

Solid State Broadband High Power Amplifier

2073 - BBS1C3CUT
1.0 – 100 MHz / 1000 Watts

The BBS1C3CUT (2073) is suitable for RF and VHF broadband high power applications. 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#: 2073FLRBCLLXXX

- Solid-state class AB design
- Instantaneous ultra broadband
- Small form factor and lightweight
- Suitable for CW, AM, and FM (consult factory for other modulation types)
- 50 ohm input/output impedance
- Built-in control and protection
- High reliability and ruggedness

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

Characteristics	Rating	Min	Typ	Max	Units
Frequency Response	BW	1.0		100	MHz
Output Power CW	P _{SAT}	1000			Watt
Output Power @ 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	3	dBm
Small Signal Gain Flatness	ΔG			±1.5	dB
Gain Adjustment Range	FGA	20	25		dB
Input Return Loss	S ₁₁			-10	dB
Noise Figure @ Maximum Gain	NF		7	10	dB
Third Order Intercept Point					
2-Tone @ 50dBm/Tone, 100kHz Spacing	IMD		-28		dBc
Harmonics @ P _{OUT} = 700W	H		-20		dBc
Spurious Signals	Spur		-70	-60	dBc
Supply Voltage (1-phase)	V _{AC}	180		260	Volt
Power Consumption	P _D			3500	Watt

MECHANICAL SPECIFICATIONS

Parameter	Value	Unit
Dimensions W x H x D	19 x 8.75 x 22	Inch
Weight	80	lb.
RF Connectors Input/Output	Type-N, Female	
Cooling	Built-in forced air cooling system	

ENVIRONMENTAL SPECIFICATIONS (Design to meet)

Parameter	Symbol	Max	TYP	Min	Unit
Operating Ambient Temperature	T _A	0		+50	°C
Non-operating Temperature	T _{STG}	-40		+85	°C
Relative Humidity (non-condensing)	RH				%
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

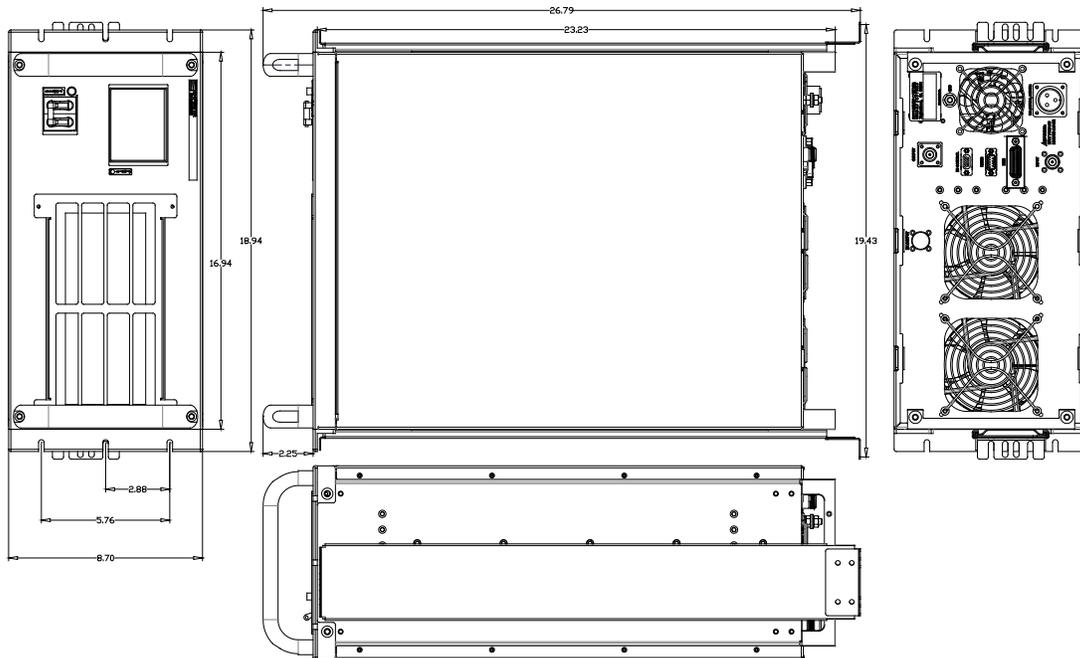
AVAILABLE OPTIONS

SKU #	Description	LCD Touchscreen
2073FLRBCCLXX	LCD controller, Rear RF connectors with reusable dust filter, rack slides included MIL-STD AC Circular Connector, 180-260VAC, 50/60Hz.	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.
2073FLCBCCLXR	LCD controller, Rear RF connectors, with Tx/Rx relay and reusable dust filter, rack slides included MIL-STD AC Circular Connector, 180-260VAC, 50/60Hz.	

I/O CONNECTOR – D-Sub 9-Pin, Female

Pin #	Description	Specifications
1-3	N/C	No Connection
4	Ext Shutdown	Amplifier Disable: TTL Logic High (5V) <i>(Internally Pulled-low)</i>
5	5V Test Point	+5.0V _{DC} ±0.2V
6-7	N/C	No Connection
8	N/C (Disable Rx)	No Connection (with RX option; Receive Disable: TTL Logic Low, 0V) <i>(Internally Pulled-high)</i>
9	GND	Ground

OUTLINE DRAWING SHOWN SKU #: 2073FLRBCCLXX



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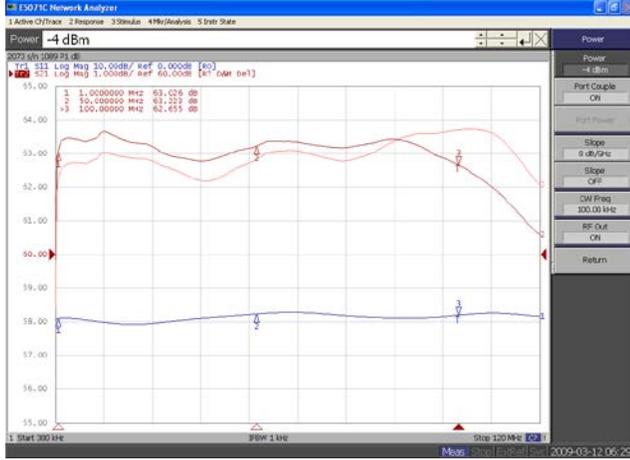
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TYPICAL PERFORMANCE PLOTS

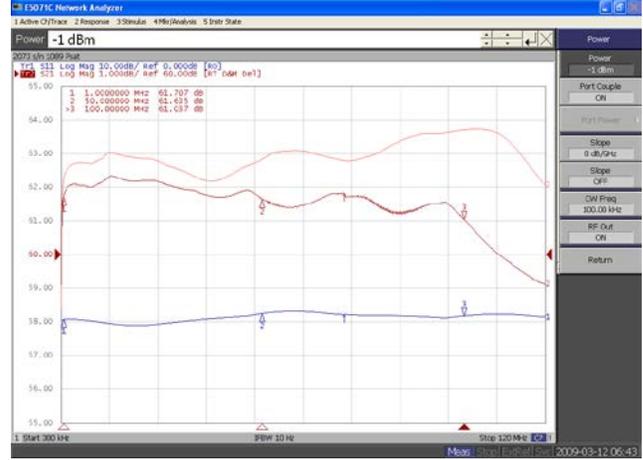
Plot 1 – Small Signal Gain and P_{1dB}

Top Curve: Small Signal Gain @ P_{IN} = -20dBm
 Middle Curve: Power Gain @ P_{1dB}, P_{IN} = -4.0dBm
 Reference: 60dB, 1dB/div.
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/div.



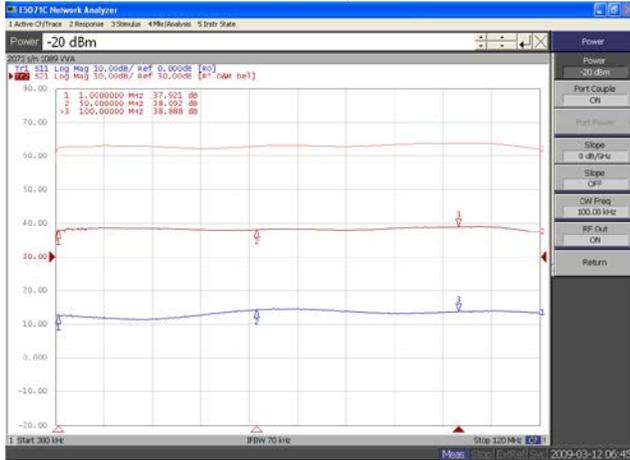
Plot 2 – Small Signal Gain and P_{SAT}

Top Curve: Small Signal Gain @ P_{IN} = -20dBm
 Middle Curve: Power Gain @ P_{SAT}, P_{IN} = -1.0dBm
 Reference: 60dB, 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 @ 500W & 100W

Top Curve: ALC @ 500W, P_{IN} = 0dBm
 Bottom Curve: ALC @ 100W, P_{IN} = 0dBm
 Reference: 54dB, 1dB/div.
 Middle Curve: Input Return Loss
 Reference: 0dB, 10dB/div.

