

RFP27.12-1000XR

27.12MHz 1000W Class B ISM Amplifier

- ❖ Class B 1000W XR-rated amplifier
- ❖ 27.12MHz ISM band
- ❖ 84% typical efficiency
- ❖ 22dB typical gain
- ❖ Temperature-compensated bias
- ❖ TTL disable
- ❖ Available with SMA and N, or all N connectors, and/or heatsink and fan



Shown with optional N connectors.

The RFP27.12-1000XR is a very high power Class B amplifier designed specifically for demanding 27.12MHz ISM applications. It is ideal as an output stage in industrial, medical, or scientific systems. Combined in a multiple pallet configuration, it allows the system integrator to create rugged and efficient amplifier systems exceeding 25kW in a small footprint.

Specifications				
$V_{sup} = +50VDC, I_{DQ} = 0.2A, P_{out} = 1000W, T_{base} = 40^{\circ}C, Z_{load} = 50\Omega$				
Parameter	Min	Typ	Max	Units
Freq. Range		27.12		MHz
P_{3dB}^1	1000			W
Input Power		38	40	dBm
Gain	20	22		dB
Gain Flatness		N/A		dB
Drain Current		23.8	24.4	A
Efficiency ²	82	84		%
IRL		-25	-20	dB
f_2		-32	-25	dBc
f_3		-12	-10	dBc
Dimensions	2.95W X 5.65L X 2.10H (74.93 X 143.51 X 53.34)			inch (mm)

Maximum Ratings	
Operation beyond these ratings will void warranty.	
Parameter	Value
V_{supply}	46-50VDC
Bias Current	0.25 A
Drain Current ³	26.0A
Load Mismatch ⁴	10:1
Baseplate Temperature	60°C
Storage Temp.	-40°C to 85°C

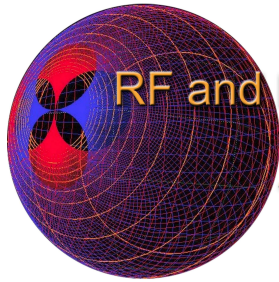
1. This is a highly non-linear amplifier. P_{3dB} is measured relative to 10dB drive back-off.
2. Measured under steady state conditions.
3. See Important Operating Notes on Page 3.
4. All phase angles, 1000W forward power, current limited to 26A for 5 seconds max. See Important Operating Notes on Page 3.

Option Ordering Info

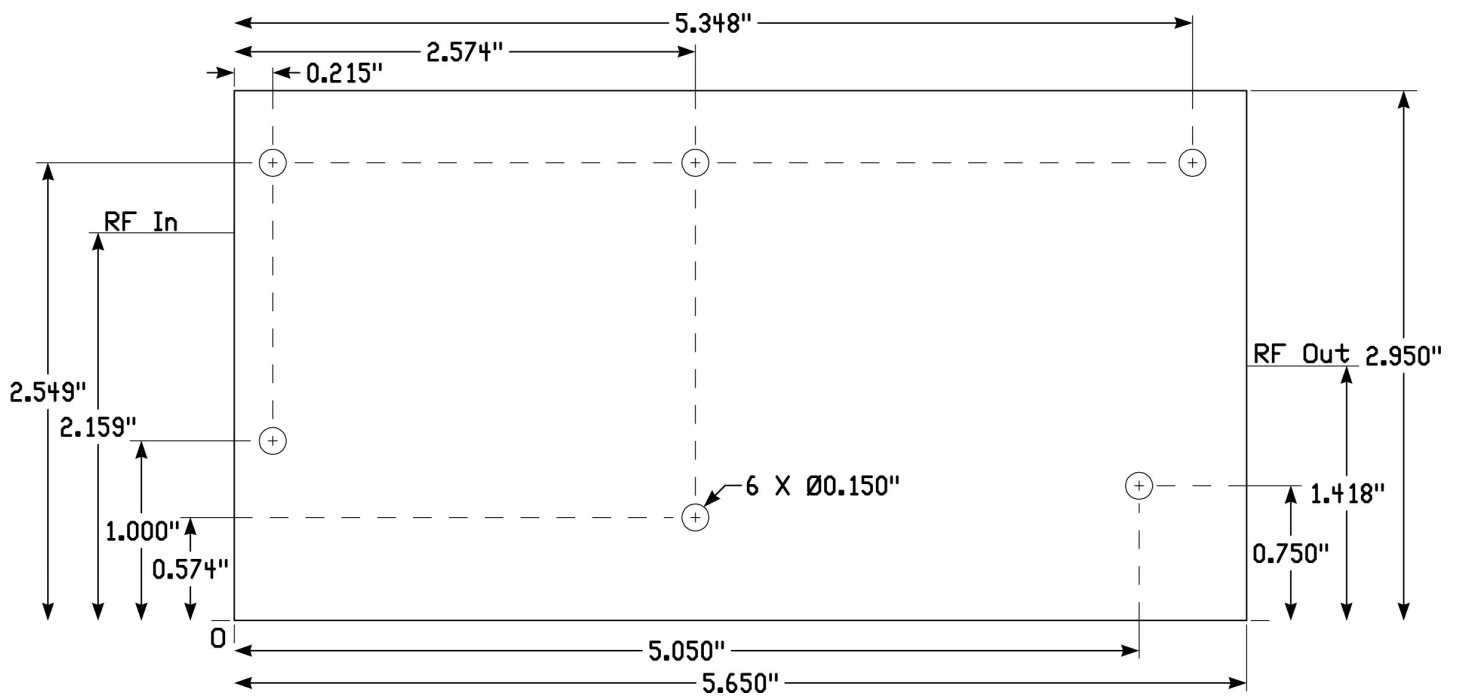
Heatsink and fan	RFP27.12-1000XR-HSF
N connectors	RFP27.12-1000XR-N
SMA In/N Out	RFP27.12-1000XR-SN

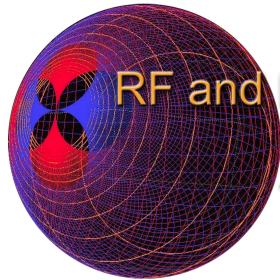
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Amplifier Mounting Hole and RF Locations





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RFP27.12-1000XR

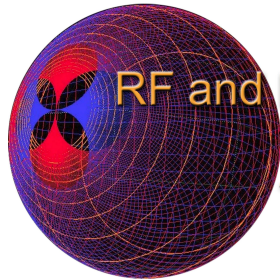
**27.12MHz 1000W
Class B ISM Amplifier**

Important Operating Notes

This is a very high power and efficient amplifier. However, in order to achieve high levels of efficiency and limit transistor power dissipation, it must be operated at, or near, full power. Reducing the CW output power to 850W, or driving the amplifier into a mismatched load, will increase transistor dissipation to the point that its lifetime will be reduced, at maximum rated baseplate temperature. For operation below 1000W or into mismatched loads, it is highly recommended that a high performance thermal compound (such as Wakefield Type 122) be used between the baseplate and heatsink. Alternatively, one can use a copper baseplate, but even so, one must maintain at least 600W output power, in addition to using a high performance thermal compound (for maximum baseplate temperature operation). Operation below 600W will likely require liquid cooling. Please contact RFMPT Technical Support before resorting to this.

The transistor and amplifier are designed to withstand high VSWR. However, it is the user's responsibility to take appropriate measures to limit VSWR to the rated specification, as well as limit the current drawn by the amplifier. Unlimited exposure to high VSWR and/or high DC current can cause amplifier damage, and is not covered by the warranty. It is left to the end user to ensure that appropriate system protection measures are employed to avoid damage to the amplifier. Please contact RFMPT for guidance if you are unsure how to properly protect the amplifier or system electrically and/or thermally, or for ordering the amplifier with a copper baseplate.





General Instructions for Amplifier Use

- 1) If not supplied with a heatsink, apply a layer of high quality thermal grease (Wakefield Type 120 or equivalent, Type 122 or equivalent for heavy thermal loads) 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 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 (or via cable to the RF IN pad), and desired load to the RF OUT connector (or via cable to the RF OUT pad). Torque connectors, if present, to industry standards for the type supplied with the amplifier. If cables are used, ensure that the PCB pad spacing is not compromised by exposed cable center conductor or shield.
- 4) Connect DC V_{supply} to the terminals provided. Use both terminals and heavy gauge wire capable of handling 25-30A total. Solder a similarly capable ground wire (or wires) 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. Do not exceed 1000W CW forward power, 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.

Please 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
Pre	7-3-2015	Preliminary release.
A	8-13-2015	Production release.

