

Solid State Broadband High Power Amplifier

2077 - BBS0D4A3E
0.15 – 1000 MHz / 2 Watts

The BBS0D4A3E (2077) is suitable for ultra broadband high power applications. The amplifier utilizes MOSFET power devices that provide wide frequency response and dynamic range, high gain, low distortions, and good linearity. Employing advanced broadband RF matching networks and combining techniques, EMI/RFI filters, and all qualified components achieve exceptional performance, and high efficiency. The system includes a universal voltage, single phase, power supply and a built-in forced air-cooling system. Empower RF's ISO9001 Quality Assurance Program assures consistent performance and the highest reliability.



SKU#: 2077AFFAAXXX

- Solid-state class AB design
- Instantaneous ultra broadband
- Small and lightweight
- Standard 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	0.15		1000	MHz
Output Power CW	P _{SAT}	2	3		Watt
Output Power @ 1dB Gain Compression	P _{1dB}	1	2		Watt
Power Gain @ 1dB Gain Compression	G _{1dB}	30	34		dB
Input Power for Rated P _{SAT}	P _{IN}		0	4	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
Noise Figure @ maximum gain	NF		10		dB
Third Order Intercept Point 2-Tone @ 20dBm/Tone, 100kHz spacing	IP3		+43		dBm
Harmonics @ P _{OUT} = 1W	H		-20		dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage (1-phase)	V _{AC}	100		240	Volt
Power Consumption @ P _{OUT} = 2W CW	P _D			40	Watt

MECHANICAL SPECIFICATIONS

Parameter	Value	Unit
Dimensions – Bench Top / Rack Mount	8.5 x 3.5 x 16 / 18.5 x 3.5 x 17	Inch
Weight – Bench Top / Rack Mount	15 / 25	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} = 1W	∞ @ all load phase & amplitude for duration of 1 minute 3:1 @ all load phase & amplitude continuous	-
Thermal Overload	85°C shutdown	Max

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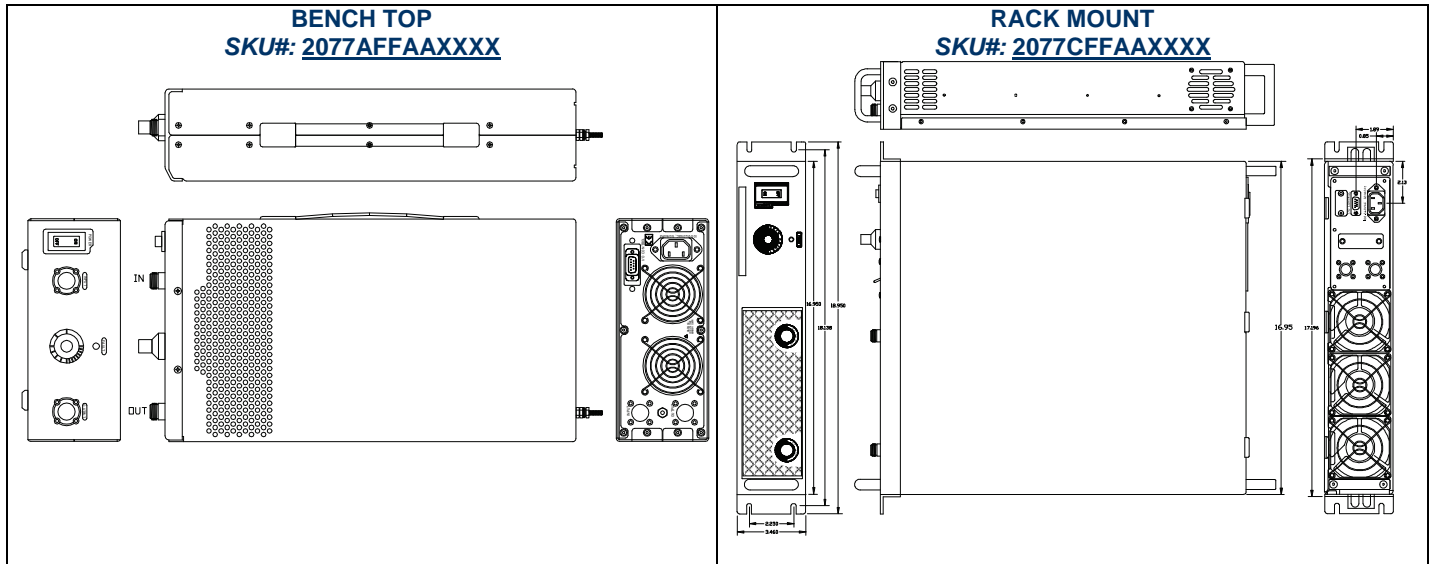
AVAILABLE OPTIONS

SKU #	Description	LCD Touchscreen
2077CFFAAXXX	FGA (Front Gain Adjust) Front RF Connectors, 100-240VAC, 50/60Hz	
Optional	Rack Slides (Call for price)	
2077AFFAAXXX	Bench Top, FGA (Front Gain Adjust) Front RF Connectors, 100-240VAC, 50/60Hz	

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

Pin #	Description	Specification	Option	
			Bench Top	FGA
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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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} , $P_{IN} = -2.0dBm$
 Reference: 33dB, 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} , $P_{IN} = +3.0dBm$
 Reference: 33dB, 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: 10dB, 10dB/div.
 Bottom Curve: Input Return Loss @ Minimum Gain
 Reference: 0dB, 10dB/div.

