RF and Microwave Power Technology
BATTLE BORN AMPLIFIERS™

RFP1.5-30-150XR

1.5-30MHz 150W Class A/AB High Performance Amplifier

- **Class A/AB 150W XR-rated amplifier**
- **1.5-30MHz bandwidth**
- **54dB typical gain**
- **+/- 0.4dB typical gain flatness**
- **Temperature-compensated bias**
- **TTL disable**
- **Current sense resistor**
- **Available with heatsink and fan**

The RFP1.5-30-150XR is a Class A/AB XR-rated amplifier, excellent as a driver or output stage in high power military, commercial, or industrial systems. Its XR rating ensures ruggedness for driving mismatched loads such as antennae or plasmas, and its high gain allows it to be driven to full power from signal generator levels. It is supplied with SMA input and output connectors.

Specifications

V_{sup} = +32VDC, I_{DQ} = 1.1A, P_{out} = 150W, T_{base} = 35°C, Z_{load} = 50Ω

Parameter	Min	Typ	Max	Units
Freq. Range	1.5		30	MHz
P_{1dB}	150	See Figure 4		W
Input Power		-2.2	0.8	dBm
Gain	51	54		dB
Gain Flatness		+/-0.4	+/-1.0	dB
Drain Current		8.8	9.4	A
Efficiency	50	53		%
IRL		-24	-14	dB
f_2		-37	-25	dBc
f_3		-13	-10	dBc
IMD_3 150W PEP, Δf=10kHz and 100kHz		-34	-26	dBc
Dimensions	2.45 X 5.90 X 1.40 (62.23 X 149.86 X 35.56)			inch (mm)

Maximum Ratings

Operation beyond these ratings will void warranty.

Parameter	Value
V_{supply} 32V required for 150W output	24-32VDC
Bias Current	1.5A
Drain Current	11A
Load Mismatch*	5:1
Operating Baseplate Temperature	+5°C to +65°C (Non-condensing)
Storage Temperature	-40°C to +85°C

*All phase angles, 150W forward power, current limited to 11A for 10 seconds max.

Option Ordering Info

Heatsink and fan	RFP1.5-30-150XR-HSF

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MADE IN AMERICA

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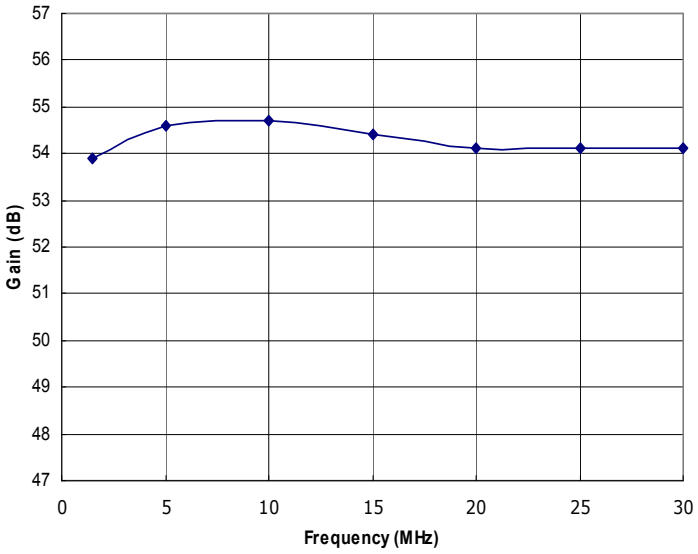


Figure 1: RFP1.5-30-150XR Typical Gain @ P_{out} = 150W.

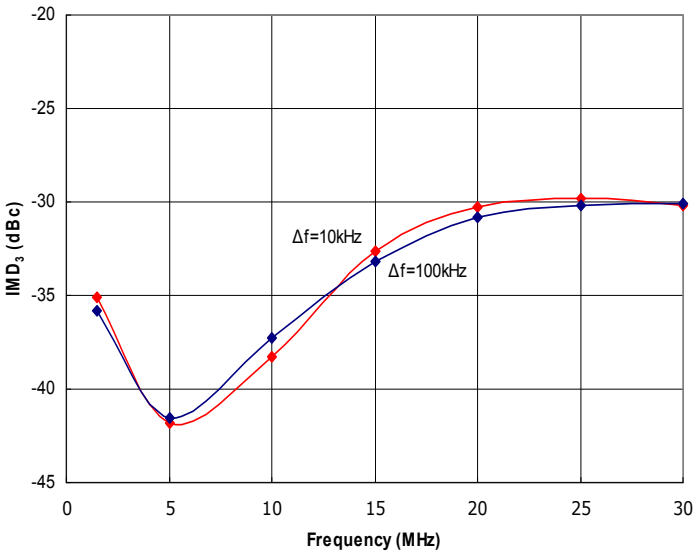


Figure 2: RFP1.5-30-150XR Typical IMD_3 @ 150W PEP, Δf=10kHz and Δf=100kHz. For unbalanced IMD_{3U} and IMD_{3L}, only the highest value is shown. For improved linearity, see our RFP1.5-30-100XR or RFP2-30-25 amplifiers.

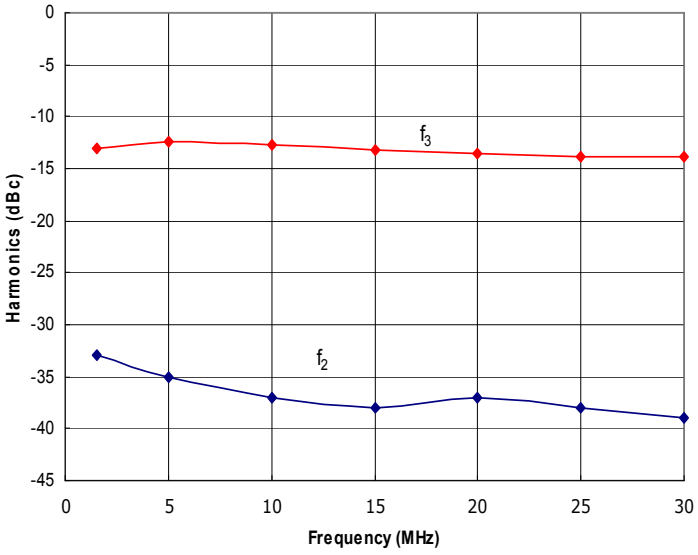


Figure 3: RFP1.5-30-150XR Typical f_2 and f_3 @ P_{out} = 150W.

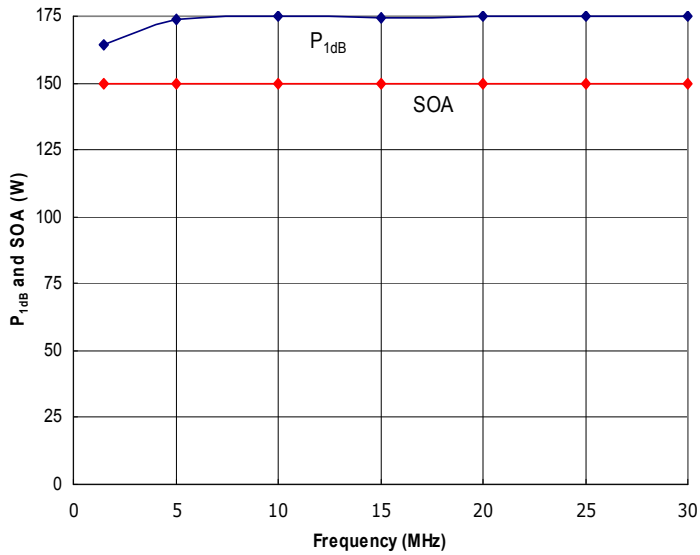
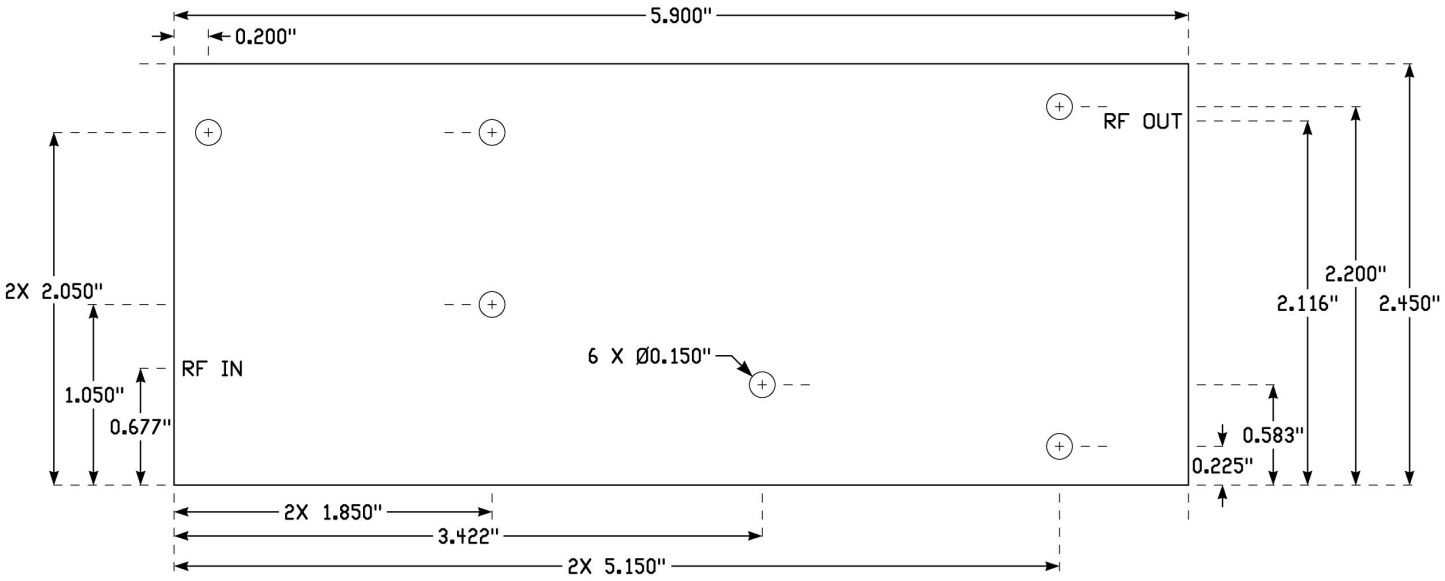


Figure 4: RFP1.5-30-150XR Typical P_{1dB} and Safe Operating Area (SOA). Do not exceed the SOA without first contacting RFMPT to discuss your application.

Amplifier Mounting Hole and RF Locations



Instructions for Amplifier Use

1) If not supplied with a heatsink, apply a layer of high quality thermal grease (Wakefield Type 120 or better) to the underside of the amplifier baseplate. Thinner is better, but ensure that when mounted to your heatsink, contact across the *entire* baseplate is made. Gaps and air bubbles will significantly reduce cooling, leading to possible amplifier damage. Use six #6-32 screws to mount the amplifier to your heatsink.
2) Guarantee sufficient airflow through the heatsink fins to keep the maximum baseplate temperature directly under the output transistor at or less than that specified in the Maximum Ratings section. Contact RFMPT for details on how to qualify your heatsink's performance, if needed.
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) Connect DC V_{supply} to the terminal provided. Solder a ground wire to the GND pad. Ensure that the connections are of proper polarity, and within the voltage range in the Maximum Ratings section.
5) Apply DC power, then sufficient 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) Disable is active high at 5VDC, and disables bias to the driver and output transistors. The MMIC is powered anytime V_{supply} is applied to the amplifier. Due to feedback networks around both disabled stages, there will always be a very small amount of RF present at the amplifier's output whenever RF drive is present at its input.
7) To disconnect the amplifier, first remove the RF drive, then DC power, then the RF connections.

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

Document Control

Revision	Date	Notes
A	2-3-2019	Initial release.

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