COAXIAL

Power Amplifier

ZHL-0G82G0010+
ZHL-0G82G0010X+

50Ω 800 to 2000 MHz 10 W SMA Female

THE BIG DEAL

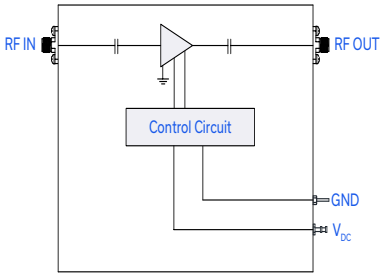
- Broadband Operation, 800 to 2000 MHz
- High Gain, 46 dB Typ.
- High P1dB, +40 dBm Typ.
- High OIP3, +49 dBm Typ.
- Thermally Self-Protected

Generic photo used for illustration purposes only

APPLICATIONS

- Communication Systems
- R&D, Production, and OTA Test Systems
- Test & Measurement Equipment
- General Laboratory Applications

FUNCTIONAL DIAGRAM



PRODUCT OVERVIEW

The ZHL-0G82G0010(X)+ is a high-power broadband amplifier operating over the 800 to 2000 MHz frequency band providing more than 10 W of output power with a typical small signal gain of 46 dB.

The amplifier uses state-of-the-art semiconductor technology and can be used in a wide range of applications. A single supply voltage ensures ease of operation. The amplifier is made with a rugged aluminum housing, has a compact size (151.13 × 90.93 × 29.85 mm), and can be supplied with or without a heatsink.

KEY FEATURES

Features	Advantages
Broadband, Useable from 800 to 2000 MHz	Suitable for a broad range of high-power broadband applications, including test setups, communications and production applications.
High Gain, 46 dB Typ.	Enables signal amplification to 10 W (Typ) output without the need for multiple gain stages.
Thermally Self-Protected	A built-in sensing feature signals the unit to power off when the amplifier reaches its maximum rated operating temperature, preventing damage to the equipment and providing added reliability.
Small and Lightweight	With a small footprint (151.13 mm × 90.93 mm × 29.85 mm) and lightweight (580 grams) modular design.
Low Voltage	Powered by a low voltage of +24 V supply.

ELECTRICAL SPECIFICATIONS, +25°C, V_{DC}= +24 V

Parameter	Symbol	Condition (MHz)		Min.	Typ.	Max.	Units
Frequency Range	f	–		800	–	2000	MHz
Gain	G_{SS}	P_{IN}= -26 dBm	800 - 2000	40	46	49	dB
Gain Flatness	$G_{SS-FLAT}$	P_{IN}= -26 dBm	800 - 2000	–	±1.3	±2.0	dB
Output Power at 1 dB Compression	P_{1dB}	800 - 2000		+39	+40	–	dBm
Output Power at 3 dB Compression	P_{3dB}	800 - 2000		+40	+41	–	dBm
Output Power at Saturation	P_{SAT}	800 - 2000		+40	+41	–	dBm
Noise Figure	NF	P_{IN}= -26 dBm	800 - 2000	–	4	–	dB
Output 3rd Order Intercept Point	OIP3	P_{OUT}=+30 dBm/tone	800 - 2000	–	+49	–	dBm
Input Return Loss	I-RL	P_{IN}= -26 dBm	800 - 2000	9.5	17.5	–	dB
Output Return Loss	O-RL	P_{IN}= -26 dBm	800 - 2000	6	17.5	–	dB
DC Supply Voltage	V_{SUPPLY}	800 - 2000		+20	+24	+28	V
DC Supply Current	I_{SUPPLY}	P_{IN}= -26 dBm	Without Fan	–	3.9	5.0	A
			With Fan	–	4.3	5.4	

ABSOLUTE MAXIMUM RATINGS

Parameter	Ratings	
Operating Temperature	ZHL-0G82G0010+	$T_{AMBIENT}$: -20°C to +60°C
	ZHL-0G82G0010X+	$T_{MOUNTINGBASE}$: Max +80°C
Storage Temperature	-55°C to +100°C	
Max Power Dissipation	130 W (without fan)	140 W (with fan)
No damage with an open or short at P_{OUT} = +40 dBm CW for 2 minutes max		
RF Input Power (no damage)	+5 dBm	
DC Operating Voltage	±29 V	

Permanent damage may occur if any of these limits are exceeded.

PROTECTIONS

Parameter	Rating
Shut Down Temperature	90±5°C
Over Voltage (Shut Down)	29±1 V
Output Load Mismatch	No damage with an open or short at P_{OUT}=+40 dBm (10 W) for 2 minutes max

DETERMINING MAXIMUM THERMAL RESISTANCE OF USERS' EXTERNAL HEAT SINK

$$\textit{MAXIMUM THERMAL RESISTANCE} = \frac{\textit{MAXIMUM OPERATING CASE TEMP} - \textit{MAXIMUM USER AMBIENT TEMP}}{\textit{POWER DISSIPATION}}$$

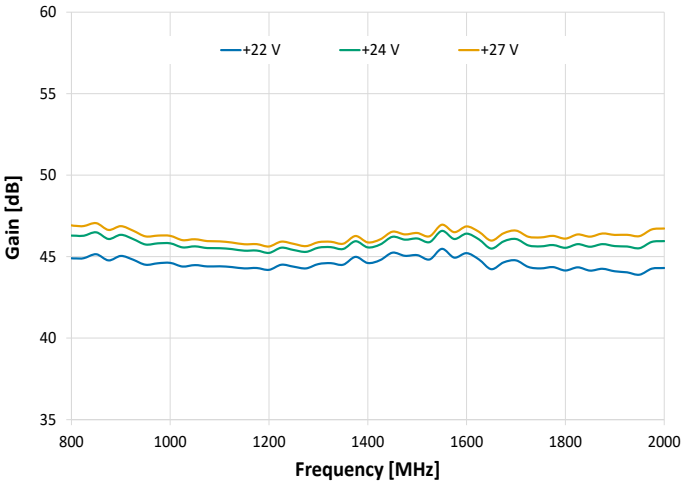
Example:	MAXIMUM MOUNTING BASE TEMP = +80 °C (CHECK MAXIMUM RATINGS TABLE FOR THIS VALUE) MAXIMUM USER AMBIENT TEMP = +60 °C (USER DEFINED) POWER DISSIPATION = 140 WATTS (EXAMPLE) THEN MAXIMUM ALLOWABLE THERMAL RESISTANCE = 0.14 °C/W

COAXIAL CONNECTIONS

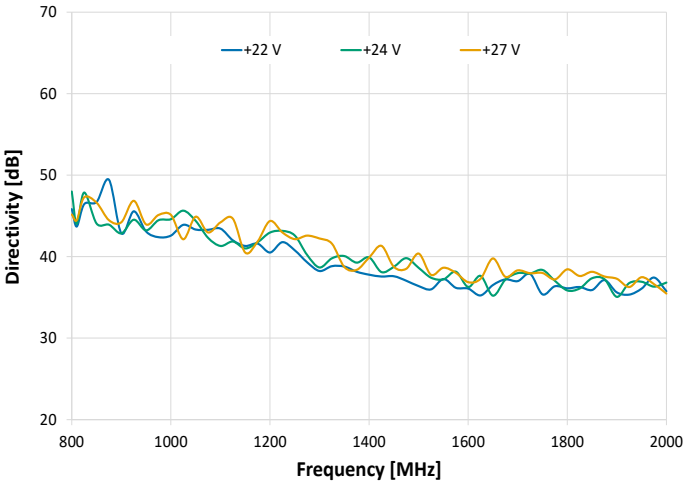
IN (RF IN)	SMA Female
OUT (RF OUT)	SMA Female

TYPICAL PERFORMANCE GRAPHS

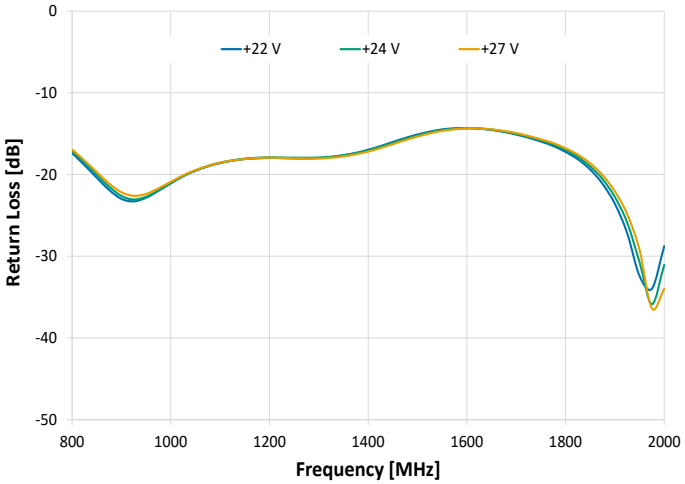
Small Signal Gain vs. Output Frequency



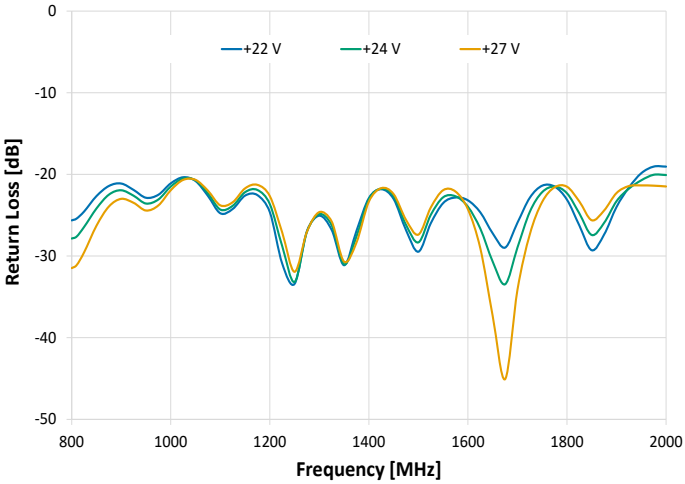
Directivity vs. Output Frequency



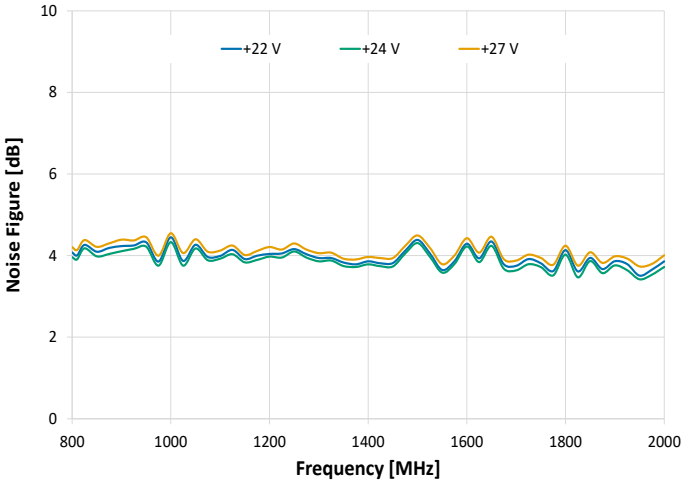
Return Loss In vs. Output Frequency



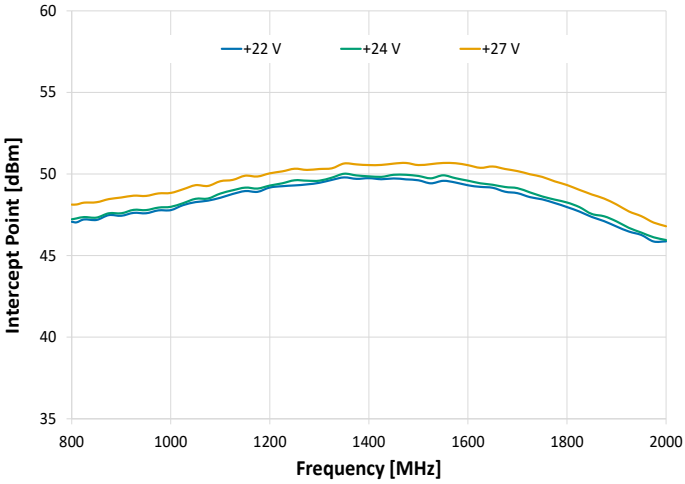
Return Loss Out vs. Output Frequency



Noise Figure vs. Output Frequency

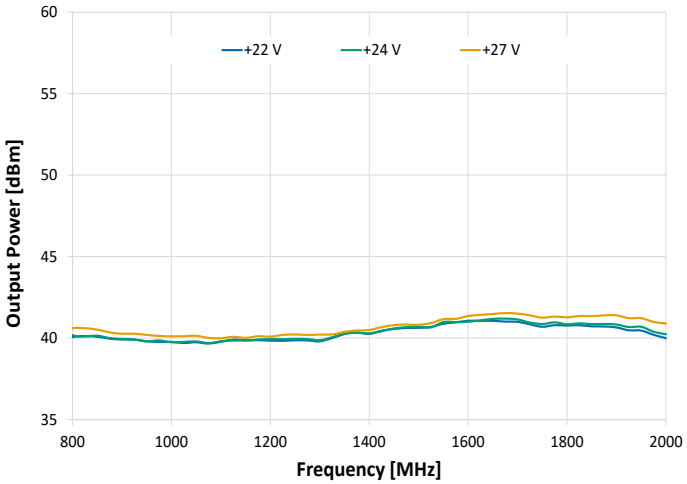


3rd Order Intercept Point vs. Output Frequency

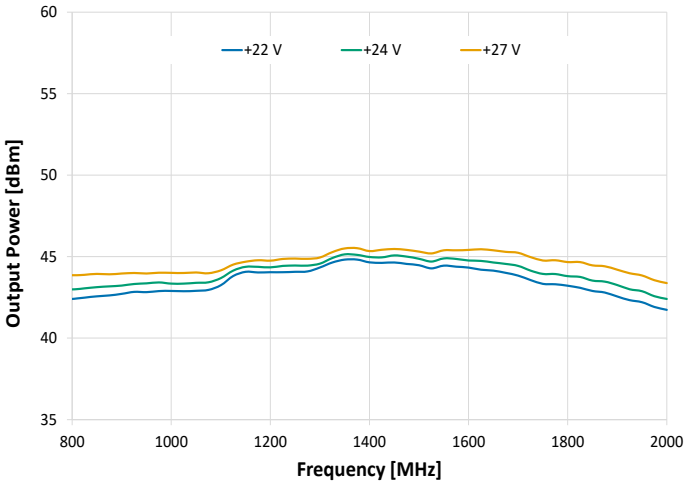


TYPICAL PERFORMANCE GRAPHS (CONTINUED)

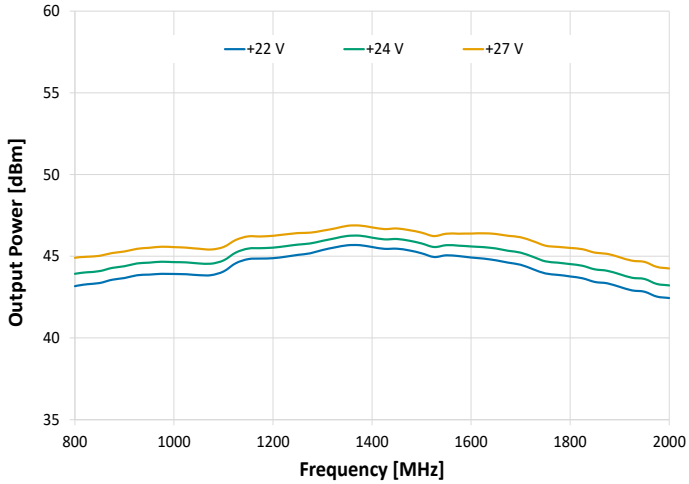
Output Power at 1dB Compression vs. Output Frequency



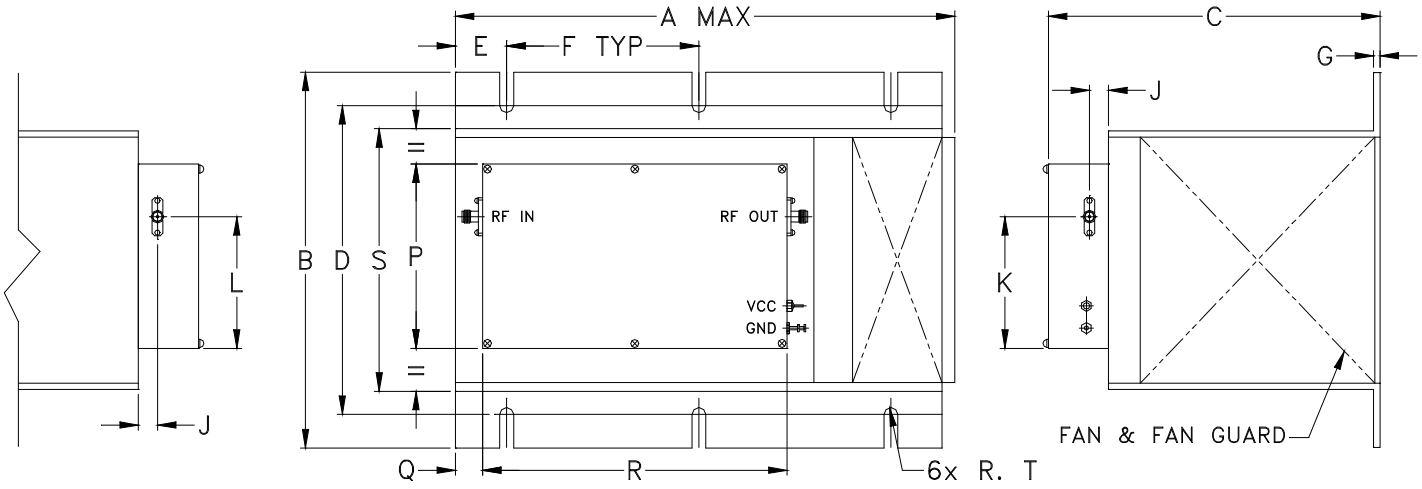
Output Power at 3dB Compression vs. Output Frequency



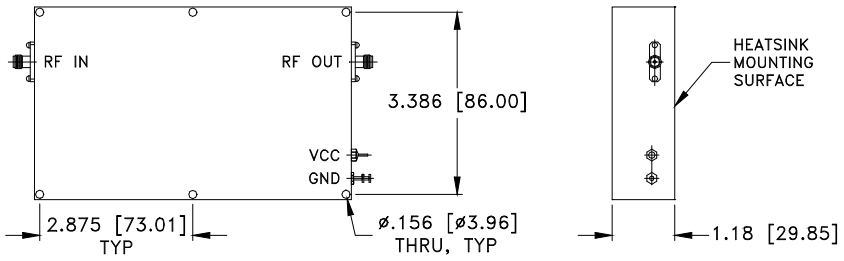
Output Power Saturation vs. Output Frequency



CASE STYLE DRAWING (WITH HEATSINK / WITHOUT HEATSINK)



MOUNTING INFORMATION FOR MODELS WITHOUT HEATSINK.



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
Inch	9.85	7.3	6.5	6.00	1.00	3.75	.13	-	.37	2.56	2.56	-	-	3.58	.5	5.95	5.1	.135
mm	250.19	185.42	165.10	152.40	25.40	95.25	3.30	-	9.40	65.02	65.02	-	-	90.93	12.70	151.13	129.54	3.43

Notes:

1. Case material: Aluminum alloy.
2. Case finish: Clear chemical conversion coating, non-chrome or trivalent chrome based.
   Heatsink finish: Black anodize.
3. Weight: 580 grams / 4265 grams with heatsink.
4. Dimensions: Inches [mm].
   Tolerances: 1 PI. ±.1 inch; 2 PI. ±.03 inch; 3 PI. ±.015 inch.
5. Recommended screw for mounting model without heatsink on 3/32" thick sheet: #6-32, 1.50" Length.

DETAILED MODEL INFORMATION IS AVAILABLE ON OUR WEBSITE CLICK HERE

Performance Data	Table Graphs S-Parameter (S2P Files) Data Set (.zip file)
RoHS Status	Compliant
Environmental Ratings	ENV23T19

ORDERING INFORMATION

Model No. Links	ZHL-0G82G0010+	ZHL-0G82G0010X+
Option	With heatsink	Without heatsink
Case Style	BT1204	
Connector	IN (SMA Female) / OUT (SMA Female)	