

RFP1.5-30-100XR

1.5-30MHz 100W Class A/AB High Performance Amplifier

- ❖ **Class A/AB 100W XR-rated amplifier**
- ❖ **1.5-30MHz bandwidth**
- ❖ **52dB typical gain**
- ❖ **+/- 0.4dB typical gain flatness**
- ❖ **Temperature-compensated bias**
- ❖ **TTL disable**
- ❖ **Current sense resistor**
- ❖ **Available with heatsink and fan**



The RFP1.5-30-100XR 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				
$V_{sup} = +28VDC, I_{DQ} = 1.15A, P_{out} = 100W, T_{base} = 40^{\circ}C, Z_{load} = 50\Omega$				
Parameter	Min	Typ	Max	Units
Freq. Range	1.5		30	MHz
P_{1dB}	100	See Figure 4		W
Input Power		-2	1	dBm
Gain	49	52		dB
Gain Flatness		+/-0.4	+/-0.8	dB
Drain Current		7.2	7.7	A
Efficiency	46	50		%
IRL		-23	-14	dB
f_2		-39	-28	dBc
f_3		-13	-10	dBc
IMD_3 100W PEP, $\Delta f=10kHz$		-38	-28	dBc
Dimensions (excluding connectors)	2.45 X 5.90 X 1.40 (62.23 X 149.86 X 35.56)			inch (mm)

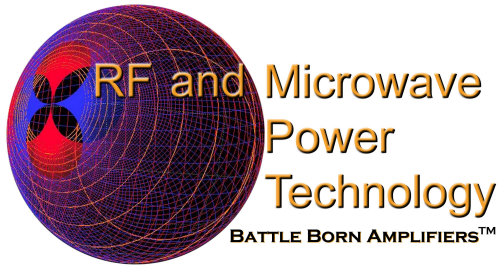
Maximum Ratings	
Operation beyond these ratings will void warranty.	
Parameter	Value
V_{supply} 28V required for 100W output	24-28VDC
Bias Current	1.5A
Drain Current	10A
Load Mismatch*	10:1
Operating Baseplate Temperature (Non-condensing)	+5°C to +65°C
Storage Temperature	-40°C to +85°C

*All phase angles, 100W forward power, current limited to 10A for 10 seconds max.

Option Ordering Info	
Heatsink and fan	RFP1.5-30-100XR-HSF

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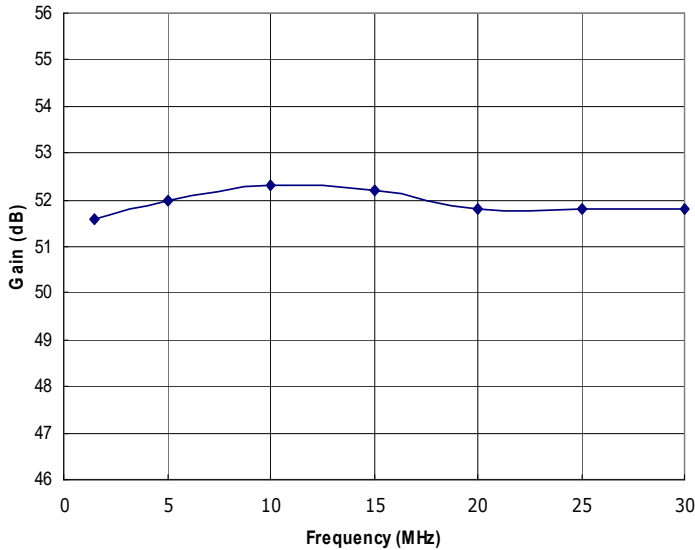


Figure 1: RFP1.5-30-100XR Typical Gain @ P_{out} = 100W.

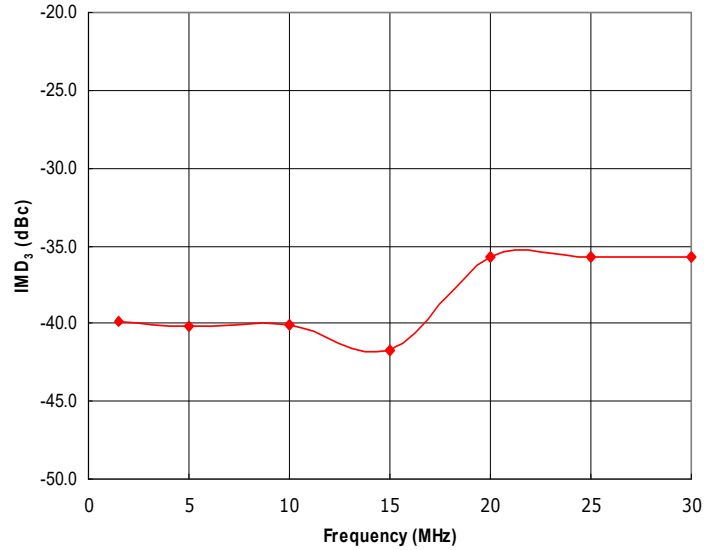


Figure 2: RFP1.5-30-100XR Typical IMD₃ @ 100W PEP, Δf=10kHz. For unbalanced IMD_{3U} and IMD_{3L}, only the highest value is shown.

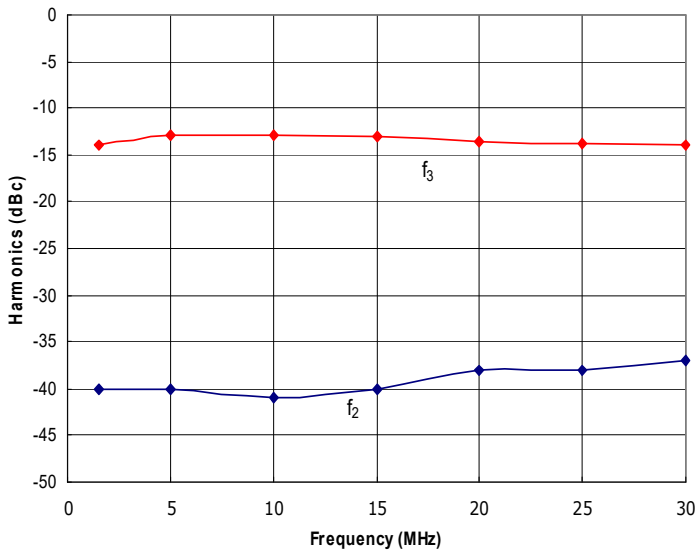


Figure 3: RFP1.5-30-100XR Typical f₂ and f₃ @ P_{out} = 100W.

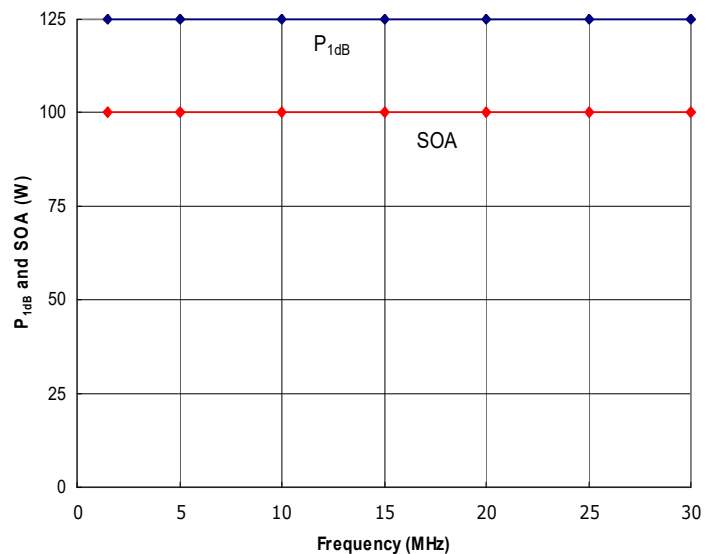
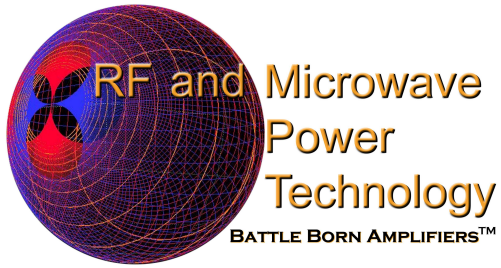


Figure 4: RFP1.5-30-100XR Typical P_{1dB} and Safe Operating Area (SOA). Do not exceed the SOA without first contacting RFMPT to discuss your application.

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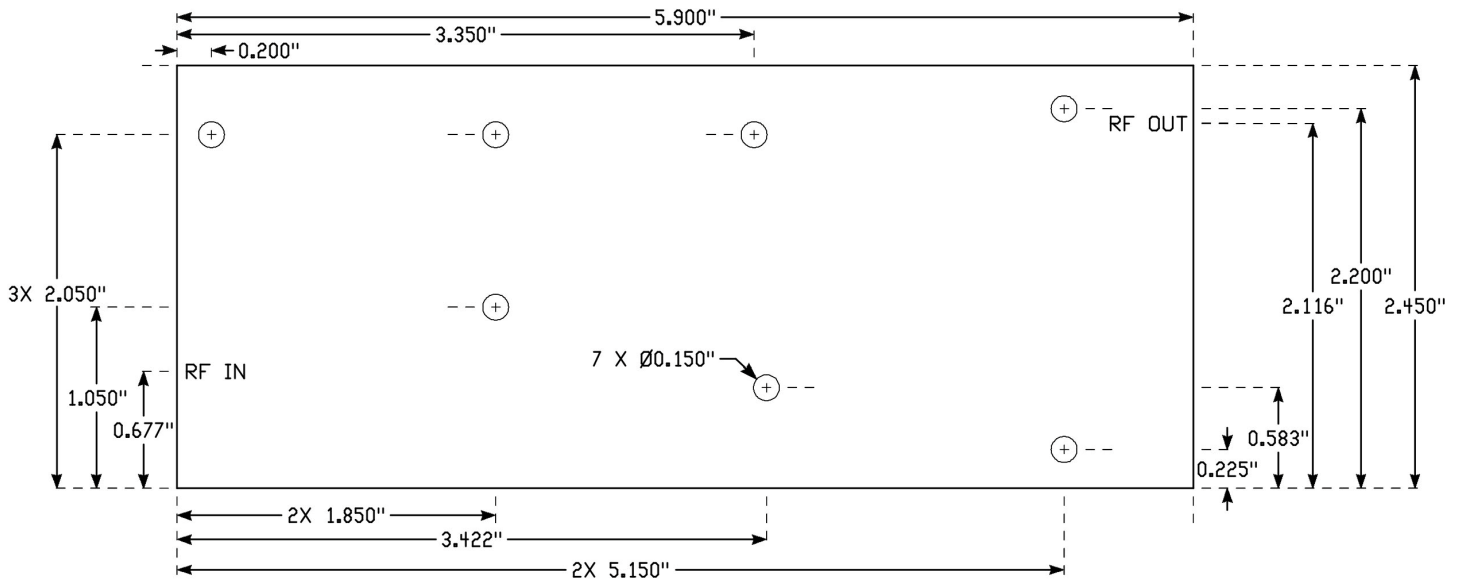




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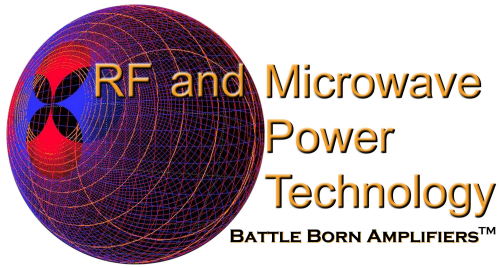
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Amplifier Mounting Hole and RF Locations



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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 seven #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.
B	6-6-2024	Updated performance data.

