

MIL Grade High Power Amplifier

This amplifier operates from 20 MHz to 2500 MHz, ideal for broadband military platforms as well as commercial applications because it is robust and offers high power over a multi-decade bandwidth. It was designed for broad band jamming and communication systems platforms. It is packaged in a modular housing that is approximately 4.5" (width) by 7.5" (long) by 2.0" (height). This amplifier has a typical P3dB of 50-100 watts at room temperature.

Noise figure at room temperature is 8.0 dB typical. It offers a typical gain of 55 dB with a typical gain flatness of ± 3.0 dB. The power and gain flatness across the band is very flat for the bandwidth. Input VSWR is 2.0:1 maximum. Class AB quiescent current is ~5.0 amps typical employing a +28 Vdc supply. This PA operates from a +28 Vdc input voltage. It operates from -40C to +85C base plate.



- Gallium Nitride Broadband Power Amplifier
- Operation from 20 MHz to 2500 MHz min
- 50 to 100 Watts typical
- +28 Vdc
- 20 uSec DC Blanking Time

Electrical Specifications

PARAMETER	MIN.	TYP.	MAX	UNITS	SYMBOL
Operating Frequency	20		2500	MHz	BW
Output Power CW	52		55	Watt	P_{SAT}
Small Signal Gain	51.5	54	56	dB	G_{1dB}
Input Power for Rated P_{OUT}		0		dBm	P_{IN}
Switching Speed, 1kHz TTL @ $P_{IN} = 0dBm$			1	uSec	$T_{ON/OFF}$
Small Signal Gain Flatness			± 2.5	dB	ΔG
Third Order Intercept Point 2-Tones, 33dBm/Tone., $\Delta = 100$ KHz		+48		dBm	IP3
Input Return Loss			-10	dB	S_{11}
Noise Figure@ minimum attenuation			15	dB	NF
Harmonics @ Rated $P_{1dB} = 10W$			-9	dBc	H
Spurious Signals			-60	dBc	Spur
Operating Voltage	26	28	32	Volt	Vdc
Current consumption			6.5	Amp	I_{DC}



ZHM20-2500/50

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Mechanical Specifications			
PARAMETER	VALUE	UNITS	LIMITS
Dimensions	4.5" X 7.5" X 2.0"	Inch	Max
Weight	2.0	lb	Max
RF Connectors In/Out	SMA Female		
DC Connectors			
Cooling	External Heatsink (Not Supplied)		

Environmental Characteristics (Design to Meet)					
PARAMETER	MIN.	TYP.	MAX	UNITS	SYMBOL
Operating Case Temperature	-40		+85	°C	T _c
Storage Temperature	-40		+85	°C	T _{stg}
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	+15 dBm	Max
Load VSWR @ 25 W output power	∞ @ all load phase & amplitude for duration of 1 minute 3:1 @ all load phase & amplitude continuous	Nom

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TYPICAL PERFORMANCE PLOTS

Small Signal Gain and P1dB

Top Curve: Small Signal Gain @ PIN = -20dBm
 Middle Curve: Power Gain @ P1dB, PIN = -5.0dBm
 Reference: 42dB, 2dB/div.
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/div.

