EMPOWER RF SYSTEMS, INC.

Solid State Broadband High Power Amplifier

2071 – BBS1C3CPQ

1 – 100 MHz / 300 Watts

The BBS1C3CPQ (2071) is suitable for broadband HF and VHF high power applications. This amplifier utilizes high power Push-pull MOSFET devices that provides 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, built-in high quality power supply, EMI/RFI filters, machined housings and all qualified components. Empower RF's ISO9001 Quality Assurance Program assures consistent performance and the highest reliability.

SKU#: 2071DFRAAXXXX

- Solid-State Class AB design
- Instantaneous ultra broadband
- Small form factor 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	1		100	MHz
Output Power CW	P_{SAT}	300			Watt
Output Power @ 1dB Gain Compression	P_{1dB}	200			Watt
Power Gain @ 1dB Gain Compression	G_{1dB}	56			dB
Input Power for Rated P_{SAT}	P_{IN}		0		dBm
Small Signal Gain Flatness, P_{IN} = -20dBm	ΔG			±1.5	dB
Gain Adjustment Range	FGA		25		dB
Input Return Loss	S_{11}			-10	dB
Third Order Intercept Point 2-Tone @ 42dBm/Tone, 100kHz Spacing	IP3		+63		dBm
Harmonics @ P_{OUT} = 200W	H		-20		dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage (1-phase)	V_{AC}	100		240	Volt
Power Consumption @ P_{OUT} = 500W CW	P_D			1000	Watt

MECHANICAL SPECIFICATIONS

Parameter	Value	Unit
Dimensions	19 x 5.25 x 22	Inch
Weight	47	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 I	SH / VI		Airborne		

LIMITS

Input RF drive level without damage	+10 dBm	Max
Load VSWR @ P_{OUT} = 200W	5:1 @ all load phases & magnitude	-
Thermal Overload	85°C shutdown	Max

EMPOWER RF SYSTEMS, INC.

Solid State Broadband High Power Amplifier

2071 – BBS1C3CPQ	1 – 100 MHz / 300 Watts

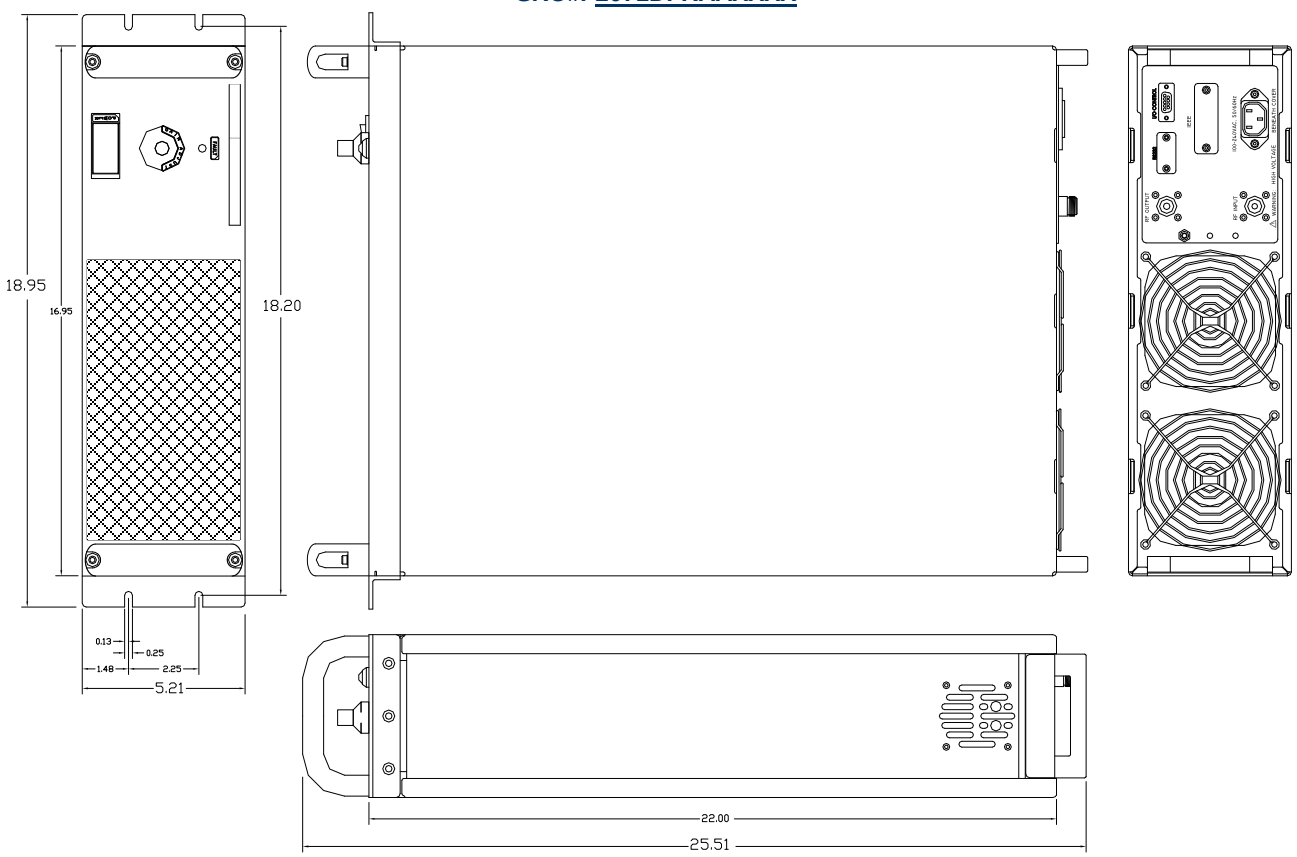
AVAILABLE OPTIONS

SKU #	Description
2071DFFAAXXXX	FGA (Front Gain Adjust) Front RF Connectors, 100-240VAC, 50/60Hz
2071DFRAAXXXX	FGA (Front Gain Adjust) Rear 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 TP	Test point: 5.0V_{DC} ±0.2V
4	VVA TP	Test point: 5.6V_{DC} ±0.2V
5	EXT Shutdown	Amplifier Disable: TTL Logic High (5V) (*Internally Pulled-Low*)
6	12V TP	Test point: 12.0V_{DC} ±0.5V
7	P/S TP	Test point: 26.0-30.0V_{DC}
8&9	GND	Ground

OUTLINE DRAWING SHOWN
***SKU#:* 2071DFRAAXXXX**



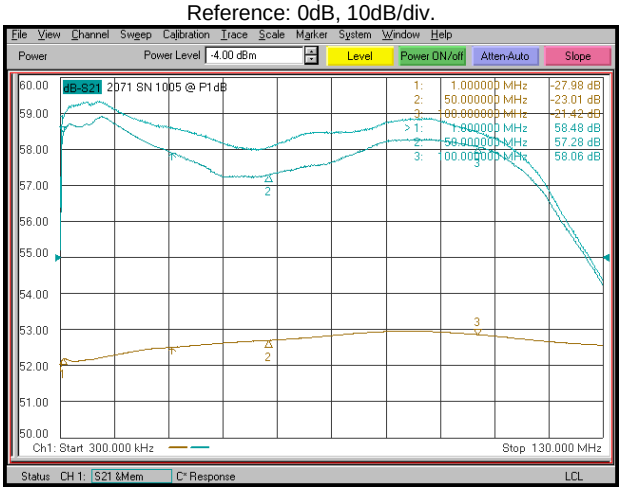
EMPOWER RF SYSTEMS, INC.

Solid State Broadband High Power Amplifier

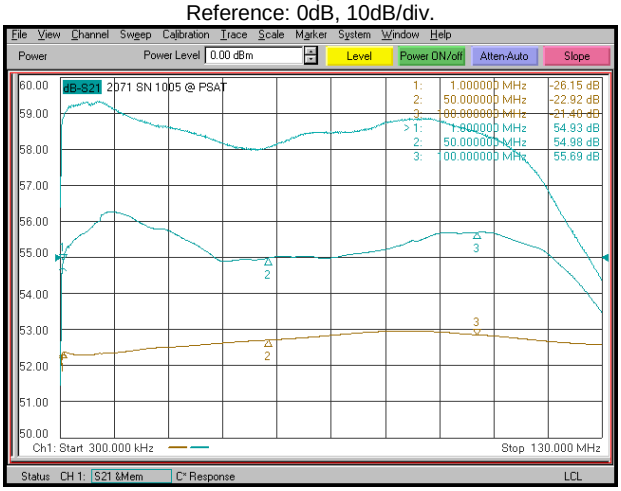
2071 – BBS1C3CPQ | 1 – 100 MHz / 300 Watts

TYPICAL 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} = -4.0dBm
Reference: 55dB, 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: P_{SAT} @ P_{IN} = 0.0dBm
Reference: 55dB, 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: 35dB, 10dB/div.
Bottom Curve: Input Return Loss @ Minimum Gain
Reference: 0dB, 10dB/div.