

RF and Microwave
Power
Technologies

RFPS170-230-50

**170-230MHz 50W
Class A/AB Amplifier
Mini-System**

- ❖ **Class A/AB 50W amplifier mini-system**
- ❖ **170-230MHz bandwidth**
- ❖ **50dB typical gain**
- ❖ **+/-0.8dB typical gain flatness**
- ❖ **Temperature-compensated bias**
- ❖ **50 ohms input/output**
- ❖ **Thermal protection (auto reset)**



The RFPS170-230-50 is a Class A/AB amplifier mini-system, complete with power supply, heatsink, fan and thermal protection. It is excellent as a standalone driver or medium power PA for TV broadcast or other commercial, military, industrial or scientific applications. It utilizes a combination of three active device technologies for optimum performance and ruggedness.

Specifications

$P_{out} = 50W, T_{ambient} = 25^{\circ}C, Z_{load} = 50\Omega$

Parameter	Min	Typ	Max	Units
Freq. Range	170		230	MHz
P_{1dB}	50	See Figure 4		W
Input Power		-3	0	dBm
Gain	47	50		dB
Gain Flatness		+/-0.8	+/-1.5	dB
IRL		-30	-20	dB
f_2		-35	-27	dBc
f_3		-23	-17	dBc
IMD ₃ 50W PEP, $\Delta f=10kHz$ See Fig. 2 for 100kHz		-32	-25	dBc

Maximum Ratings

Operation beyond these ratings will void warranty.

Parameter	Value
Load Mismatch*	3:1
Ambient operating temperature	0°C to 45°C (non-condensing humidity)
Storage Temperature	-40°C to 85°C

*All phase angles, 50W forward power, 5 seconds max.

Electrical and Mechanical

Connectors	Input/Output: SMA	
V_{supply}	88-264VAC 47-63Hz, 1 Φ , 2.0A	
Dimensions	8.0 X 12.1 X 5.7 (203 X 307 X 145)	inch (mm)

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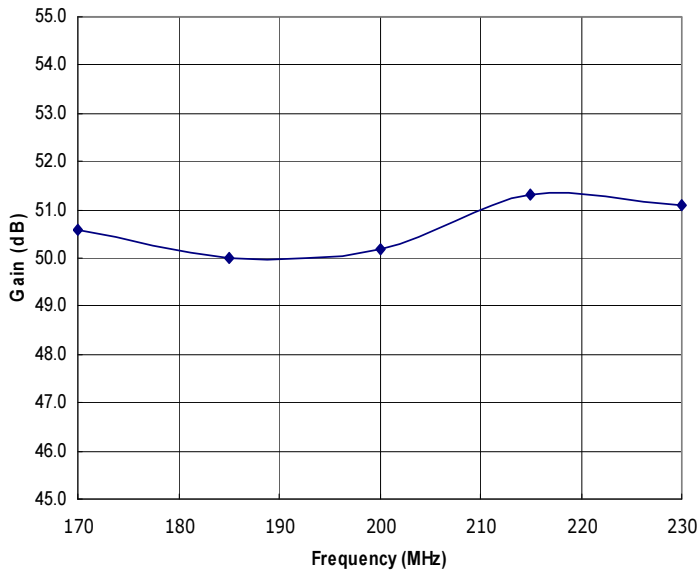
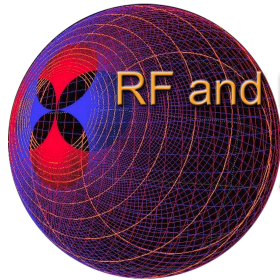


Figure 1: RFPS170-230-50 Typical Gain @ P_{out} = 50W.

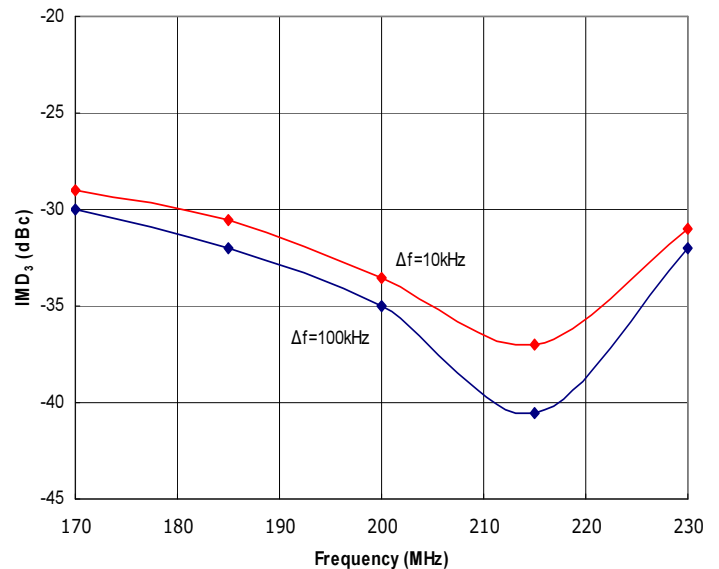


Figure 2: RFPS170-230-50 Typical IMD₃ @ 50W PEP, Δf=10kHz and Δf=100kHz. Data is provided for reference only; this is not intended to be a highly linear amplifier. For improved linearity, see our RFPS170-230-25 Class A amp.

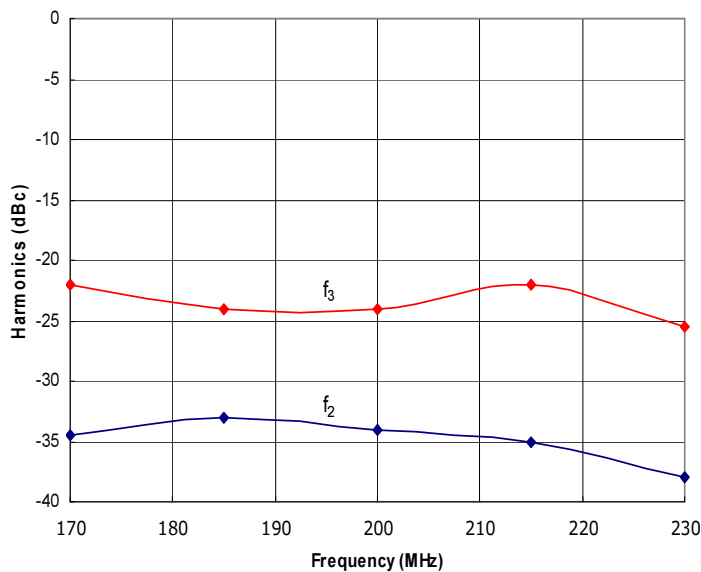


Figure 3: RFPS170-230-50 Typical f₂ and f₃ @ P_{out} = 50W.

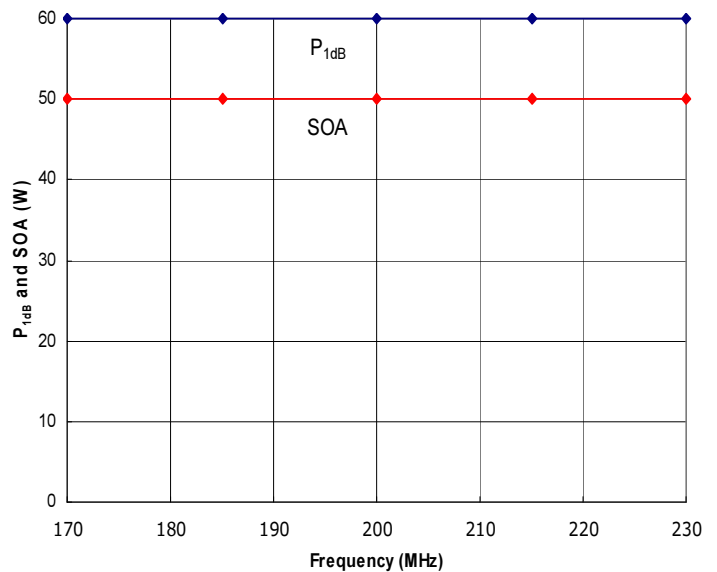


Figure 4: RFPS170-230-50 Typical P_{1dB} and Safe Operating Area (SOA).





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Instructions for Amplifier Use

- 1) This amplifier requires unobstructed airflow from the front to the rear of the unit. Ensure sufficient clearance is allowed behind the amplifier for cooling air exhaust. Do not allow foreign objects to block or enter the air intake vents on the front panel.
- 2) Provide AC power to the amplifier as specified in the Electrical and Mechanical section on Page 1.
- 3) Connect a proper signal source to the RF IN connector, and desired load to the RF OUT connector. Torque connectors to industry standards for the type supplied with the amplifier.
- 4) Turn the amplifier on, and verify that the DC ON light illuminates. If it doesn't, verify that the fuse in the AC input connector is not blown. Replace fuse if necessary, as per the ratings specified on the rear panel.
- 5) Apply RF drive to achieve desired output level. Ensure that the Safe Operating Area (SOA) power level indicated in Figure 4 is not exceeded, or amplifier damage may occur, and will void the warranty.
- 6) To power down and disconnect the amplifier, first remove the RF drive, turn off the AC power, then remove the RF connections.

Note on thermal protection: The thermal protection circuit only removes power from the amplifier inside. When activated, the front panel DC ON light will still be illuminated, and the fan will still be moving air. If the light and fan are on, but there is no RF output, turn off the RF source, wait five minutes for the amplifier to cool, then apply RF again. The thermal protection is auto-resetting.

Contact the factory at rfmpt@sbcglobal.net with any questions, or for special options, testing requirements, and/or operating conditions not specified in this document.

Document Control

Revision	Date	Notes
A	7-29-2015	Production release.

