RF and Microwave Power Technology

RFP100-500-100

100-500MHz 100W Class A/AB High Performance Amplifier

- **Class A/AB 100W linear amplifier**
- **100-500MHz broadband**
- **53dB typical gain**
- **+/- 0.6dB typical gain flatness**
- **Temperature-compensated bias**
- **50 ohms input/output**
- **Includes disable pad and SMA connectors**
- **Available with heatsink and fan**

Representative photo

The RFP100-500-100 is a cost-efficient Class A/AB high performance pallet amplifier, perfect as a laboratory amplifier, or as a driver stage in medical, industrial or scientific systems. Conservatively rated at 100W CW, it utilizes a combination of three active device technologies for optimum performance and maximum ruggedness.

Specifications

V_{supply} = +28VDC, I_{DQ} = 1.5A, P_{out} = 100W, T_{base} = 25°C, Z_{load} = 50Ω

Parameter	Min	Typ	Max	Units
Freq. Range	100		500	MHz
P_{1dB}	100	120		W
Input Power		-3	0	dBm
Gain	50	53		dB
Gain Flatness		+/-0.6	+/-1.5	dB
Drain Current		6.8	7.3	A
Efficiency	49	53		%
IRL		-20	-14	dB
f_2		-38	-27	dBc
f_3		-20	-10	dBc
IMD_3 100W PEP, Δf=10kHz. See Fig. 2 for 50W PEP.		-35	-26	dBc
Dimensions	2.75 X 5.60 X 1.00 (69.85 X 142.24 X 25.40)			inch (mm)

Maximum Ratings

Operation beyond these ratings may damage amplifier.

Parameter	Value
V_{supply}	24-28VDC
Bias Current	2.0A
Drain Current	9.0A
Load Mismatch*	5:1
Housing Base Temperature	65°C
Storage Temperature	-40°C to 85°C

*All phase angles, 100W forward power, current limited to 9.0A.

Option Ordering Info

Heatsink and fan	RFP100-500-100-HSF

RF and Microwave Power Technology, LLC ● 2380 Solitude Drive ● Reno, NV 89511 USA
(775) 842-3280 ● sales@rfmpt.com ● www.rfmpt.com

MADE IN AMERICA

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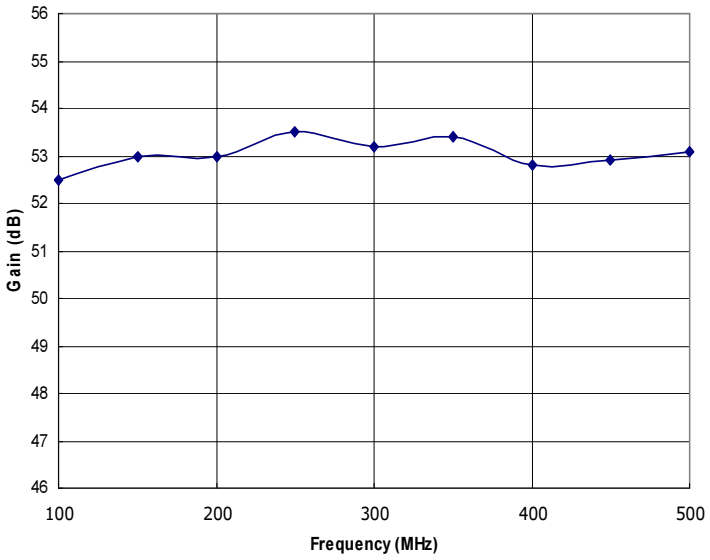

Figure 1: RFP100-500-100 Typical Gain @ P_{out}=100W.

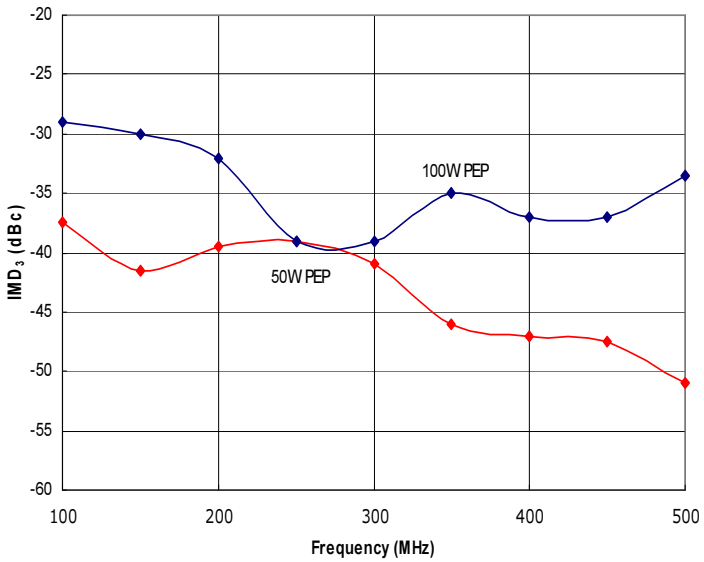

Figure 2: RFP100-500-100 Typical IMD_3 @ 100W and 50W PEP, Δf=10kHz. For improved linearity, see our RFP100-500-50 Class A amplifier.

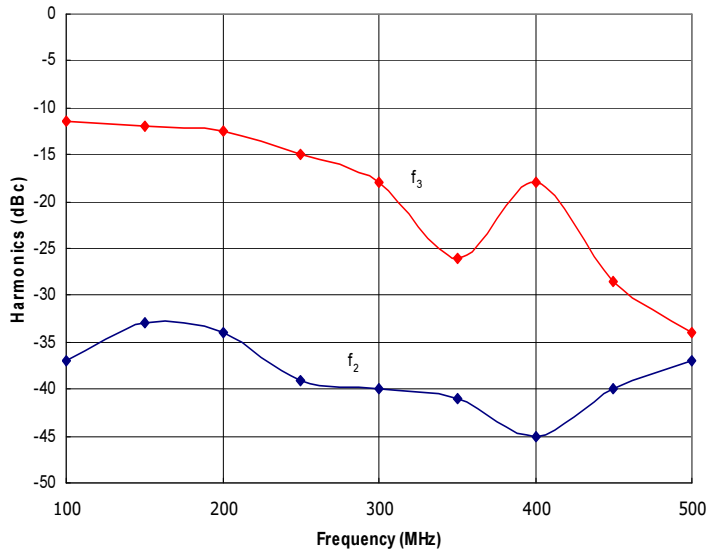

Figure 3: RFP100-500-100 Typical f_2 and f_3 @ P_{out}=100W.

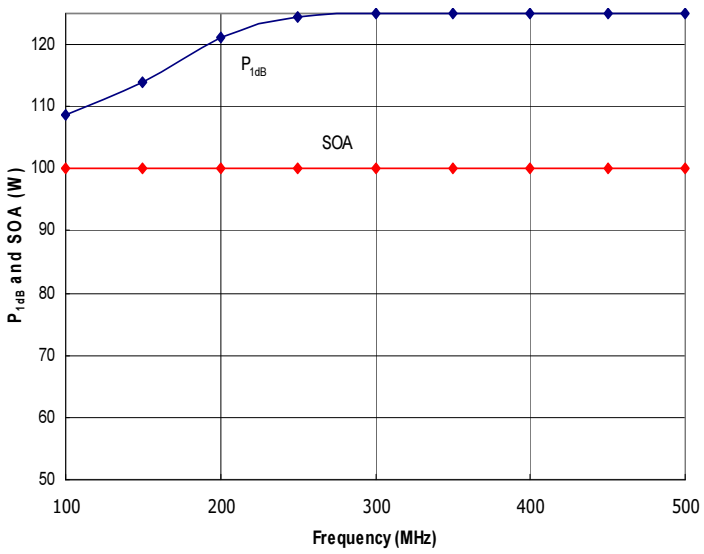

Figure 4: RFP100-500-100 Typical P_{1dB} and Safe Operating Area (SOA). Do not exceed the SOA shown above without first contacting RFMPT to discuss your application.

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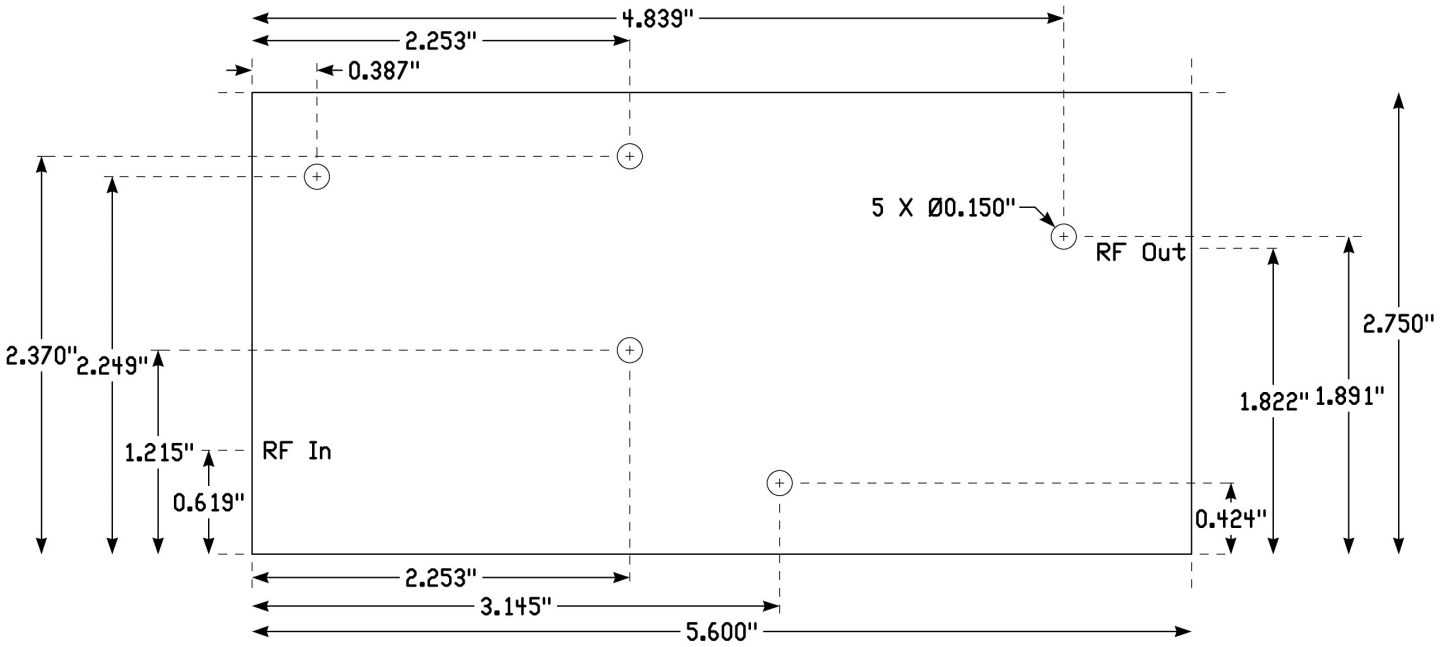
Amplifier Mounting Hole and RF Locations



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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 equivalent) to the underside of the amplifier housing. Thinner is better, but ensure that when mounted to your heatsink, contact across the *entire* module base is made. Gaps and air bubbles will significantly reduce cooling, leading to possible amplifier damage. Use five #6-32 screws to mount the amplifier to your heatsink.

2) Guarantee sufficient airflow through the heatsink fins to keep the maximum housing base temperature 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} and Ground wires to the terminal and pad provided. 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) 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	8-11-2016	Initial release.

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