

Solid State Broadband High Power Amplifier

1022 – BBM3I4AN4
400 – 1000 MHz, 200 Watts

The BBM3I4AN4 (SKU # 1022) is suitable for broadband and TV band high power linear applications. This amplifier utilizes push-pull LDMOS power devices that provide high gain, wide dynamic range, low distortions and good linearity. 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 broadband
- Small and lightweight
- Suitable for CW, AM, and FM (for other modulation type consult factory)
- 50 Ohm Input/Output impedance
- Built-in control and monitoring circuits
- High reliability and ruggedness

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

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	400		1000	MHz
Power Output CW	P _{SAT}	200	220		Watt
Power Output @ 1dB G.C.P	P _{1dB}		150		Watt
Power Gain @ 1dB G.C.P	G _{1dB}	10	13		dB
Input Power for Rated Output	P _{IN}		10		Watt
Gain Flatness	ΔG		±1.5	±2.0	dB
Input Return Loss	S11			-10	dB
Harmonics @ P1dB G.C.P.	H		-25		dBc
Third Order Intercept Point 2-Tone IMD, 44dBm/Tone, Δ = 100KHz	IP3		+60		dBm
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	VDC	24	28	32	Volt
Supply Current @ 200W	IDD			20	Amp

ENVIRONMENTAL CHARACTERISTICS (Design to Meet)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	T _c	0		+50	°C
Storage Temperature	T _{stg}	-40		+85	°C
Relative humidity w/o condensation	RH	95			%
Altitude	ALT	10,000	30,000		ft.
Shock / Vibration	SH / VI		Airborne		

MECHANICAL SPECIFICATIONS

Parameter	Value	Units	Limits
Dimensions	7.5 x 5.0 x 1.13	Inch	Max
Weight without	3.5	lb.	Max
RF Connectors In/Out	SMA Female / N-Type Female		
DC / Interface Connector	Hybrid D-Sub 7 Pin		
Cooling	External Heatsink		

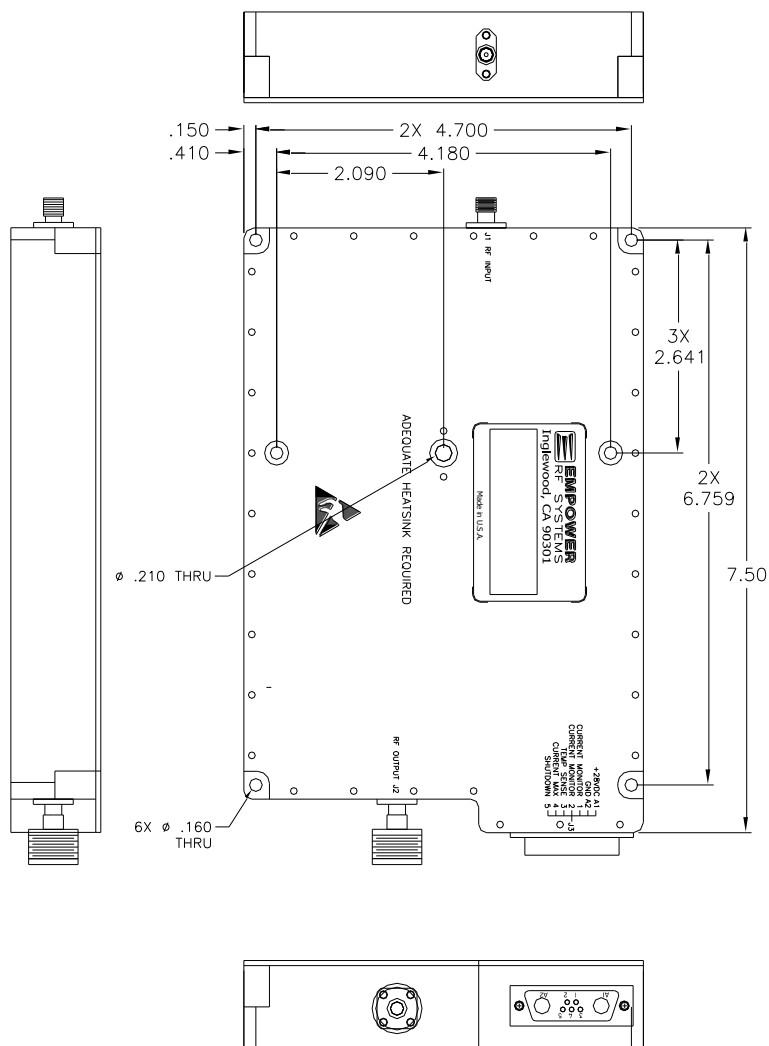
PROTECTIONS

Input Overdrive		+10 dBm	Max
Load VSWR @ rated P1dB	Ψ	∞ @ all load phase & amplitude for duration of 1 minute 3:1 @ all load phase & amplitude continuous	Nom
Thermal Overload	T _{OD}	80°C shutdown	Max

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INTERFACE CONNECTOR – Hybrid D-Sub, 7-Pin

Pin #	Description	Specifications	Record	Value	P/F
A1	V _{DD}	+28 VDC ±2.0 V		-	P
A2	Ground	GND		-	P
1	Current Monitor 1	Output is 17 mV/A of current consumption (RF device 1)	VID1 (VDC)	1.275	P
2	Current Monitor 2	Output is 17 mV/A of current consumption (RF device 2)	VID2 (VDC)	1.275	P
3	Temp Sense	Output is 10 mV/°C module internal temperature	Vtemp (VDC)	.41	P
4	Current Max	Fixed reference voltage (Vmax > VID1 + VID2)	Vmax (VDC)	5.72	P
5	Shutdown	RF Enabled: TTL "Low" RF Disabled: TTL "High"	I Enable (A) I Disable (mA)	1.47 120	P

OUTLINE DRAWING


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TYPICAL PERFORMANCE PLOTS

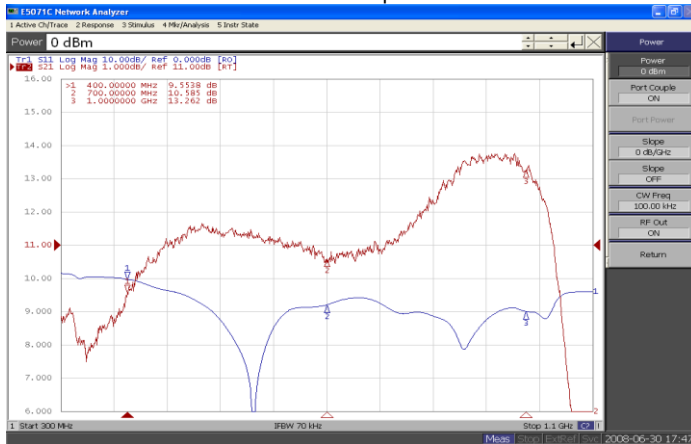
Plot 1 - Gain @ P1dB with 1097 Driver
Top Curve: Power Gain @ Pin = -20dBm
Middle curve: Power Gain @ P1dB, Pin = -7.0dBm
Reference: 59dB, 1dB/Div
Bottom Curve: Input Return Loss



Plot 2 - Gain @ Psat with 1097 Driver
Top Curve: Power Gain @ Pin = -20.0dBm
Middle curve: Power Gain @ Psat, Pin = -4.0dBm
Reference: 59dB, 1dB/Div
Bottom Curve: Input Return Loss



Plot 3 - Small Signal Gain @ Pin = 0dBm
Reference: 10dB, 1dB/Div
Bottom Curve: Input VSWR



Plot 4 - Small Signal Phase @ Pin = 0dBm
Reference: 0Deg, 10Deg/div
Electrical Delay = 7.6nSec.

