RF and Microwave Power Technologies

# RFPS170-230-25

## 170-230MHz 25W Class A High Performance Amplifier *Mini-System*

- **Class A 25W high performance amplifier mini-system**
- **170-230MHz bandwidth**
- **47dB typical gain**
- **+/- 1.0dB typical gain flatness**
- **Temperature-compensated bias**
- **50 ohms input/output**
- **Thermal protection (auto reset)**

The RFPS170-230-25 is a Class A high performance amplifier mini-system, complete with power supply, heatsink, fan and thermal protection. It is excellent as a standalone driver for analog or digital television broadcast systems. It exhibits superior full power and back-off linearity, and utilizes a combination of two active device technologies for optimum performance and ruggedness.

### Specifications

$P_{out}$ = 25W, $T_{ambient}$ = 25°C, $Z_{load}$ = 50Ω

| Parameter | Min | Typ | Max | Units |
|---|---|---|---|---|
| Freq. Range | 170 | | 230 | MHz |
| $P_{1dB}$ | 45 | See Figure 4 | | W |
| Input Power | | -3 | 0 | dBm |
| Gain | 44 | 47 | | dB |
| Gain Flatness | | +/-1.0 | +/-1.5 | dB |
| IRL | | -30 | -20 | dB |
| $f_2$ | | -41 | -34 | dBc |
| $f_3$ | | -37 | -29 | dBc |
| $IMD_3$ 25W PEP, Δf=10kHz See Fig. 2 for 100kHz, 1MHz and 4.7MHz. | | -40 | -35 | dBc |

### Maximum Ratings

Operation beyond these ratings will void warranty.

| Parameter | Value |
|---|---|
| Load Mismatch* | 5:1 |
| Ambient operating temperature | 0°C to 45°C (non-condensing humidity) |
| Storage Temperature | -40°C to 85°C |

*All phase angles, 25W forward power, 5 seconds max.

### Electrical and Mechanical

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

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MADE IN AMERICA



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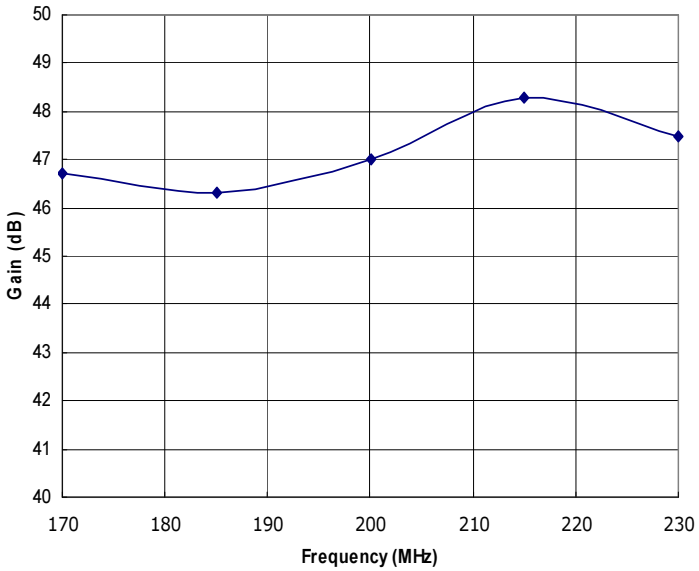


**Figure 1: RFPS170-230-25 Typical Gain @ $P_{out}$ = 25W.**

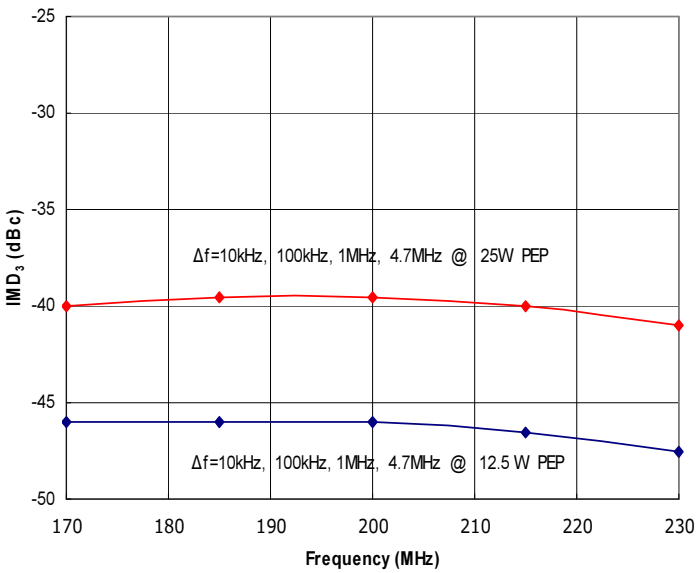


**Figure 2: RFPS170-230-25 Typical $IMD_3$, Δf=10kHz, 100kHz, 1MHz, and 4.7MHz, @ $P_{out}$ = 25W and 12.5W PEP. Data is identical for all four tone spacings, and at both power levels.**

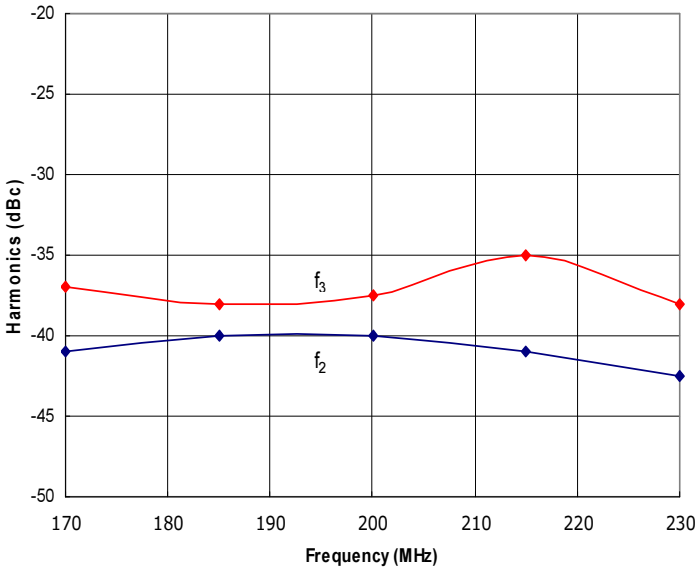


**Figure 3: RFPS170-230-25 Typical $f_2$ and $f_3$ @ $P_{out}$ = 25W.**

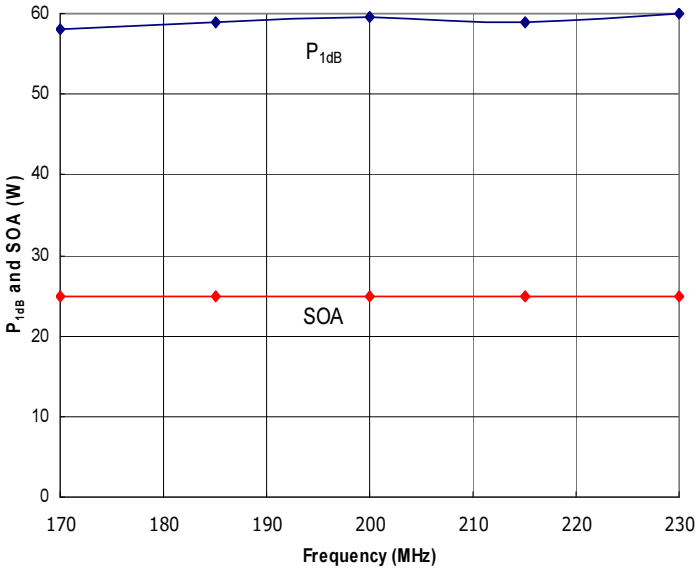


**Figure 4: RFPS170-230-25 Typical $P_{1dB}$ and Safe Operating Area (SOA). The amplifier is capable of delivering much more power than it is safe to generate. Do not exceed the indicated SOA.**

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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. |
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