

Solid State Broadband High Power Amplifier

2070-BBS1C3CKO
1 – 100 MHz / 100 Watts

The BBS1C3CKO (2070) is suitable for immunity testing, laboratory, and broadband high power applications in the VHF frequency range. This rack mount amplifier utilizes push-pull MOSFET 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, 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#: 2070DFFAAXLXX

- 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

Characteristics	Rating	Min	Typ	Max	Units
Frequency Response	BW	1		100	MHz
Power Output CW	P _{SAT}	100			Watt
Power Output @ 1dB Gain Compression	P _{1dB}	60			Watt
Power Gain @ 1dB Gain Compression	G _{1dB}	50			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	VVA	20	30		dB
Input Return Loss	S ₁₁			-10	dB
Noise Figure @ maximum gain	NF		7	10	dB
Harmonics @ P _{OUT} = 60W	H		-20		dBc
Third Order Intercept Point 2-Tone @ 40dBm/Tone, 100kHz Spacing	IP3		+54		dBm
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage (1-phase)	V _{AC}	100		240	Volt
Power Consumption @ P _{OUT} = 100W	P _D		500	600	Watt

MECHANICAL SPECIFICATIONS

Parameter	Value	Unit
Dimensions (W x H x L)	19 x 5.25 x 22	Inch
Weight	47	Pound
RF Connectors	Type-N, Female	
Cooling	Built-in forced air cooling system	

ENVIRONMENTAL SPECIFICATIONS (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	VI / SH		Airborne		-

LIMITS

Input RF drive level without damage	+6 dBm	Max
Load VSWR @ P _{OUT} = 60W	5:1 @ all phase & magnitude	-
Thermal Overload	85°C shutdown	Max

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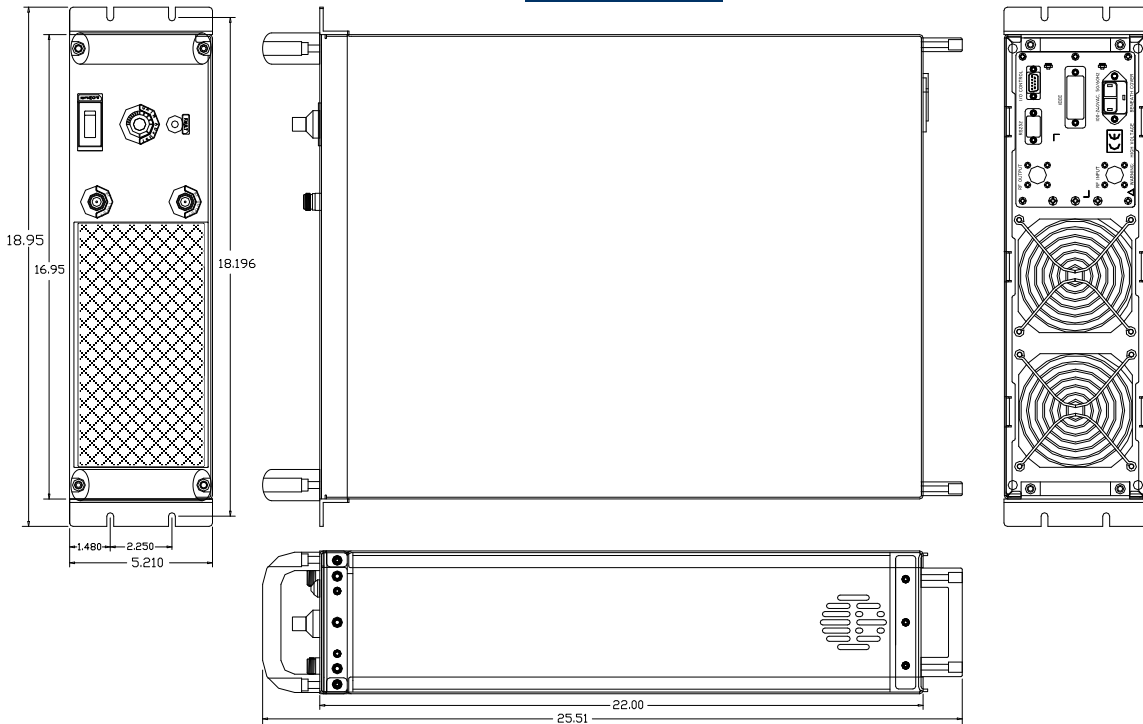
AVAILABLE OPTIONS

SKU #	Description
2070DFFAAXLXX	FGA (Front Gain Adjust) Front RF Connectors, 100-240VAC, 50/60Hz
2070DFRAAXLXX	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

SYSTEM OUTLINE SHOWN SKU#: [2070DFFAAXLXX](#)



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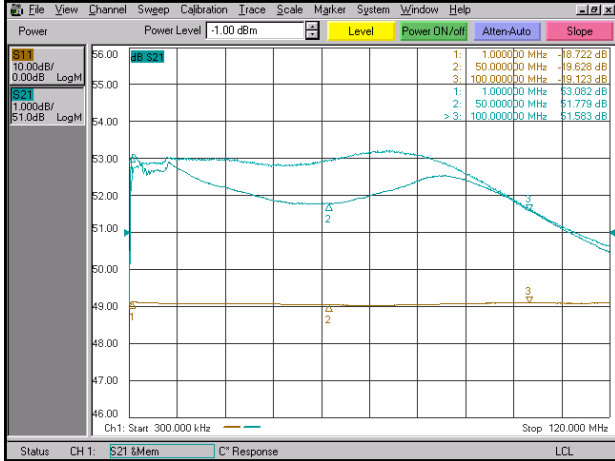
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TYPICAL PERFORMANCE PLOTS

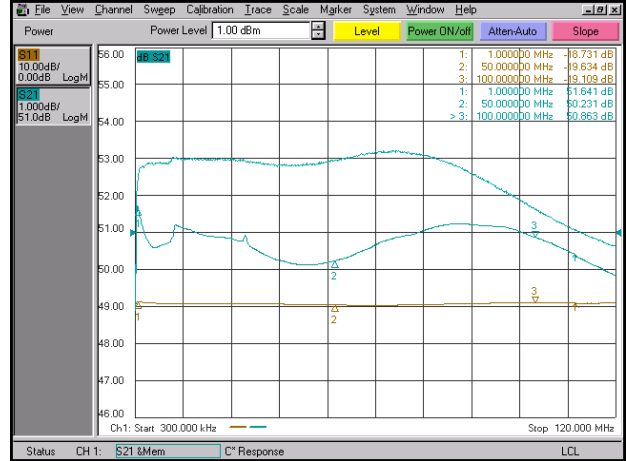
Plot 1 – Small Signal Gain and P_{1dB}

Top Curve: Small Signal Gain @ $P_{IN} = -20dBm$
 Middle Curve: Power Gain @ P_{1dB} , $P_{IN} = -1.0dBm$
 Reference: 51dB, 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} @ $P_{IN} = +1.0dBm$
 Reference: 51dB, 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: 11dB, 10dB/div.
 Bottom Curve: Input Return Loss @ Minimum Gain
 Reference: 0dB, 10dB/div.

