

**1-525MHz 20W Class A  
High Performance Amplifier  
Mini-System**

- ❖ **Class A 20W high performance amplifier mini-system**
- ❖ **1-525MHz ultra-broadband**
- ❖ **46dB typical gain**
- ❖ **+/- 1.0dB typical gain flatness**
- ❖ **Temperature-compensated bias**
- ❖ **50 ohms input/output**
- ❖ **Thermal protection (auto reset)**



The HD30706 is a Class A high performance amplifier mini-system, complete with power supply, heatsink, fan and thermal protection. It is excellent as a standalone laboratory bench amplifier, or as a driver for production testing or broadband systems development. It exhibits excellent full power and back-off linearity, and utilizes all gold metallized MOSFETs for exceptional ruggedness.

**Specifications**

$P_{out} = 20W, T_{ambient} = 25^{\circ}C, Z_{load} = 50\Omega$

Parameter	Min	Typ	Max	Units
Freq. Range	1		525	MHz
$P_{1dB}$	20	See Figure 4		W
Input Power		-3	0	dBm
Gain	43	46		dB
Gain Flatness		+/-1.0	+/-1.5	dB
IRL		-20	-14	dB
$f_2$		-40	-25	dBc
$f_3$		-45	-25	dBc
$IMD_3$ 20W PEP, $\Delta f=10kHz$ See Fig. 2 for 10W		-34	-28	dBc

**Maximum Ratings**

Operation beyond these ratings will void warranty.

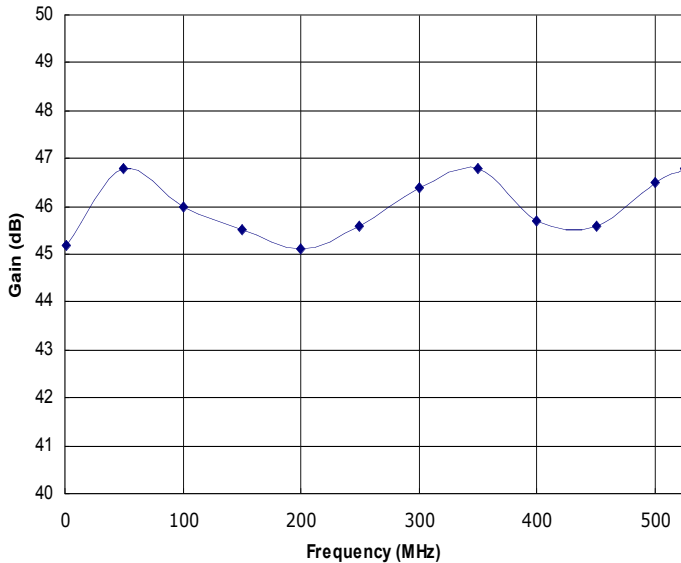
Parameter	Value
Load Mismatch*	5:1
Ambient operating temperature	0°C to 45°C (non-condensing humidity)
Storage Temperature	-40°C to 85°C

\*All phase angles, 20W forward power, 5 seconds max.

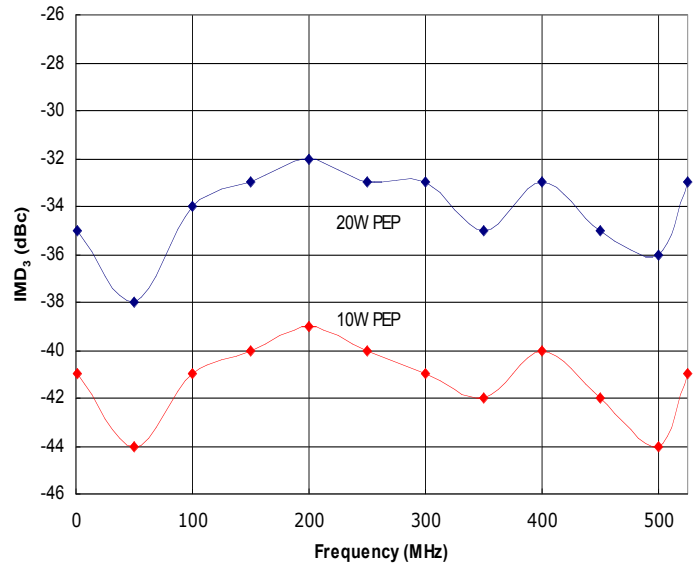
**Electrical and Mechanical**

Connectors	Input/Output: SMA
$V_{supply}$	88-264VAC 47-63Hz, 1 $\Phi$ , 2.0A
Dimensions	8.0 X 12.1 X 5.7 inch (203 X 307 X 145) (mm)

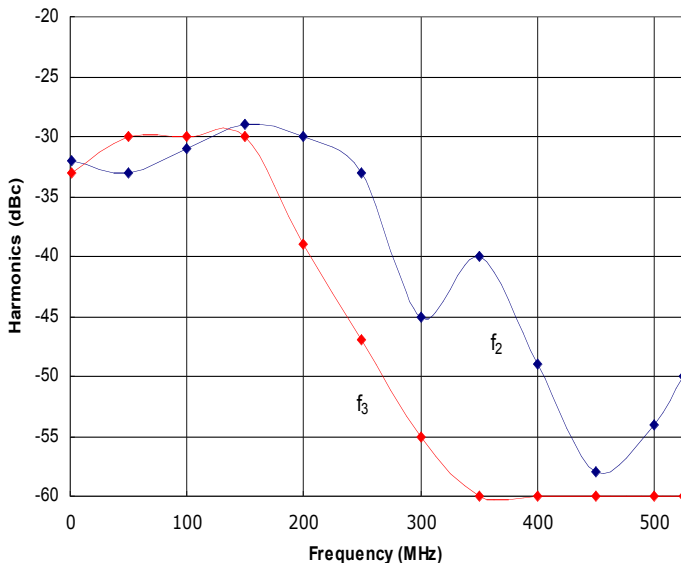
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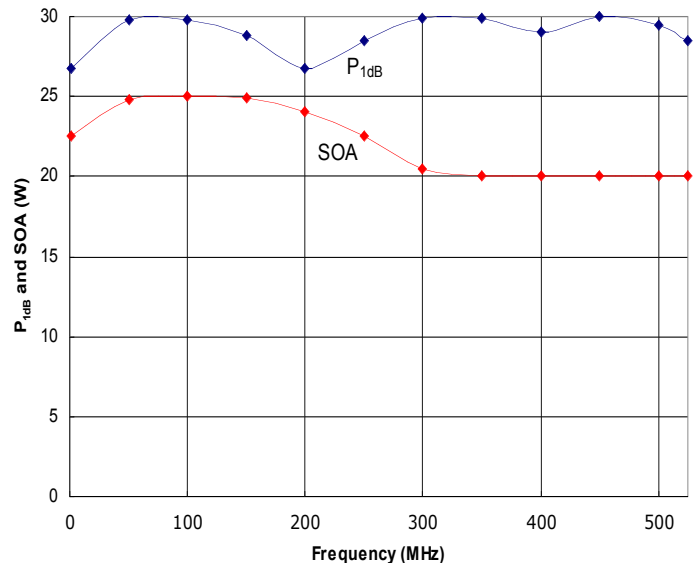
**Figure 1: HD30706 Typical Gain @  $P_{out} = 20W$ .**



**Figure 2: HD30706 Typical  $IMD_3$ ,  $\Delta f = 10kHz$ , @  $P_{out} = 20W$  and  $10W$  PEP.**



**Figure 3: HD30706 Typical  $f_2$  and  $f_3$  @  $P_{out} = 20W$ .**



**Figure 4: HD30706 Typical  $P_{1dB}$  and Safe Operating Area (SOA). The amplifier is capable of delivering more power than it is safe to generate. Do not exceed the SOA without first contacting HD to discuss your application.**



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**Instructions for Amplifier Use**

- 1) This amplifier requires unobstructed airflow from the front to the rear of the unit. Ensure sufficient clearance is allowed behind the amplifier for cooling air exhaust. Do not allow foreign objects to block or enter the air intake vents on the front panel.
- 2) Provide AC power to the amplifier as specified in the Electrical and Mechanical section on Page 1.
- 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) Turn the amplifier on, and verify that the DC ON light illuminates. If it doesn't, verify that the fuse in the AC input connector is not blown. Replace fuse if necessary, as per the ratings specified on the rear panel.
- 5) Apply 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 power down and disconnect the amplifier, first remove the RF drive, turn off the AC power, then remove the RF connections.

**Note on thermal protection:** The thermal protection circuit only removes power from the amplifier inside. When activated, the front panel DC ON light will still be illuminated, and the fan will still be moving air. If the light and fan are on, but there is no RF output, turn off the RF source, wait five minutes for the amplifier to cool, then apply RF again. The thermal protection is auto-resetting.

**Document Control**

Revision	Date	Notes
A	7-29-2015	Production release.