

30-512MHz 20W Class A High Performance Amplifier

- ❖ Class A 20W linear amplifier
- ❖ 30-512MHz bandwidth
- ❖ 46dB typical gain
- ❖ +/- 1.0dB typical gain flatness
- ❖ Temperature-compensated bias
- ❖ 50 ohms input/output
- ❖ Available with disable, heatsink and fan, or enclosed with DC supply



The HD30669 is a Class A amplifier module, outstanding as a driver stage in military communications systems. It exhibits excellent full power and back-off linearity, and utilizes all gold metallized MOSFETs for exceptional ruggedness. Detailed graphical data is provided for both +28VDC and +24VDC operation.

Specifications

$V_{sup} = +28VDC$, $I_{DQ} = 3.45A$, $P_{out} = 20W$, $T_{base} = 25^{\circ}C$, $Z_{load} = 50\Omega$

Parameter	Min	Typ	Max	Units
Freq. Range	30		512	MHz
P_{1dB}	20	See Figure 4		W
Input Power		-3	0	dBm
Gain	43	46		dB
Gain Flatness		+/-1.0	+/-1.5	dB
Drain Current		3.50	3.75	A
Efficiency	19	20.4		%
IRL		-20	-14	dB
f_2		-38	-25	dBc
f_3		-45	-25	dBc
IMD ₃ 20W PEP, $\Delta f = 10kHz$ See Fig. 2 for 10W		-33	-28	dBc
Dimensions	2.30 X 4.65 X 1.31 (58.42 X 118.11 X 33.27)			inch (mm)

Maximum Ratings

Operation beyond these ratings will void warranty.

Parameter	Value
V_{supply}	24-28VDC
Bias Current	3.5A
Drain Current	4.0A
Load Mismatch*	5:1
Housing Base Temperature	70°C
Storage Temp.	-40°C to 85°C

*All phase angles, 20W forward power, current limited to 4.0A for 5 seconds max.

Option Ordering Info

Disable (TTL, active high)	HD30669-DIS
Heatsink and fan	HD30669-HSF
Enclosure with DC supply and fan	HD30669

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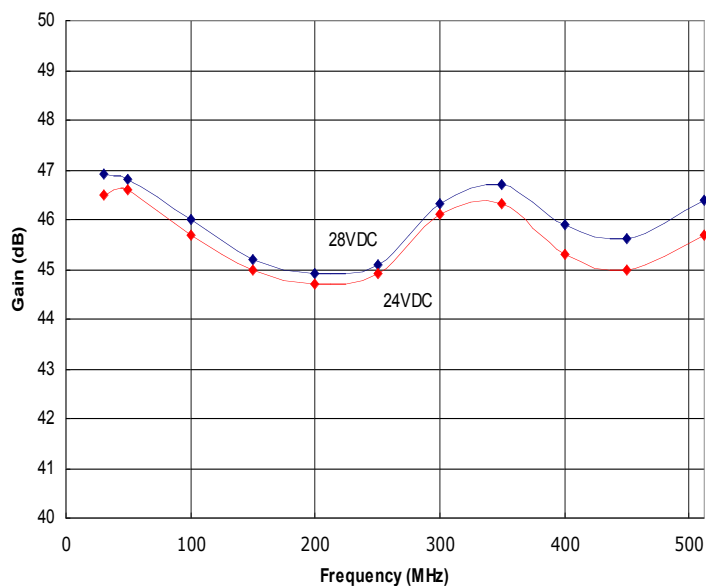


Figure 1: HD30669 Typical Gain @ $P_{out} = 20W$, 28VDC and 24VDC.

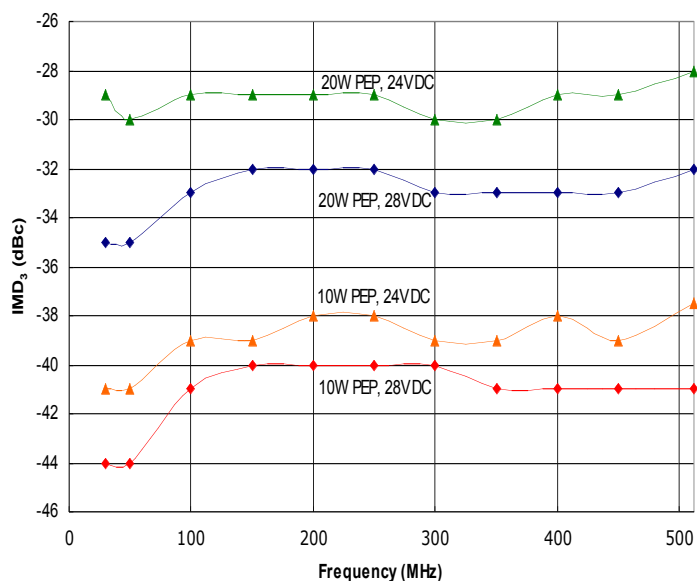


Figure 2: HD30669 Typical IMD_3 , $\Delta f=10kHz$, @ $P_{out}=20W$ and 10W PEP, 28VDC and 24VDC.

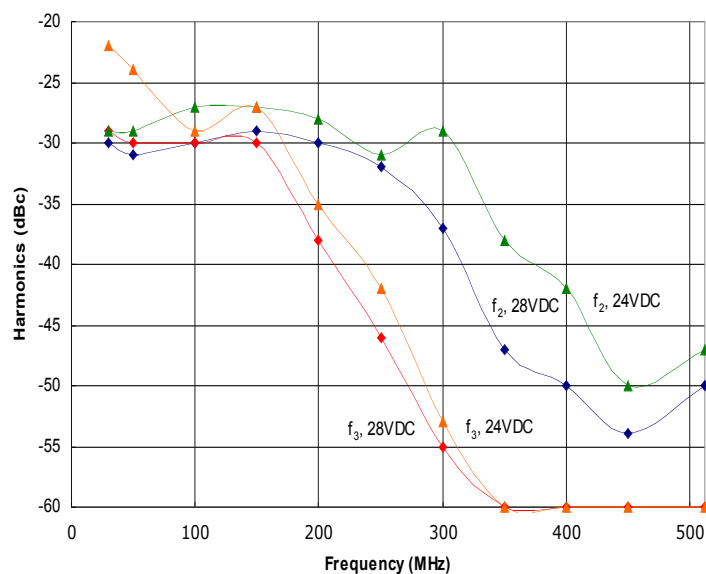


Figure 3: HD30669 Typical f_2 and f_3 @ $P_{out} = 20W$, 28VDC and 24VDC.

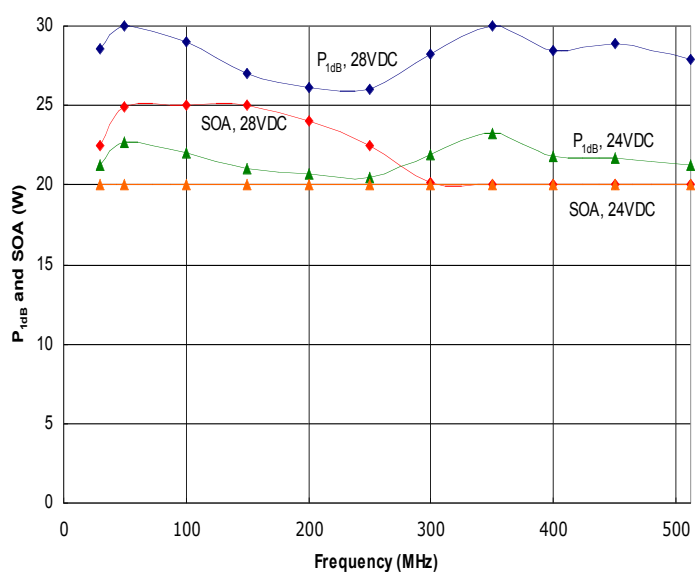
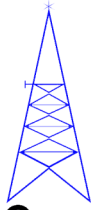


Figure 4: HD30669 Typical P_{1dB} and Safe Operating Area (SOA), 28VDC and 24VDC. The amplifier is capable of delivering more power than it is safe to generate. Do not exceed the SOA without first contacting HD Communications Corp. to discuss your

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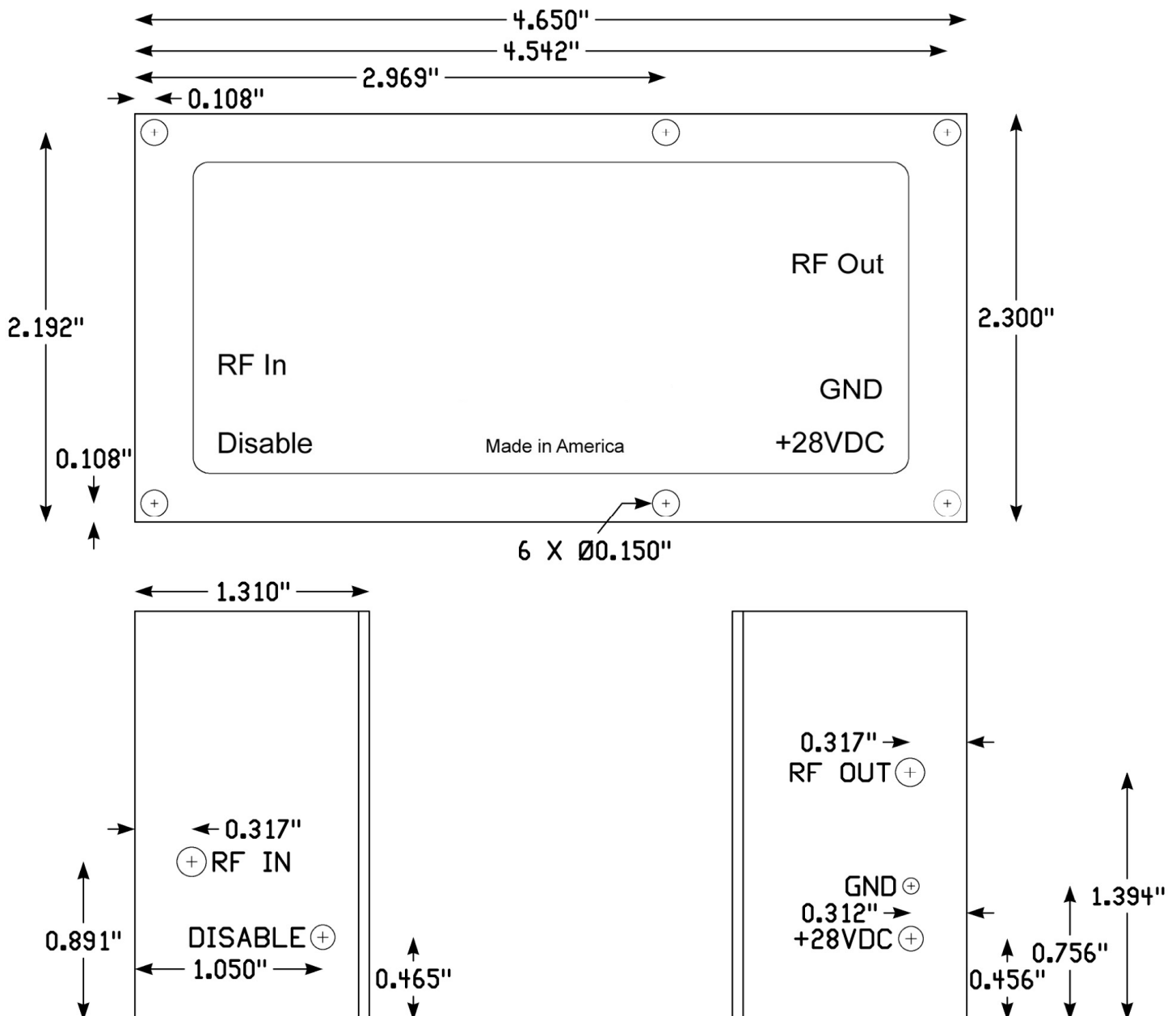


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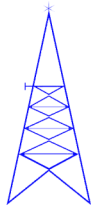
application.

Amplifier Dimensions





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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* housing 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 sales@hdcom.com 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 and sufficient RF drive to achieve desired output level. Ensure that the applicable 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 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
Pre	4-27-2015	Preliminary release.
A	6-7-2015	Initial production release.