 – Proc 1	VI / SH		Airborne		

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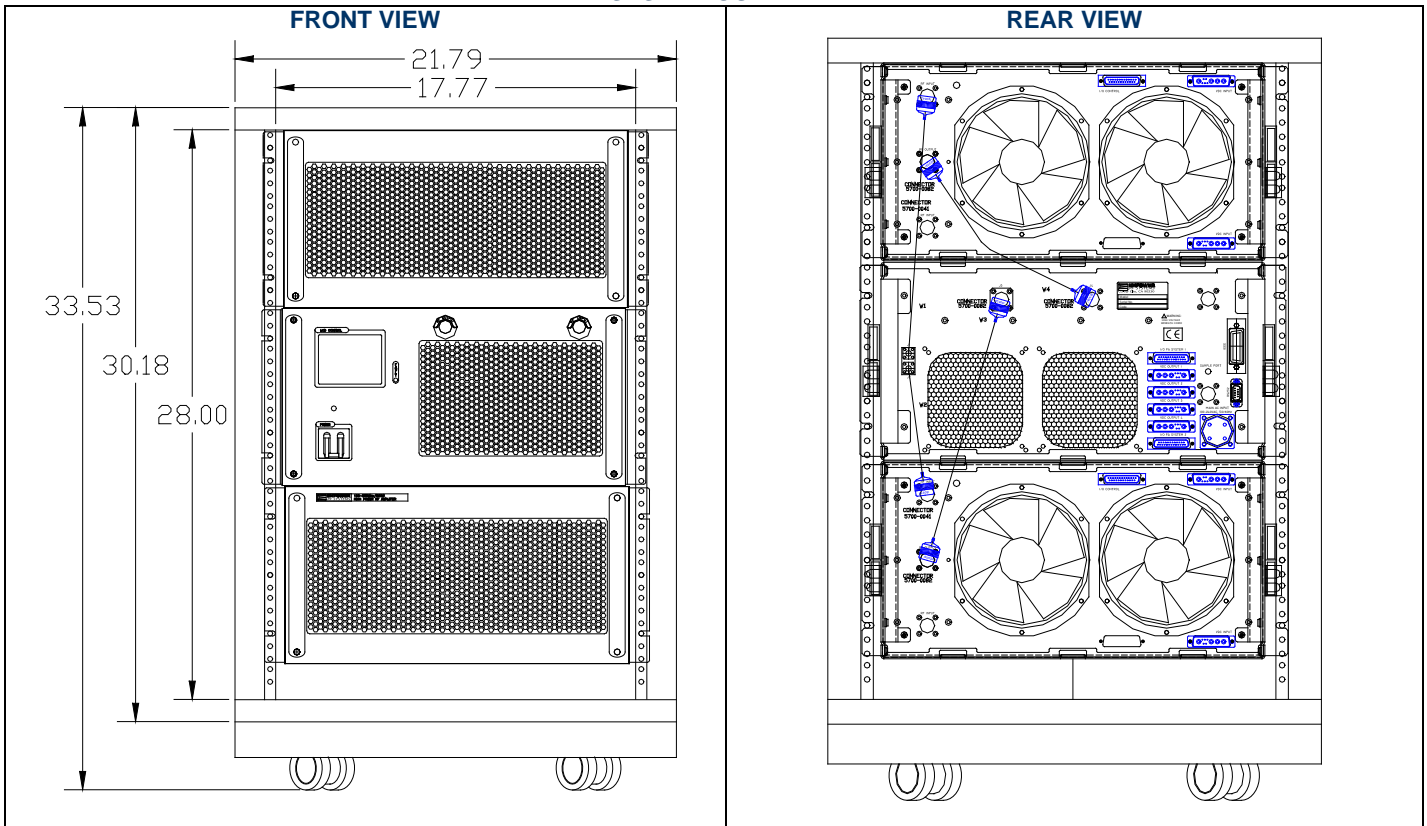
LIMITS

Input RF drive level without damage	+10dBm	Max
Load VSWR @ P _{OUT} = 1000W	5:1 @ all load phase & amplitude	Max
Thermal Overload	85°C shutdown	Max

SELECTED AVAILABLE OPTIONS (Refer to www.empowerrf.com for complete options listing)

Option	Number	Description	Price
FGA	061	Front panel 10 turns manual gain adjustment.	Standard
LCD	062	Touchscreen Digital Display, including FWD/REV Power indication (dBm or Watt scale), Gain Adjustment, ALC Fast/Slow, On/Off, Standby mode, Fault indication, Rear panel GPIB/HPIB IEEE-488.2 and Half Duplex RS232 or Full Duplex RS422 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
ACB	032	180 - 260VAC, single phase	N/C
ACC	033	208VAC, 3-Phase	Call

SYSTEM OUTLINE



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PERFORMANCE PLOTS

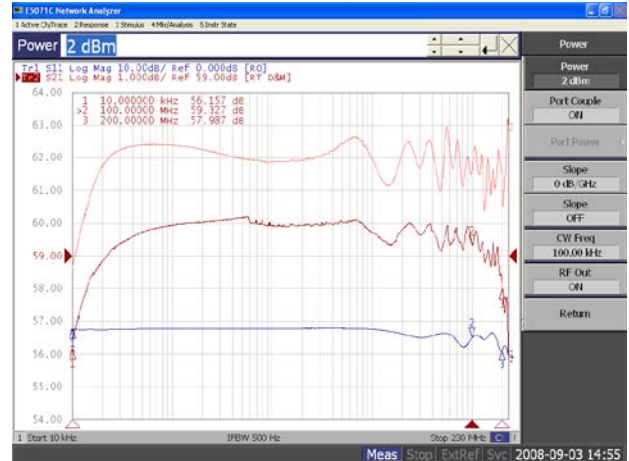
Plot 1 – Small Signal Gain and P_{1dB}

Top Curve: Small Signal Gain @ P_{IN} = -20dBm
 Middle Curve: Power Gain @ P_{1dB}, P_{IN} = -1dBm
 Reference: 59dB, 1dB/Div.
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/Div.



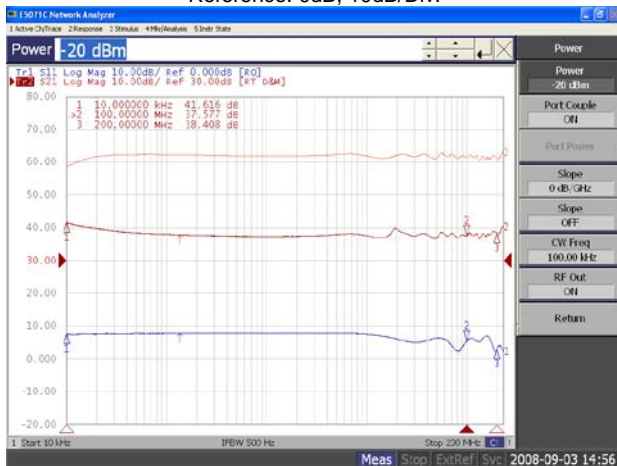
Plot 2 – Small Signal Gain and P_{SAT}

Top Curve: Small Signal Gain @ P_{IN} = -20dBm
 Middle Curve: Power Gain @ P_{SAT}, P_{IN} = 2dBm
 Reference: 59dB, 1dB/Div.
 Bottom 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: 30dB, 10dB/Div.
 Bottom Curve: Input Return Loss @ Minimum Gain
 Reference: 0dB, 10dB/Div.



Plot 4 – ALC Flatness

Top Curve: ALC @ 58dBm, P_{IN} = 0dBm
 Bottom Curve: ALC @ 51dBm, P_{IN} = 0dBm
 Reference: 55dB, 1dB/Div.
 Middle Curve: Input Return Loss
 Reference: 0dB, 10dB/Div.

