EMPOWER
RF SYSTEMS, INC.

Solid State Broadband High Power Amplifier

2055 - BBS3Q7E9I | 800 - 4200MHz / 8Watts

The BBS3Q7E9I (2055) is suitable for ultra broadband high power linear applications. This amplifier utilizes high power GaAsFET devices that provide wide frequency response and dynamic range, high gain, low distortions, and excellent linearity. Exceptional performance, long term reliability and high efficiency are achieved by employing advanced broadband RF & MW matching networks and combining techniques, EMI/RFI filters, built-in high efficiency sequence regulators and all qualified components. The system includes a universal voltage, single phase, PFC 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#: 2055AFFAAXXXX

- Solid-state linear design
- Instantaneous ultra broadband
- Small and lightweight
- Standard front panel manual gain adjust
- Suitable for CW/FM/AM (Contact 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	800		4200	MHz
Output Power CW	P_{SAT}	7	8		Watt
Output Power @ 1dB Gain Compression	P_{1dB}	6	7		Watt
Power Gain @ 1dB Gain Compression	G_{1dB}	38			dB
Input Power for Rated P_{SAT}	P_{IN}		0	3	dBm
Small Signal Gain Flatness	ΔG			±1.5	dB
Gain Adjustment Range	FGA	25			dB
Input Return Loss	S_{11}			-10	dB
Noise Figure	NF		10		dB
Third Order Intercept Point 2-Tone @ 30dBm/Tone, 100kHz Spacing	IP3		+48		dBm
Harmonics @ P_{OUT} = 6W	H		-20		dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage (1-phase)	V_{AC}	100		240	Volt
Power Consumption @ P_{OUT} = 8W	P_D		-	90	Watt

ENVIRONMENTAL CHARACTERISTICS (Design to Meet)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Temperature	T_C	0		+50	°C
Non-operating Temperature	T_{STG}	-40		+85	°C
Relative Humidity (non-condensing)	RH	95			%
Altitude (MIL-STD-810F)	ALT			30,000	Feet
Vibration/Shock MIL-STD-810F – Method 514.5/516.5 – Proc I	VI/SH		Airborne		

MECHANICAL SPECIFICATIONS

Parameter	Value	Unit
Dimensions	8.5 x 3.5 x 16	Inch
Weight: Bench Top / Rack Mount	17/25	Pound
RF Connectors Input/Output	Type-N, Female	
Cooling	Built-in internal forced air cooling system	

EMPOWER
RF SYSTEMS, INC.

Solid State Broadband High Power Amplifier

2055 - BBS3Q7E9I	800 - 4200MHz / 8Watts

LIMITS

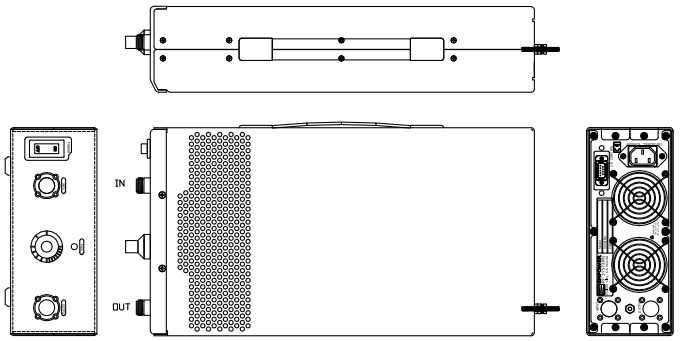
Input RF drive level without damage	+10dBm	Max
Load VSWR @ P_{OUT} = 6W	∞ @ any load phase & amplitude for duration of 1 minute 3:1 @ any load phase & amplitude continuous	-
Thermal Overload	85°C shutdown	Max

AVAILABLE OPTIONS

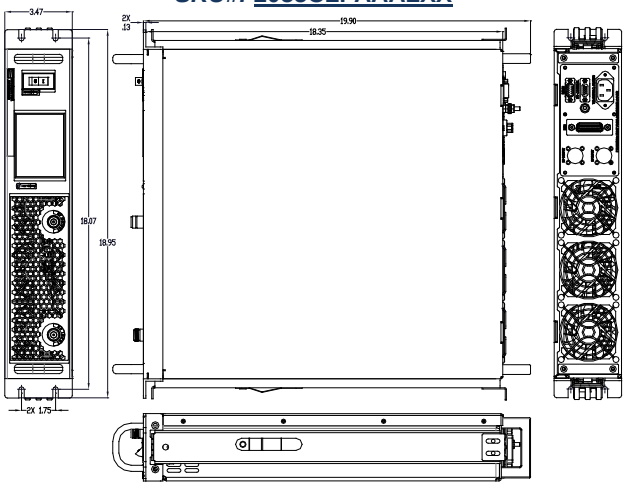
SKU Number	Description	LCD Touchscreen
2055CLFAAALXX	LCD controller, Front RF connectors 100-240VAC, 50/60Hz and rails.	Touchscreen Digital Display, including FWD/REV Power indication (dBm or Watt scale), Gain Adjustment, ALC Fast/Slow, On/Off, Standby mode, Fault indication, Rear panel GPIB/HPIB IEEE-488.2 and Half Duplex RS232. ***Note:*** ***(Output power is lowered by 0.5-0.75dB with this option)***
2055AFFAAXXXX	Bench Top, FGA (Front Gain Adjust) Front RF Connectors, 100-240VAC, 50/60Hz	

SYSTEM OUTLINES

BENCH TOP
SKU#: **2055AFFAAXXXX**



RACK MOUNT
SKU#: **2055CLFAAALXX**



EMPOWER
RF SYSTEMS, INC.

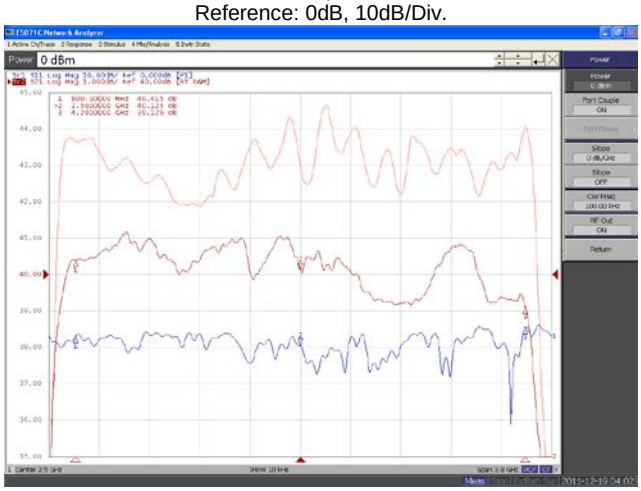
Solid State Broadband High Power Amplifier

2055 - BBS3Q7E9I	800 - 4200MHz / 8Watts

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} = -4dBm **(Note 2, 3)**
Reference: 40dB, 1dB/Div.
Bottom Curve: Input Return Loss
Reference: 0dB, 10dB/Div.

Plot 2 – Small Signal Gin and P_{SAT}
Top Curve: Small Signal Gain @ P_{IN} = -20dBm
Middle Curve: Power Gain @ P_{SAT}, P_{IN} = 0dBm **(Note 2, 3)**
Reference: 40dB, 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: 29dB, 10dB/Div.
Middle Curve: Input Return Loss @ Minimum Gain
Reference: 0dB, 10dB/Div.