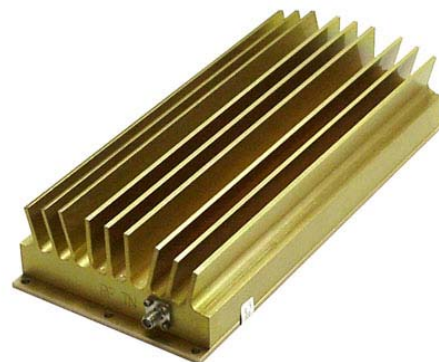


## MIL Grade High Power Amplifier

**ZHM-2000** was designed to be used as a laboratory amplifier for all medium power testing needs from 600 MHz to 2.0 GHz. This single source power amplifier can also be used in any application where medium power and very high gain are required in a rugged environment. This class A unit has an extremely broadband gain and power response.

**ZHM-2000** delivers a minimum of 9.0 watts of output power from 1 GHz to 2.0 GHz and 22 watts from 1.20 GHz to 1.75 GHz. The small signal gain from 600 MHz to 2.0 GHz is typically greater than 40 dB. The OIP3 at 1.5 GHz with a two-tone spacing of 1 MHz is 54 dBm at a single tone output power of 39.8 dBm. Input and Output VSWR is always < 1.32 from 0.6 to 2.0 GHz.

This amplifier operates from a +12 Vdc supply with a quiescent current of 7.0 amps typ. Internal over current protection is standard. SMA female input / output connectors are standard. Unit can be configured with an external shutdown capability if desired.



- 9 Watts Minimum Output Power,
- 26 Watts Maximum from 1 to 2 GHz
- 5 dB Noise Figure
- 54 dBm OIP3 Typ
- >40 dB Small Signal Gain Typ

Electrical Specifications					
PARAMETER	MIN.	TYP.	MAX	UNITS	SYMBOL
Operating Frequency	600	1000	2000	MHz	BW
Output Power CW	9.0	20	26.0	Watt	P <sub>SAT</sub>
Output Power @ 1 dB Gain Compression Point				Watt	P <sub>1dB</sub>
Small Signal Gain	48	50	52	dB	G <sub>SS</sub>
Small Signal Gain Flatness				dB	ΔG
Third Order Intercept Point 2-Tones, P <sub>OUT</sub> = 4 W Avg., Δ = 25 – 500 KHz			54	dBm	IP3
Input/Output Return Loss				dB	S <sub>11</sub> /S <sub>22</sub>
Noise Figure	4	5	6	dB	NF
Harmonics @ P1 dB Gain Compression Point			-45	dBc	H
Spurious Signals				dBc	Spur
Operating Voltage	10	12	13.5	Volt	Vdc
Supply Current @ P <sub>OUT</sub> = 25 W CW			8	Amp	I <sub>DD</sub>
Supply Current @ P <sub>OUT</sub> = 4 W Composite			7.5	Amp	I <sub>DD</sub>



# ZHM-2000

## MIL Grade High Power Amplifier

Mechanical Specifications			
PARAMETER	VALUE	UNITS	LIMITS
Dimensions	4" X 8.25" X 2"	Inch	Max
Weight	2.0	lb	Max
RF Connectors In/Out	SMA Female		
DC Connectors			
Cooling	External Heatsink		

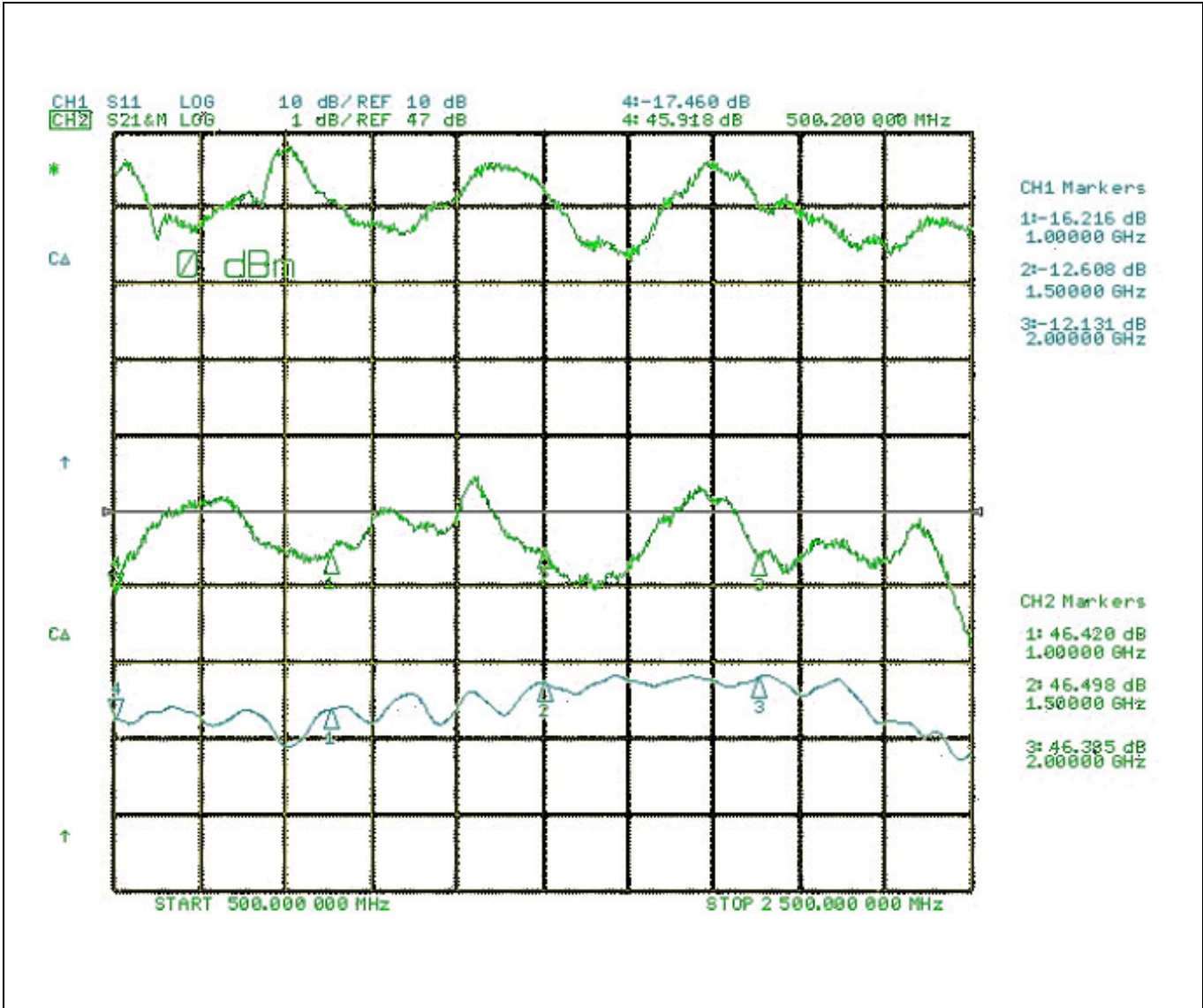
Environmental Characteristics (Design to Meet)					
PARAMETER	MIN.	TYP.	MAX	UNITS	SYMBOL
Operating Case Temperature	-10		+50	°C	Tc
Storage Temperature	40		+85	°C	Tstg
Relative humidity (non-condensing)			95	%	RH
Altitude (MIL-STD-810F Method 500.4)	10,000		30,000	Feet	ALT
Shock / Vibration (MIL-STD-810F Method 516.5)		Airborne			SH / VI

Protections		
Input Overdrive	+6 dBm	Max
Over Power Shutdown (Optional)	N/A	Min
Load VSWR @ 25 W output power	∞ @ all load phase & amplitude for duration of 1 minute 3:1 @ all load phase & amplitude continuou	Nom
Thermal Overload	85°C shutdown	Max

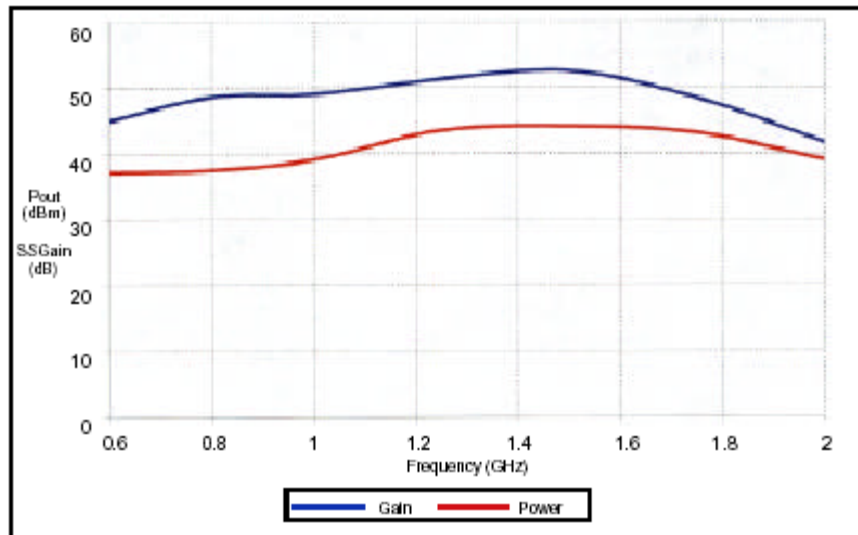
**MIL Grade High Power Amplifier**

TYPICAL PERFORMANCE PLOTS

Driver Small Signal Gain and  $P_{SAT}$   
 Top Curve: Small Signal Gain @  $P_{IN} = -20\text{dBm}$   
 Middle Curve: Power Gain @  $P_{SAT}$ ,  $P_{IN} = 0\text{dBm}$   
 Reference; 47dB, 1dB/div  
 Bottom Curve: Input Return Loss  
 Reference: 10dB, 10dB/div



**MIL Grade High Power Amplifier**



**Performance from 1.0 to 2.0 GHz @ 25° C**