



170-230MHz 50W Class A High Performance Amplifier

- ❖ **Class A 50W linear amplifier**
- ❖ **170-230MHz bandwidth**
- ❖ **50dB typical gain**
- ❖ **+/- 0.3dB typical gain flatness**
- ❖ **Temperature-compensated bias**
- ❖ **50 ohms input/output**
- ❖ **Disable pad**
- ❖ **Available with SMA connectors and/or heatsink and fan**



Representative photo

The HD31370 is a Class A high performance amplifier, outstanding as a driver stage in analog or digital TV broadcast, or VHF communications systems. It exhibits excellent full power and back-off linearity, and utilizes a combination of three active device technologies for optimum performance and maximum ruggedness.

Specifications				
$V_{supply} = +28VDC, I_{DQ} = 6.9A, P_{out} = 50W, T_{base} = 25^{\circ}C, Z_{load} = 50\Omega$				
Parameter	Min	Typ	Max	Units
Freq. Range	170		230	MHz
P_{1dB}		>75		W
Input Power		-3	0	dBm
Gain	47	50		dB
Gain Flatness		+/-0.3	+/-0.6	dB
Drain Current		7.2	7.5	A
Efficiency	24	25		%
IRL		-22	-14	dB
f_2		-43	-34	dBc
f_3		-30	-24	dBc
IMD ₃ 50W PEP, $\Delta f=10kHz$ and $\Delta f=100kHz$. See Fig. 2 for 25W PEP.		-39	-33	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	6.9A
Drain Current	8.0A
Load Mismatch*	5:1
Housing Base Temperature	65°C
Storage Temperature	-40°C to 85°C

*All phase angles, 50W forward power, current limited to 8.0A.

Option Ordering Info	
SMA connectors	HD31370-SMA
Heatsink and fan	HD31370-HSF

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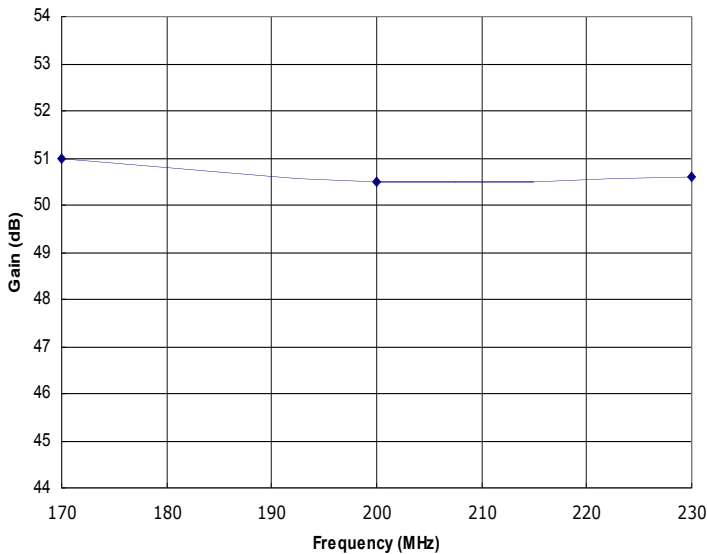


Figure 1: HD31370 Typical Gain @ $P_{out}=50W$.

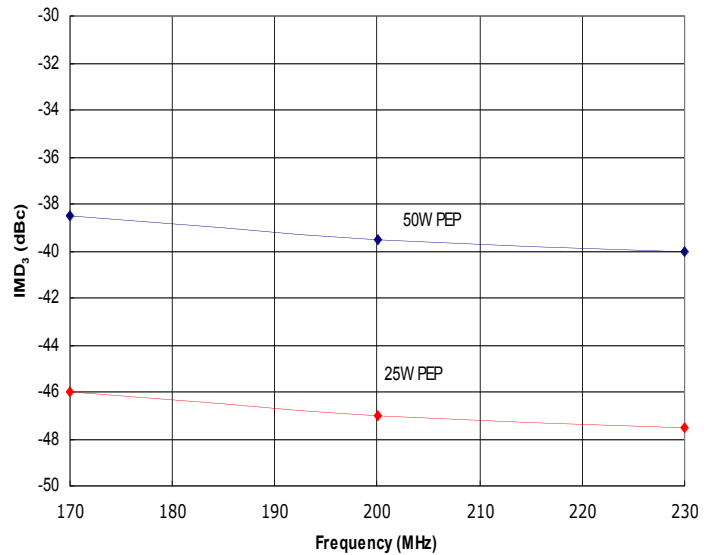


Figure 2: HD31370 Typical IMD₃ @ 50W and 25W PEP, $\Delta f=10kHz$ and $\Delta f=100kHz$.

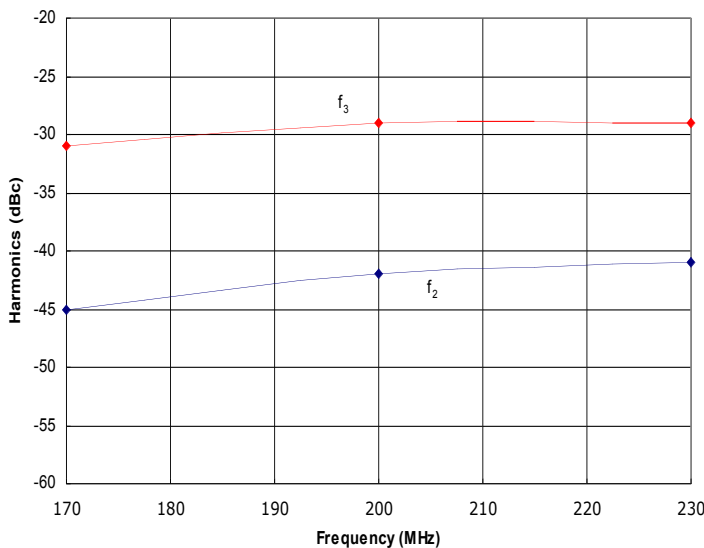


Figure 3: HD31370 Typical f_2 and f_3 @ $P_{out}=50W$.

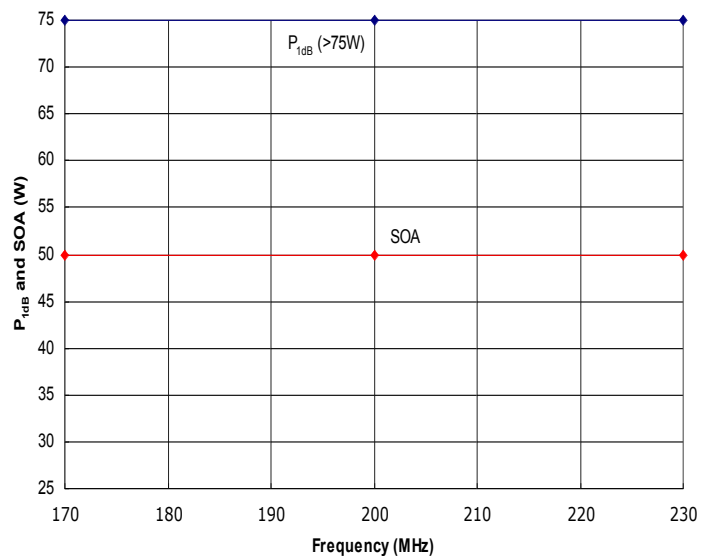
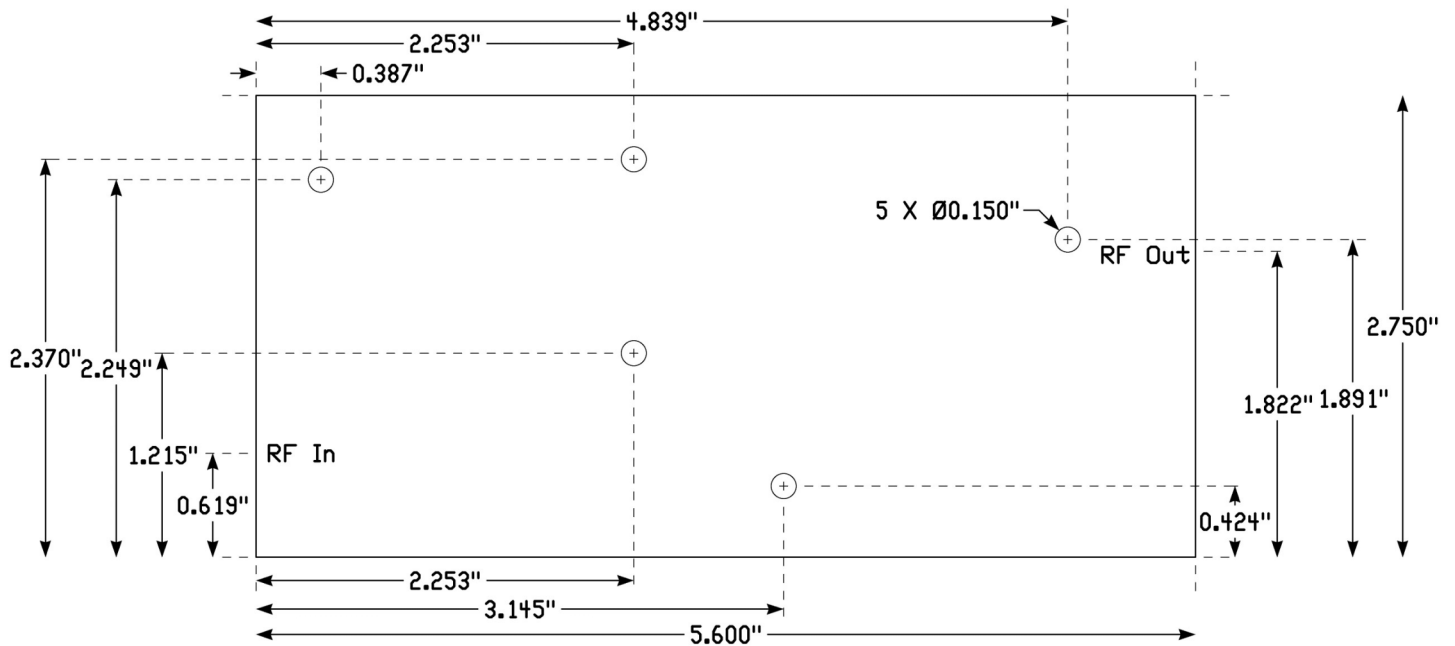


Figure 4: HD31370 Typical P_{1dB} and Safe Operating Area (SOA). The amplifier is capable of delivering much more power than it is safe to generate. Do not exceed the SOA shown above without first contacting HD Communications Corp. to discuss your application.



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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. *Although not required, a high performance thermal compound (Wakefield Type 122 or equivalent) may be used, and will enhance ruggedness and extend amplifier lifetime by reducing output transistor die temperature.*
- 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 HD Communications Corp. 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 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	8-12-2016	Initial release.