ZHM 10G/1
SPECIAL MICROWAVE WIDEBAND AMPLIFIER DC - 10 GHz

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This is a medium power broadband amplifier for labs or testing purposes. This amplifier is excellent for SUHF band DC - 10 GHz. The gain is over 40 dB. The maximum power is 1 W. Minimum required driving power is only 1 mW. This amplifier is recommended for testing, labs, Space research, Mil applications etc.

This is a medium power, super broadband RF amplifier that operates from 40 MHz to 1 GHz, ideal for broadband military platforms as well as commercial applications because it is robust and offers high power over an extremely large bandwidth with decent power added efficiency. It was designed for broad band jamming and communication systems platforms. It is packaged in a modular housing that is approximately 2.5" (width) by 3.25" (long) by 0.8" (height). This amplifier has a typical saturated output power of 5-10 watts at room temperature.
Noise figure at room temperature is 10.0 dB typical. It offers a typical gain of 50 dB with a typical gain flatness of ± 4.0 dB. The power and gain flatness across the band is very flat for the bandwidth. Input VSWR is 2.0:1 typical. This amplifier operates from -40C to +85C base plate temperature.

FOR US GOVERNMENT AGENCIES ONLY!

Typical Applications

- Telecom Infrastructure
- Microwave Radio & VSAT
- Military
- Space
- Test Instrumentation
- Fiber Optics

Features

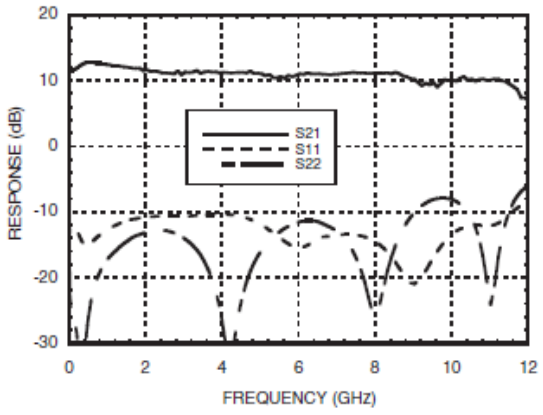
- P1dB Output Power: +27 dBm
- Gain: 22 dB
- Output IP3: +37 dBm
- Supply Voltage: +12V @ 300 mA
- 50 Ohm Matched Input/Output
- 32 Lead 5x5mm Lead SMT Package: 25mm2

Electrical Specifi cations, T_A = +25° C, Vdd= +12V, Vgg2= +5V, Idd= 300 mA*

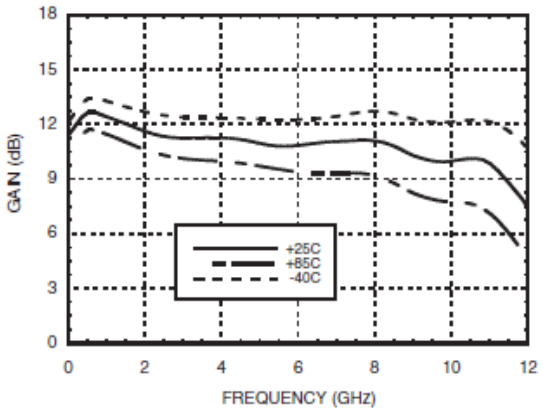
Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range		DC - 2.0			2.0 - 8.0			8.0 - 10.0		GHz
Gain	10	12		9	11		8	10.5		dB
Gain Flatness		±0.5			±0.25			±0.5		dB
Gain Variation Over Temperature		0.016			0.02			0.03		dB/ °C
Input Return Loss		11			12.5			17		dB
Output Return Loss		16			16			12		dB
Output Power for 1 dB Compression (P1dB)		28		25	27		23	25		dBm
Saturated Output Power (Psat)		29			28			25.5		dBm
Output Third Order Intercept (IP3)		41			37			32		dBm
Noise Figure		5			5			7		dB
Supply Current (Idd) (Vdd= +12V, Vgg1= -0.8V Typ.)		300			300			300		mA

* Adjust Vgg1 between -2 to 0V to achieve Idd= 300 mA typical.

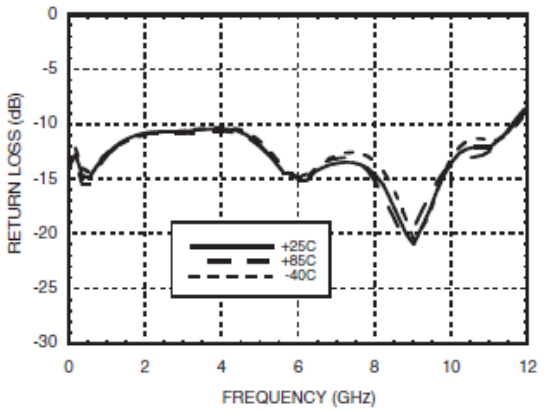
Gain & Return Loss



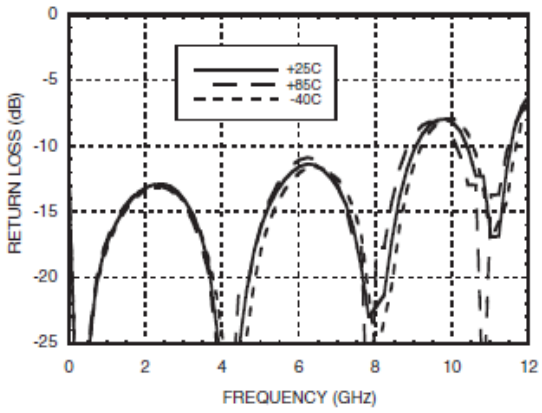
Gain vs. Temperature



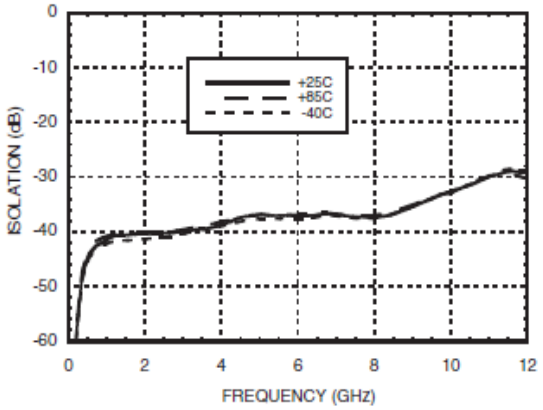
Input Return Loss vs. Temperature



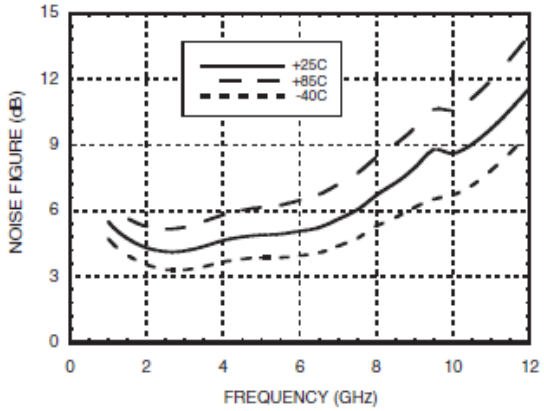
Output Return Loss vs. Temperature



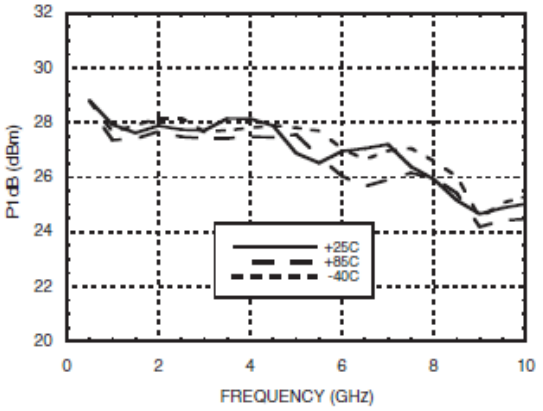
Reverse Isolation vs. Temperature



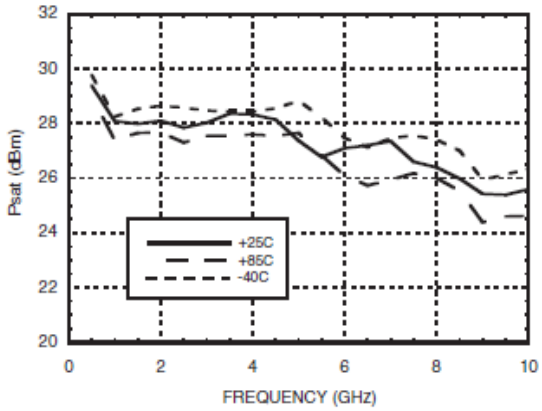
Noise Figure vs. Temperature



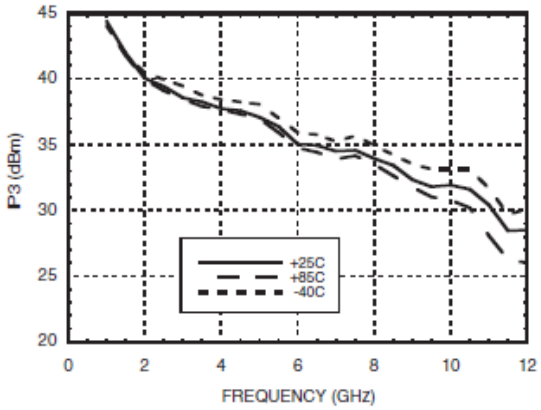
P1dB vs. Temperature



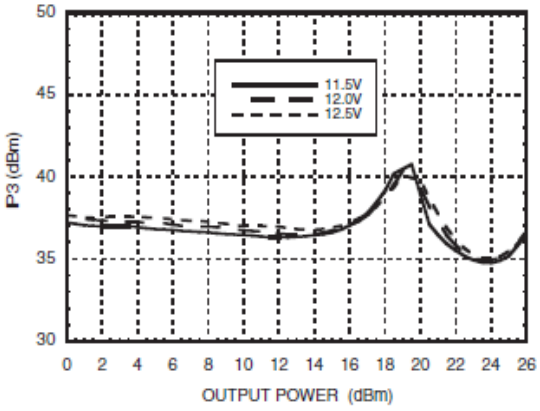
Psat vs. Temperature



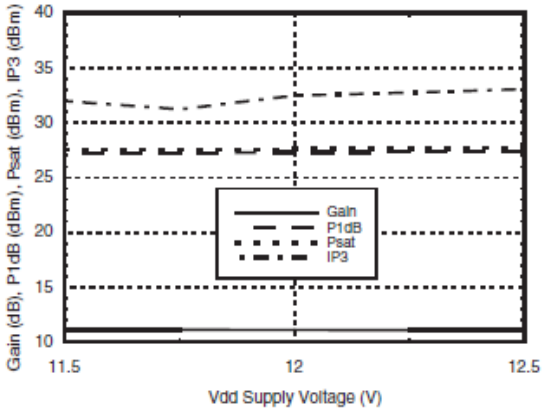
Output IP3 vs. Temperature



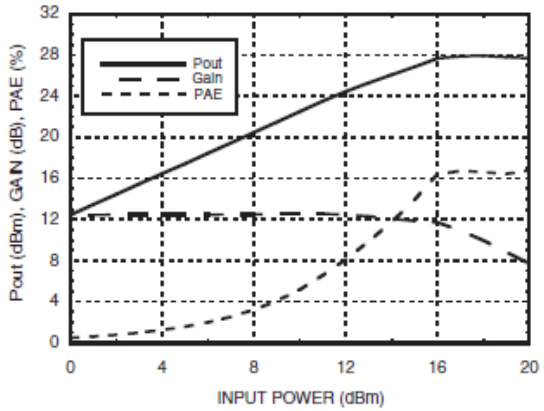
Output IP3 vs. Output Power @ 5GHz



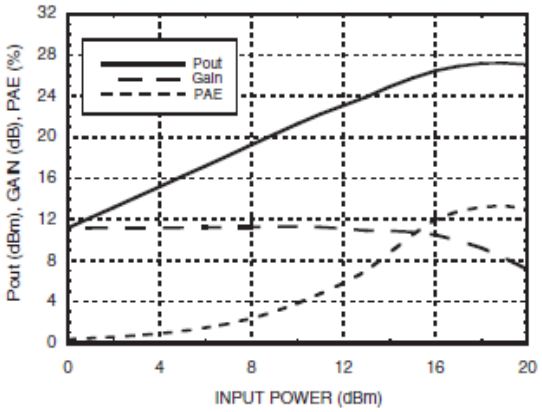
Gain, Power & Output IP3 vs. Supply Voltage @ 10 GHz, Fixed Vgg



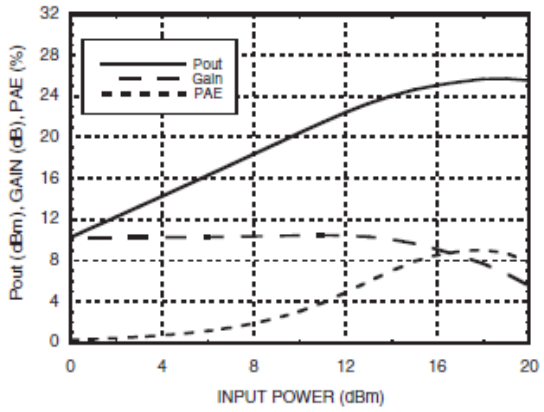
Power Compression @ 1 GHz



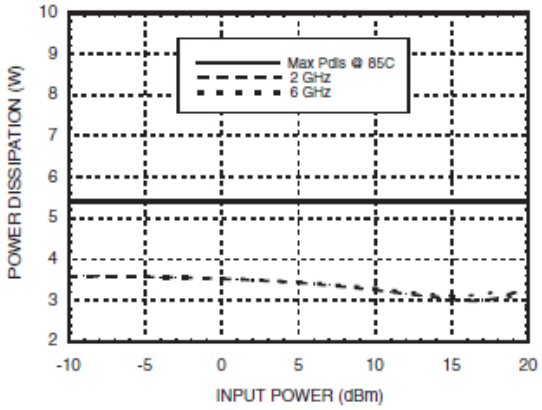
Power Compression @ 5 GHz



Power Compression @ 10 GHz



Power Dissipation



Absolute Maximum Ratings

Drain Bias Voltage (Vdd)	13 Vdc
Gate Bias Voltage (Vgg1)	-2.5 to 0 Vdc
Gate Bias Voltage (Vgg2)	+4V to +6V
RF Input Power (RFIN)(Vdd = +12 Vdc)	27 dBm
Channel Temperature	150 °C
Continuous Pdiss (T= 85 °C) (derate 65 mW/°C above 85 °C)	4.2 W
Thermal Resistance (channel to package bottom)	15.3 °C/W
Storage Temperature	-65 to 150 °C
Operating Temperature	-40 to 85 °C

Typical Supply Current vs. Vdd

Vdd (V)	Idd (mA
11.5	299
12.0	300
12.5	301