

Solid State General Communication Power Amplifier

4071 - GCS1D2GUT
1.5 – 32 MHz / 1000 Watts

The GCS1D2GUT (4071) is suitable for broadband high power applications. This rack mount amplifier utilizes high power MOSFET 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#: 4071DFRBCZGXX

- Solid-state class AB design
- Instantaneous ultra broadband
- Small form factor and lightweight
- Front panel manual gain adjust
- Suitable for CW, FM, AM (Consult factory for other modulation types)
- 50 ohm input/output impedance
- High reliability and ruggedness

ELECTRICAL SPECIFICATIONS @ 220V_{AC}, 25°C, 50Ω System

Characteristics	Rating	Min	Typ	Max	Units
Frequency Response	BW	1.5		32	MHz
Power Output CW	P _{SAT}	1000			Watt
Power Output @ 1dB Gain Compression	P _{1dB}	700			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			±1.5	dB
Input Return Loss	S ₁₁			-10	dB
Gain Adjustment Range	FGA		25		dB
Noise Figure @ maximum gain	NF		7	10	dB
Third Order Intercept Point 2-Tone @ 44dBm/Tone, 100KHz Spacing	IP3		+50		dBm
Harmonics @ P _{OUT} = 700W	2 ND / 3 RD		-40/-10		dBc
Spurious Signals	Spur		-65	-55	dBc
Operating Voltage (1-phase)	V _{AC}	180		260	Volt
Power Consumption @ P _{OUT} = 1000W CW	P _D			3000	Watt

MECHANICAL SPECIFICATIONS

Parameter	Value	Unit
Dimensions W x H x D	19 x 5.25 x 22	Inch
Weight	50	Pound
RF Connectors Input / Output	BNC, Female / 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
Storage Temperature (non-condensing)	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		

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LIMITS

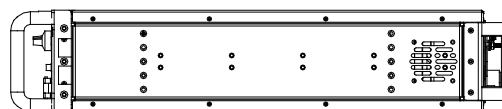
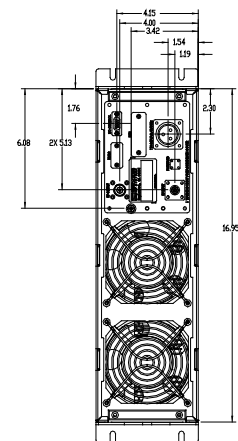
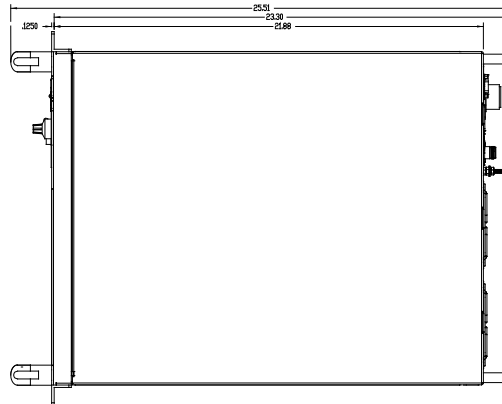
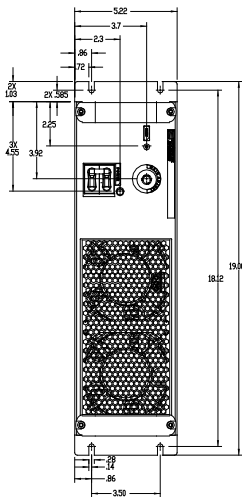
Input RF drive level without damage	+6 dBm	Max
Load VSWR @ P _{OUT} = 700W	5:1 @ any angle & magnitude	-
Thermal Overload	85°C shutdown	Max

AVAILABLE OPTION

SKU #	Description	LCD Touchscreen
4071DFRBCZGXX	FGA (Front Gain Adjust) Rear RF Connectors, 180-260VAC, 50/60Hz, circular AC connector	
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	N/C	No Connection
9	GND	Ground

**OUTLINE DRAWING SHOWN
SKU#: 4071DFRBCZGXX**


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PERFORMANCE PLOTS

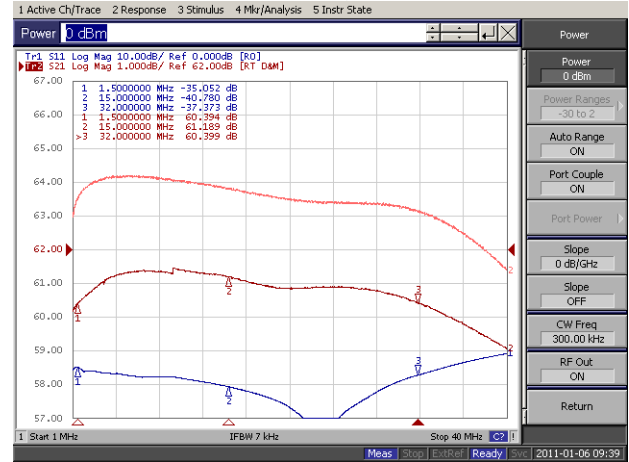
Plot 1 – Small Signal Gain and P_{1dB}

Top Curve: Small Signal Gain @ P_{IN} = -20dBm
 Middle Curve: Power Gain @ P_{1dB}, P_{IN} = -3.0dBm
 Reference: 62dB, 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} = 0.0dBm
 Reference: 62dB, 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: 40dB, 10dB/div.
 Bottom Curve: Input Return Loss @ Minimum Gain
 Reference: 0dB, 10dB/div.

