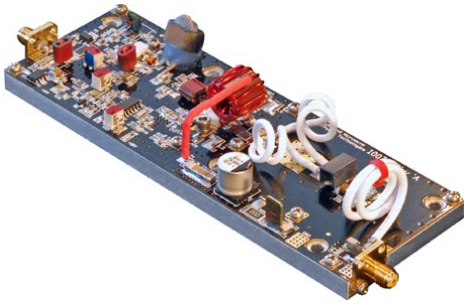
HD Communications Corp.

HD30709

88-108MHz 50W Class A/AB Amplifier

- **Class A/AB 50W amplifier**
- **88-108MHz bandwidth**
- **51dB typical gain**
- **Nearly flat gain response**
- **Temperature-compensated bias**
- **TTL disable**
- **Available with SMA connectors, heatsink and fan, as a module or a mini-system**



Shown with optional SMA connectors.

The HD30709 is a Class A/AB pallet amplifier, designed primarily for the FM radio broadcast market. It is excellent as a standalone amplifier or as a driver stage in FM radio systems, utilizing a combination of three active device technologies for optimum performance and ruggedness. Its high gain allows it to be driven to full power from signal generator levels.

Specifications

V_{sup} = +28VDC, I_{DQ} = 0.55A, P_{out} = 50W, T_{base} = 25°C, Z_{load} = 50Ω

Parameter	Min	Typ	Max	Units
Freq. Range	88		108	MHz
P_{1dB}	50	See Figure 4		W
Input Power		-4	0	dBm
Gain	47	51		dB
Gain Flatness		+/-0.1	+/-0.6	dB
Drain Current		3.2	3.5	A
Efficiency	51	56		%
IRL		-30	-20	dB
f_2		-34	-25	dBc
f_3		-26	-17	dBc
IMD_3 50W PEP, Δf=10kHz		-31	-25	dBc
Dimensions	2.00 X 5.70 X 1.25 (50.80 X 144.78 X 31.75)			inch (mm)

Maximum Ratings

Operation beyond these ratings will void warranty.

Parameter	Value
V_{supply}	24-30VDC
Bias Current	1.0A
Drain Current	4.8A
Load Mismatch*	3:1
Baseplate Temp.	70°C
Storage Temp.	-40°C to 85°C

*All phase angles, 50W forward power, current limited to 4.8A for 5 seconds max.

Option Ordering Info

SMA connectors	HD30709-SMA
Heatsink and fan	HD300709-HSF
Module	HD30709-Module
Mini-system	HD30709-Mini

HD Communications Corp. ● 332-C Dante Ct. ● Holbrook, NY ● 11741 USA
PH # (631) 588-3877 ● Fax# (631) 648-0518 ● sales@rfcomp.com ● www.rfcomp.com

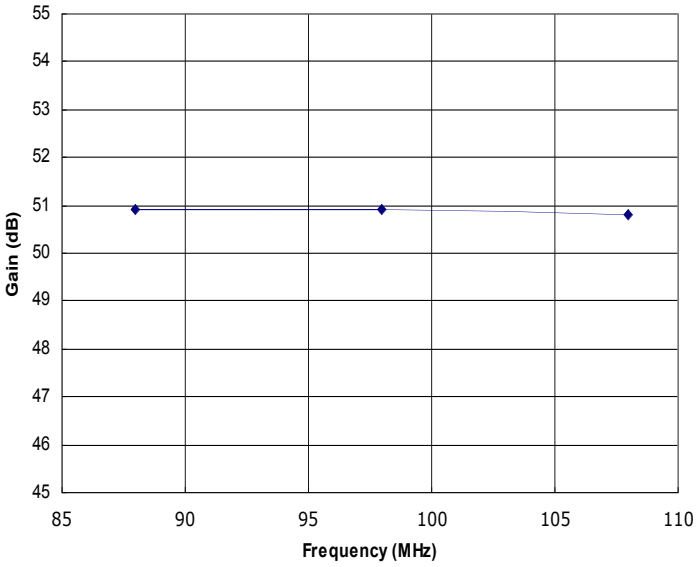


Figure 1: HD30709 Typical Gain @ P_{out} = 50W.

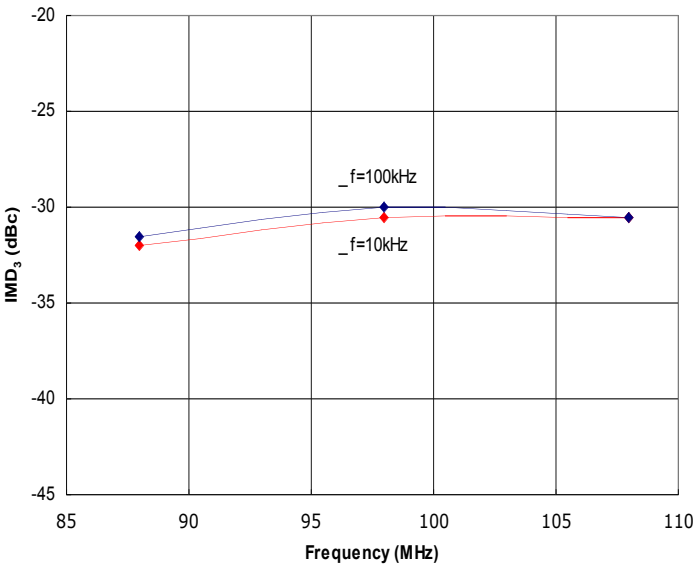


Figure 2: HD30709 Typical IMD_3, Δf=10kHz and 100kHz, @ P_{out} = 50W PEP. Data is provided for reference only; this is not intended to be a linear amplifier. For improved linearity, see our HD30709 Class A amplifier.

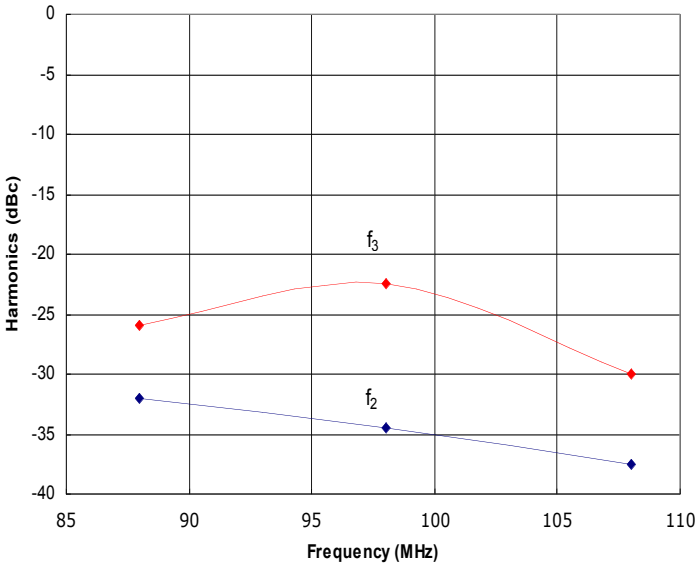


Figure 3: HD30709 Typical f_2 and f_3 @ P_{out} = 50W.

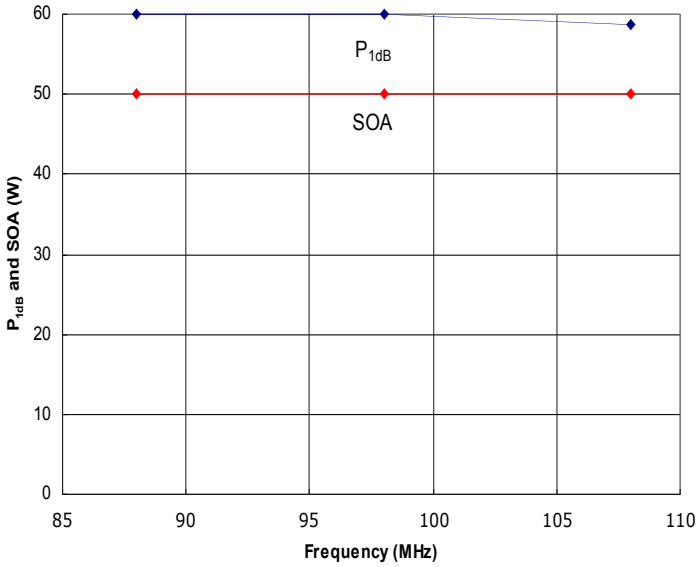
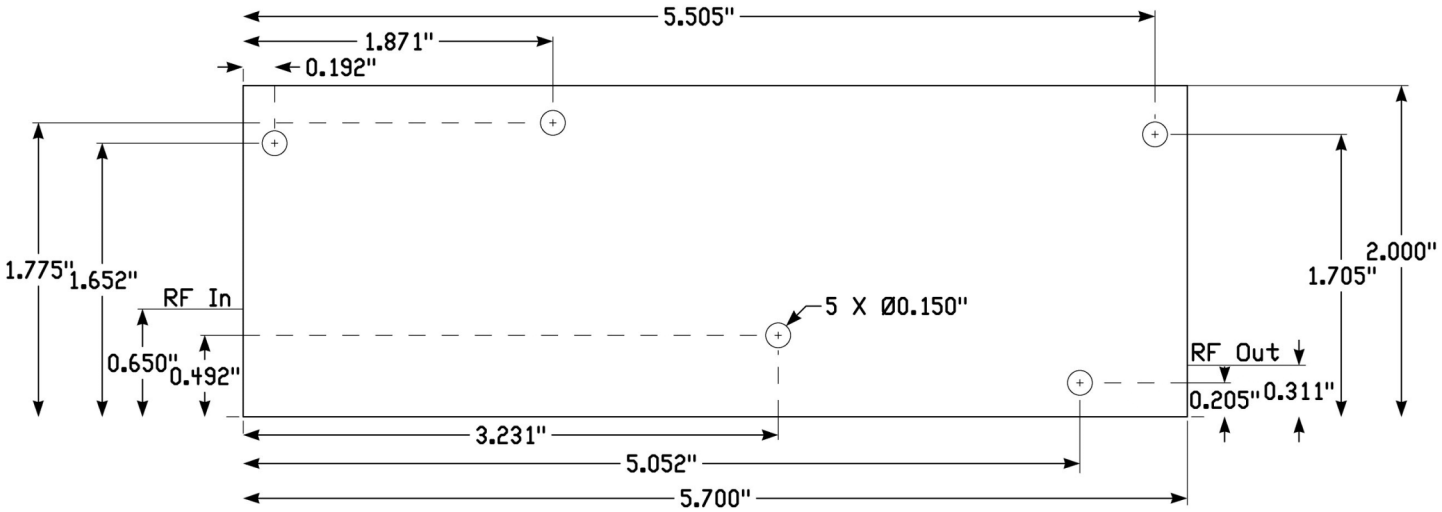


Figure 4: HD30709 Typical P_{1dB} and Safe Operating Area (SOA).

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 equivalent) 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 five #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 RF IN pad), and desired load to the RF OUT connector (or via cable to RF OUT pad). Torque connectors, if present, 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 and 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 us at sales@rfcomp.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	7-23-2015	Production release.