

**Communications Corp.**

**HD31344**

**20-512MHz 100W Class A/AB  
High Performance Amplifier**

- ❖ **Class A/AB 100W amplifier**
- ❖ **20-512MHz ultra-broadband**
- ❖ **53dB typical gain**
- ❖ **+/- 0.7dB typical gain flatness**
- ❖ **Temperature-compensated bias**
- ❖ **50 ohms input/output**
- ❖ **Available with disable, heatsink and fan, or as a Mini-System**

The HD31344 is a Class A/AB high performance amplifier module, perfect as a standalone laboratory amplifier, or as a driver stage in military, industrial, medical, or scientific systems. It utilizes a combination of three active device technologies for optimum performance and maximum ruggedness.

<b>Specifications</b>				
$V_{supply} = +28VDC, I_{DQ} = 1.6A, P_{out} = 100W, T_{base} = 25^{\circ}C, Z_{load} = 50\Omega$				
Parameter	Min	Typ	Max	Units
Freq. Range	20		512	MHz
$P_{1dB}$ See Fig. 4 for 30V performance.	90	110	See Fig. 4	W
Input Power		-3	0	dBm
Gain	50	53		dB
Gain Flatness		+/-0.7	+/-1.5	dB
Drain Current		7.0	7.9	A
Efficiency	45	51		%
IRL		-21	-14	dB
$f_2$		-33	-23	dBc
$f_3$		-17	-9	dBc
$IMD_3$ 100W PEP, $\Delta f=10kHz$ . See Fig. 2 for 50W PEP.		-30	-23	dBc
Dimensions	3.20 X 6.05 X 1.30 (81.28 X 153.67 X 33.02)			inch (mm)

<b>Maximum Ratings</b>	
Operation beyond these ratings may damage amplifier.	
Parameter	Value
$V_{supply}$	24-30VDC
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, 24-28VDC, 100W forward power, current limited to 9.0A.

<b>Option Ordering Info</b>	
Disable	HD31344-DIS
Heatsink and fan	HD31344-HSF
Mini-System	HDS31344

### 20-512MHz 100W Class A/AB High Performance Amplifier

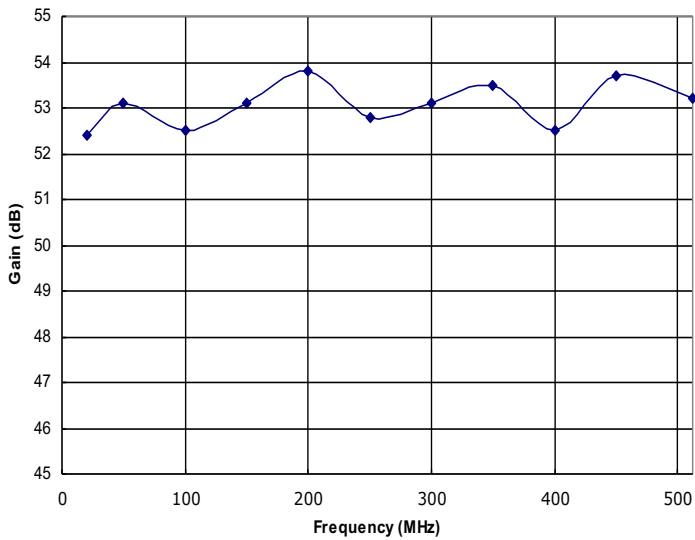


Figure 1: HD31344 Typical Gain @  $P_{out}=100W$ .

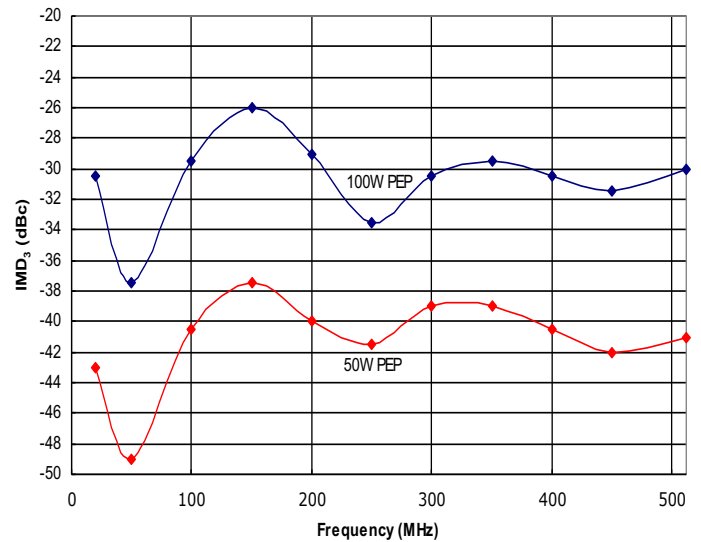


Figure 2: HD31344 Typical  $IMD_3$  @ 100W and 50W PEP,  $\Delta f=10kHz$ .

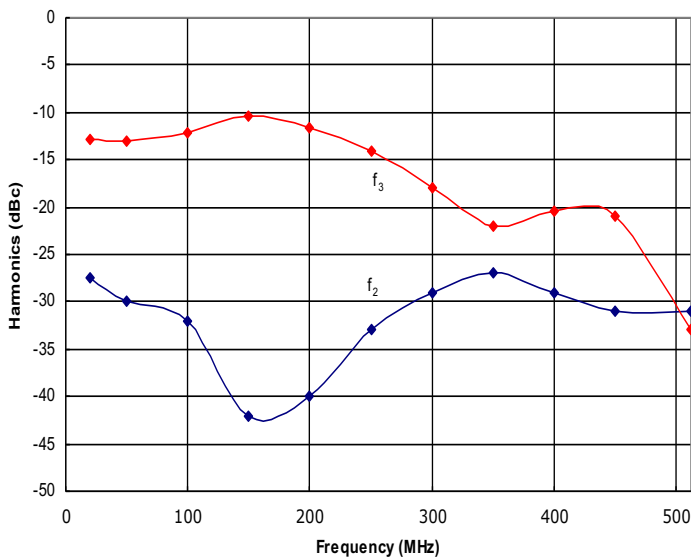


Figure 3: HD31344 Typical  $f_2$  and  $f_3$  @  $P_{out}=100W$ .

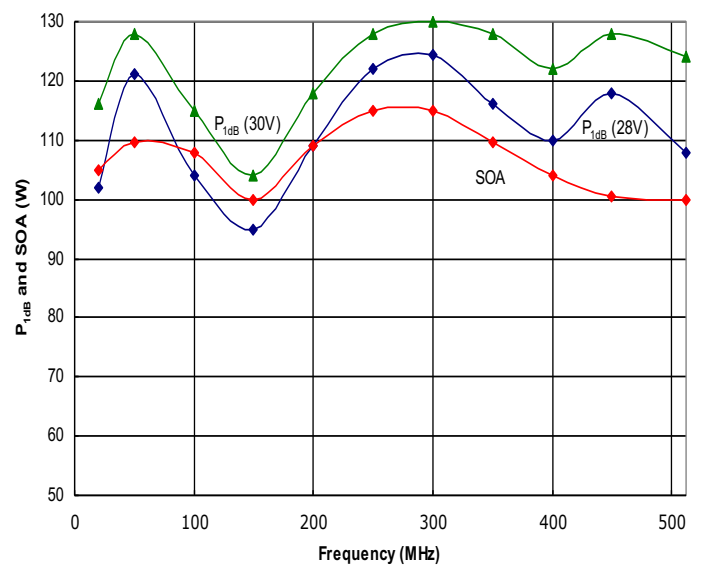
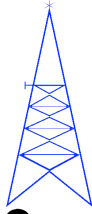


Figure 4: HD31344 Typical  $P_{1dB}$  @ 28VDC and 30VDC, and Safe Operating Area (SOA). **Do not exceed the SOA shown above without first contacting HD to discuss your application.**

# HD

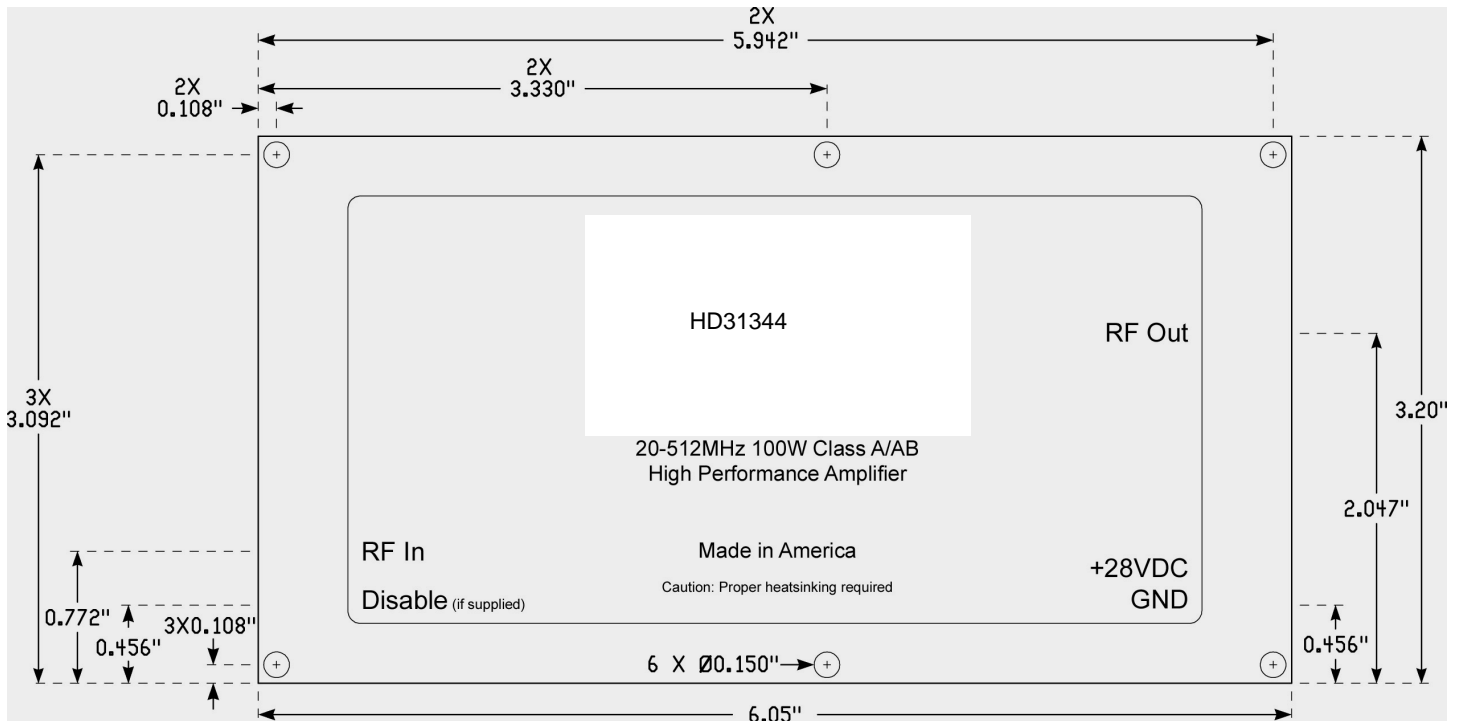


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## Amplifier Mounting Hole and RF Locations





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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 six #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 HD 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 terminals 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@hdcom.com](mailto:sales@hdcom.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	8-1-2016	Initial release.
B	10-30-2017	Updated amplifier mounting hole drawing.