

# Coaxial High Power Amplifier

## ZHL-50W-52+

50Ω 50W 50 to 500 MHz



### Features

- High power, 50 Watt
- Excellent IP3, +55 dBm typ.
- Class A amplifier, usable up to 75W
- Shuts off when base plate temperature exceeds +100°C
- Good gain flatness, ±1.0 dB typ.
- Internal power regulator (current remains constant over 22 to 28V)
- Over voltage protection, shut off above 29V
- Protected by US Patent 7,348,854

### Applications

- VHF/UHF transmitters
- Defense
- Amateur radio, FM, TV
- Laboratory use

Model No.	ZHL-50W-52-S+   ZHL-50W-52X-S+▲
Case Style	BT1165
Connectors	SMA
Price (Qty.)	\$1395.00 ea. (1-9)   \$1320.00 ea. (1-9)

**+RoHS Compliant**  
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

### Electrical Specifications<sup>1</sup> at 25°C

Parameter	Frequency (MHz)	ZHL-50W-52+			ZHL-50W-52X+▲			Units
		Min.	Typ.	Max.	Min	Typ.	Max.	
Frequency Range		50		500	50		500	MHz
Gain	100	47	50		47	50		dB
	500	46	50		46	50		
Gain Flatness			±2.0	±2.8		±2.0	±2.8	dB
Output Power at 1dB compression	120-260	+45.5	+48		+45.5	+48		dBm
	50-500	+43	+45		+43	+45		
Saturated Output Power at 3dB compression	120-260	+47	+48		+47	+48		dBm
	50-500	+45	+48		+45	+48		
Noise Figure			4.0	8.0		4.0	8.0	dB
Output third order intercept point			+55			+55		dBm
Input VSWR			1.6			1.6		:1
Output VSWR			2.0			2.0		:1
DC Supply Voltage			24	25		24	25	V
Supply Current				9.3			9.0	A

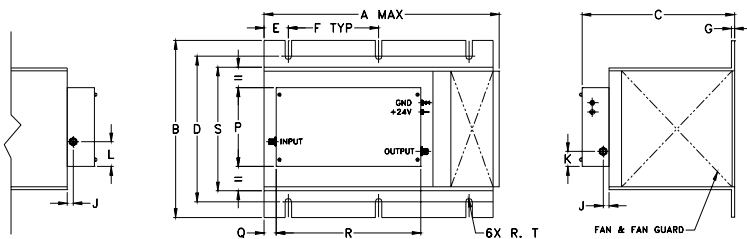
1. All specifications are for a single input CW signal.

At nominal output load, 24V nominal supply voltage.

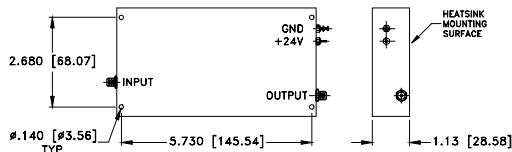
An open or a short load is not recommended potentially can cause damage.

▲ Heat sink and fan not included. Alternative heat sinking and heat removal must be provided by the user to limit maximum base-plate temperature to 85°C, in order to ensure proper performance. For reference, this requires thermal resistance of user's external heat sink to be 0.08°C/W max.

### Outline Drawing



#### MOUNTING INFORMATION FOR MODELS WITHOUT HEATSINK



### Maximum Ratings

Parameter	Ratings
Operating Temperature	-20°C to 85°C
Storage Temperature	-55°C to 100°C
Base Plate Temperature	85°C
Input RF Power (no damage)	0 dBm

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

### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	wt
9.85	7.3	6.3	6.00	1.00	3.75	.13	—	.25	.63	1.03	—	—	3.25	.5	6.00	5.1	.135	grams*
250.19	185.42	160.02	152.40	25.40	95.25	3.30	—	6.35	16.00	26.16	—	—	82.55	12.70	152.40	129.54	3.43	4185

\*500 grams without heatsink

### Notes

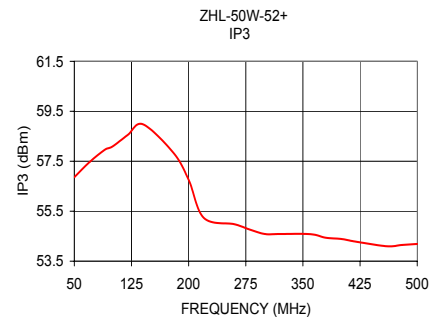
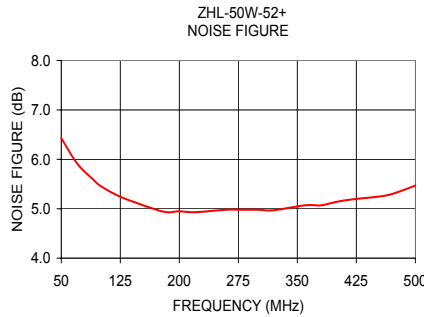
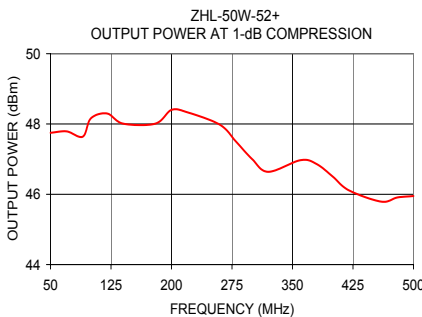
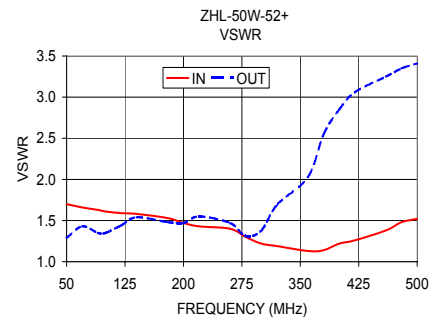
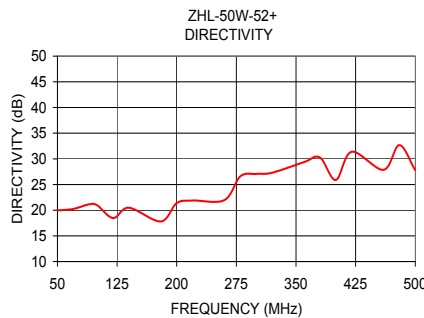
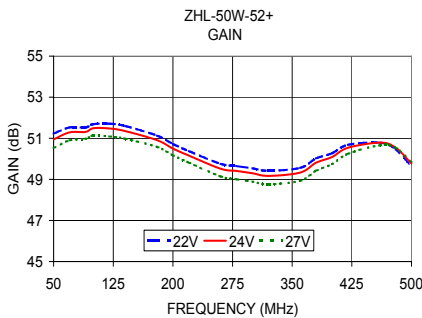
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FREQUENCY (MHz)	GAIN (dB)			DIRECTIVITY (dB)	VSWR (:1)		NOISE FIGURE (dB)	POUT at 1 dB COMPR. (dBm)	IP3 (dBm)
	22V	24V	27V	24V	IN	OUT	24V	24V	24V
50.00	51.23	50.95	50.53	19.96	1.70	1.29	6.43	47.75	56.86
70.00	51.53	51.29	50.90	20.24	1.66	1.43	5.92	47.79	57.47
90.00	51.53	51.31	50.97	21.16	1.63	1.35	5.60	47.64	57.96
100.00	51.69	51.49	51.14	20.95	1.61	1.35	5.46	48.16	58.09
120.00	51.71	51.48	51.09	18.47	1.59	1.44	5.28	48.30	58.55
140.00	51.60	51.35	50.98	20.47	1.58	1.54	5.15	48.01	58.98
180.00	51.13	50.91	50.58	17.81	1.53	1.48	4.94	48.01	57.84
200.00	50.72	50.50	50.17	21.37	1.47	1.47	4.95	48.40	56.76
220.00	50.38	50.16	49.82	21.89	1.43	1.55	4.93	48.33	55.23
260.00	49.76	49.52	49.14	21.96	1.40	1.47	4.98	47.98	54.98
280.00	49.65	49.41	49.01	26.60	1.30	1.31	4.98	47.50	54.77
300.00	49.54	49.30	48.89	27.07	1.22	1.38	4.98	47.00	54.59
320.00	49.42	49.17	48.76	27.29	1.19	1.69	4.97	46.64	54.59
360.00	49.56	49.33	48.93	29.37	1.13	2.03	5.07	46.97	54.58
380.00	50.02	49.81	49.42	30.28	1.14	2.55	5.07	46.86	54.44
400.00	50.27	50.09	49.74	25.88	1.22	2.85	5.14	46.50	54.39
420.00	50.68	50.54	50.24	31.38	1.26	3.06	5.19	46.11	54.28
460.00	50.79	50.79	50.66	27.85	1.38	3.25	5.26	45.79	54.10
480.00	50.47	50.55	50.54	32.67	1.48	3.35	5.35	45.91	54.15
500.00	49.62	49.77	49.84	27.81	1.52	3.41	5.47	45.95	54.19



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