

Solid State Broadband High Power Amplifier

2061 - BBS0D3FAJ
0.15 – 230 MHz / 10 Watts

The BBS0D3FAJ (2061) is suitable for broadband high power applications. This bench top amplifier utilizes high power push-pull 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#: 2061AFFAAXXXX

- Solid-state class AB design
- Instantaneous ultra broadband
- 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	Rating	Min	Typ	Max	Unit
Frequency Response	BW	0.15		230	MHz
Power Output CW	P _{SAT}	10	12		Watt
Output Power @ 1dB Gain Compression	P _{1dB}	7			Watt
Power Gain @ 1dB Gain Compression	G _{1dB}	40			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	30		dB
Input Return Loss	S ₁₁			-10	dB
Noise Figure @ maximum gain	NF		7	10	dB
Harmonics @ P _{OUT} = 7W	2 ND / 3 RD		-20		dBc
Third Order Intercept Point 2-Tone @ 30dBm/Tone, 100kHz Spacing	IP3		+48		dBm
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage (1-phase)	V _{AC}	100		240	Volt
Power Consumption @ P _{OUT} = 10W CW	P _D			100	Watt

MECHANICAL SPECIFICATIONS

Parameter	Value	Unit
Dimensions W x H x D	8.5 x 3.5 x 16	Inch
Weight	20	Pound
RF Connectors Input / Output	Type-N, Female	
Cooling	Built-in forced air cooling system	

ENVIRONMENTAL SPECIFICATIONS (Designed 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	+10 dBm	Max
Load VSWR @ P _{OUT} = 7W	∞ @ all load phase & amplitude for duration of 1 minute 3:1 @ all load phase & amplitude continuous	-
Thermal Shutdown	85°C	Max

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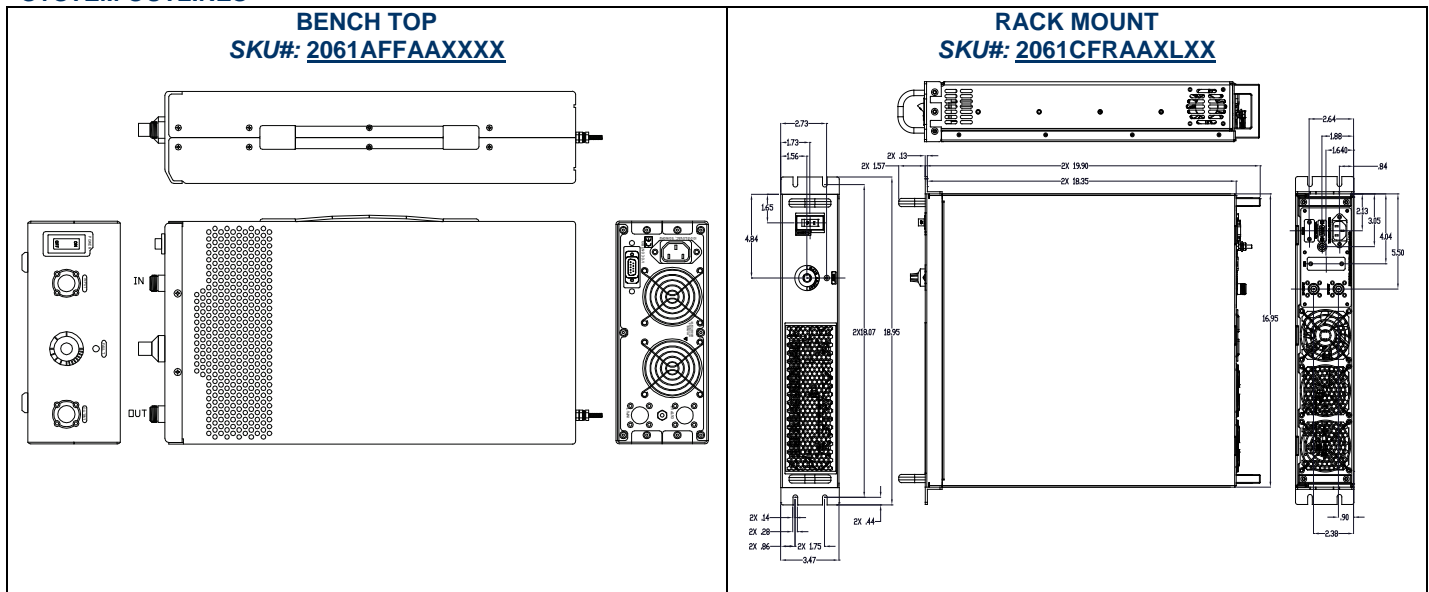
AVAILABLE OPTIONS

SKU #	Description
2061CFRAAXLXX	FGA (Front Gain Adjust) Rear RF Connectors, 100-240VAC, 50/60Hz
Optional	Rack Slides (Call for price)
2061AFFAAXXXX	Bench top, FGA (Front Gain Adjust) Front RF Connectors, 100-240VAC, 50/60Hz
2061AFRAAXXXX	Bench top, FGA (Front Gain Adjust) Rear RF Connectors, 100-240VAC, 50/60Hz

I/O INTERFACE CONNECTOR – D-sub 9-pin, Female

Pin #	Description	Specification	Option	
			Bench Top	Rack Mount
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) <i>(Internally Pulled-Low)</i>	√	√
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 OUTLINES



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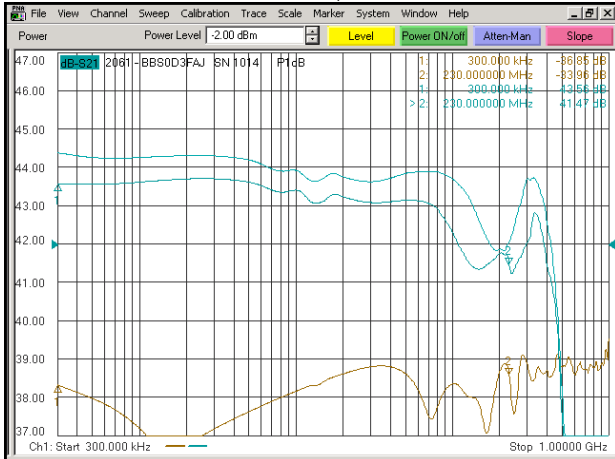
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TYPICAL PERFORMANCE PLOTS

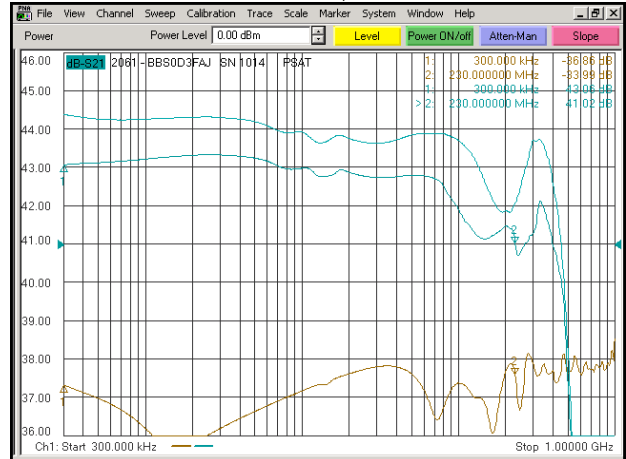
Plot 1 – Small Signal Gain and P_{1dB}

Top Curve: Small Signal Gain @ $P_{IN} = -20dBm$
 Middle Curve: Power Gain @ P_{1dB} , $P_{IN} = -2.2dBm$
 Reference: 42dB, 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} , $P_{IN} = -0.2dBm$
 Reference: 41dB, 1dB/div.
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/div.



Plot 3 – Gain Adjustment Range

Top Curve: Maximum Gain @ $P_{IN} = -20dBm$
 Bottom Curve: Minimum Gain @ $P_{IN} = -20dBm$
 Reference: 15dB, 10dB/div.
 Middle Curve: Input Return Loss
 Reference: 0dB, 10dB/div.

