



COAXIAL

# Medium Power Amplifier

# ZHL-6A+

50Ω 0.0025 to 500 MHz

## FEATURES

- Wideband, 0.0025 to 500 MHz
- High IP3, +34 dBm typ.
- Protected by US Patent, 6,943,629



BNC version shown  
Generic photo used for illustration purposes only

CASE STYLE: S32

Connectors	Model
BNC	ZHL-6A+
SMA	ZHL-6A-S+
N-TYPE	ZHL-6A-N+

## APPLICATIONS

- HF/VHF
- Communication Systems
- UHF TV
- Lab use

### +RoHS Compliant

The +Suffix identifies RoHS Compliance.  
See our website for methodologies and qualifications

## ELECTRICAL SPECIFICATIONS

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Frequency Range		0.0025		500	MHz
Gain	0.0025 - 500	21	25		dB
Gain Flatness	0.0025 - 500			±1.2	dB
Output Power at 1 dB Compression	0.0025 - 500	+22			dBm
Output third order intercept point	0.0025 - 500		+34		dBm
Noise Figure <sup>1</sup>	0.0025 - 500		9.5		dB
Input VSWR	0.0025 - 500		1.8		:1
Output VSWR <sup>1</sup>	0.0025 - 500		2.0		:1
DC Supply Voltage			+24		V
Supply Current				0.350	A

Caution! Transient voltage occurring at RF output upon turn-on is approximately 50% of the applied DC power supply voltage. User should protect equipment fed by this amplifier.

1. Noise Figure continually increases from 70 MHz to 10 MHz by approximately 4 dB; output VSWR 2.8:1 below 30 MHz  
Open load is not recommended, potentially can cause damage. With no load derate max input power by 20 dB

## ABSOLUTE MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-20°C to +65°C
Storage Temperature	-55°C to +100°C
DC Voltage	+24.5 V Max.
Input RF Power (no damage)	+10 dBm

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

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ECO-018143  
ZHL-6A+  
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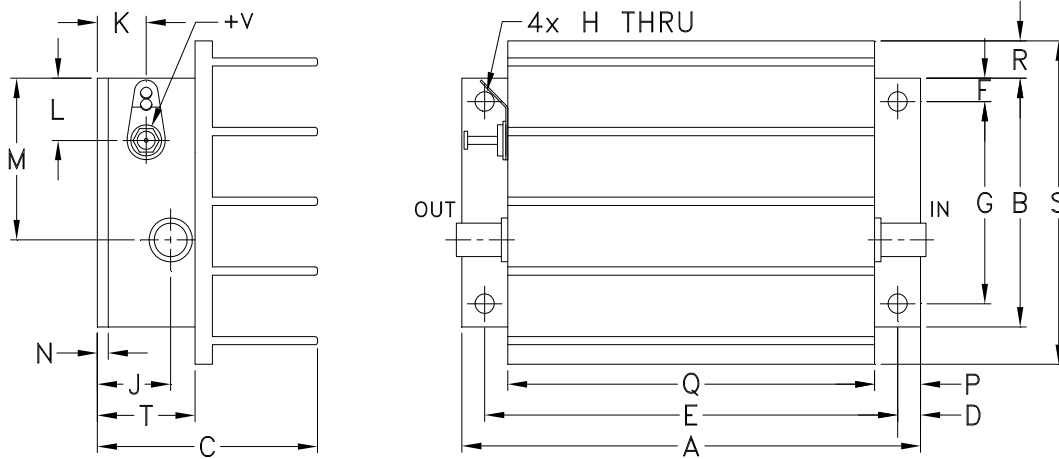
# Medium Power Amplifier

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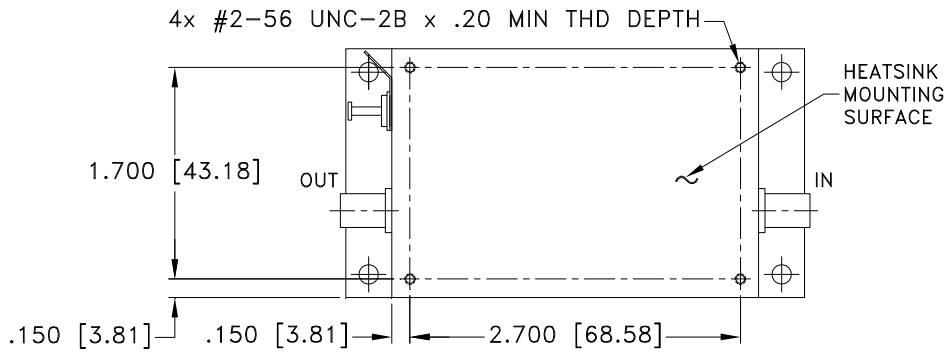
Mini-Circuits

50Ω 0.0025 to 500 MHz

### OUTLINE DRAWING



### MOUNTING INFORMATION FOR MODELS WITHOUT HEATSINK



### OUTLINE DIMENSIONS (Inch/mm)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	wt	
3.75	2.00	1.80	.19	3.375	.19	1.625	.144	.50	.40	.50	1.30	.10	.38	3.00	.30	2.60	.80	grams	
95.25	50.80	45.72	4.83	85.73	4.83	41.28	3.66	12.70	10.16	12.70	33.02	2.54	9.65	76.20	7.62	66.04	20.32	220.0	
																		wt. w/o heat sink	150



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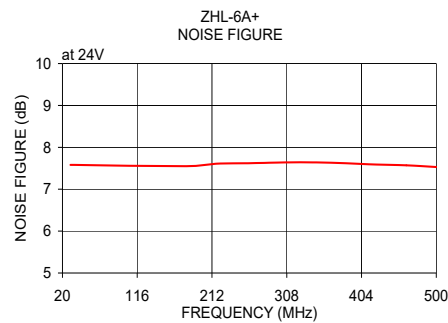
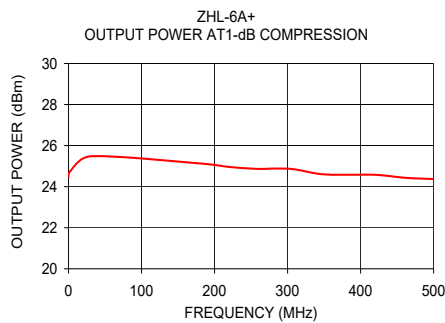
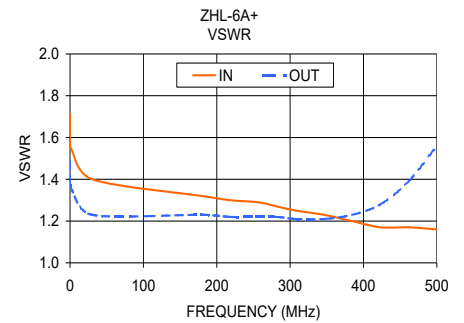
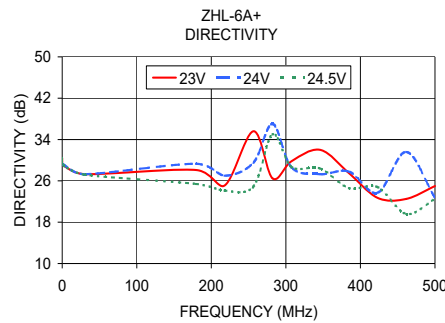
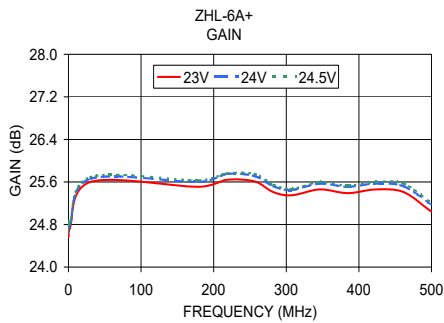
# Medium Power Amplifier

# ZHL-6A+

50Ω 0.0025 to 500 MHz

### TYPICAL PERFORMANCE DATA/CURVES

FREQ. (MHz)	GAIN (dB)			DIRECTIVITY (dB)			VSWR (:1)		NOISE FIGURE (dB)	POUT at 1 dB COMPR. (dBm)
	23V	24V	24.5V	23V	24V	24.5V	IN	OUT		
0.0025	24.57	24.64	24.69	30.40	30.50	30.40	1.71	1.48	—	24.48
0.01	24.73	24.82	24.86	29.80	29.80	29.70	1.57	1.38	—	24.62
0.18	24.67	24.75	24.79	29.30	29.20	29.20	1.56	1.37	—	24.65
2.30	24.75	24.81	24.85	28.90	29.10	28.90	1.54	1.35	—	24.75
30.20	25.60	25.66	25.69	27.30	27.30	27.20	1.40	1.23	7.58	25.48
179.50	25.51	25.60	25.63	28.10	29.30	25.40	1.32	1.23	7.55	25.13
217.90	25.64	25.75	25.76	25.10	27.00	24.10	1.30	1.22	7.61	24.97
256.40	25.61	25.71	25.75	35.60	29.50	24.90	1.29	1.22	7.62	24.87
282.10	25.41	25.52	25.55	26.50	37.00	35.00	1.27	1.22	7.63	24.88
307.70	25.35	25.45	25.47	29.80	28.60	28.70	1.25	1.21	7.64	24.85
346.10	25.46	25.57	25.60	32.00	27.30	28.40	1.23	1.21	7.64	24.61
384.60	25.39	25.51	25.53	27.50	27.80	24.60	1.20	1.23	7.62	24.58
423.10	25.46	25.57	25.60	22.70	23.70	24.80	1.17	1.28	7.59	24.57
461.50	25.41	25.52	25.57	22.50	31.60	19.60	1.17	1.39	7.57	24.43
500.00	25.04	25.17	25.21	25.00	22.70	22.50	1.16	1.56	7.53	24.37



- NOTES**
- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
  - B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
  - C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the standard terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at [www.minicircuits.com/terms/viewterm.html](http://www.minicircuits.com/terms/viewterm.html)



# Amplifier

# ZHL-6A+

## Typical Performance Data

FREQUENCY (MHz)	GAIN (dB)			DIRECTIVITY (dB)			VSWR IN (:1) 24V	VSWR OUT (:1) 24V	NOISE FIGURE (dB) 24V	Pout at 1dB Comp. (dBm) 24V
	23V	24V	24.5V	23V	24V	24.5V				
0.0025	24.57	24.64	24.69	30.40	30.50	30.40	1.71	1.48	-	24.48
0.01	24.73	24.82	24.86	29.80	29.80	29.70	1.57	1.38	-	24.62
0.18	24.67	24.75	24.79	29.30	29.20	29.20	1.56	1.37	-	24.65
2.30	24.75	24.81	24.85	28.90	29.10	28.90	1.54	1.35	-	24.75
30.20	25.60	25.66	25.69	27.30	27.30	27.20	1.40	1.23	7.58	25.48
179.50	25.51	25.60	25.63	28.10	29.30	25.40	1.32	1.23	7.55	25.13
217.90	25.64	25.75	25.76	25.10	27.00	24.10	1.30	1.22	7.61	24.97
256.40	25.61	25.71	25.75	35.60	29.50	24.90	1.29	1.22	7.62	24.87
282.10	25.41	25.52	25.55	26.50	37.00	35.00	1.27	1.22	7.63	24.88
307.70	25.35	25.45	25.47	29.80	28.60	28.70	1.25	1.21	7.64	24.85
346.10	25.46	25.57	25.60	32.00	27.30	28.40	1.23	1.21	7.64	24.61
384.60	25.39	25.51	25.53	27.50	27.80	24.60	1.20	1.23	7.62	24.58
423.10	25.46	25.57	25.60	22.70	23.70	24.80	1.17	1.28	7.59	24.57
461.50	25.41	25.52	25.57	22.50	31.60	19.60	1.17	1.39	7.57	24.43
500.00	25.04	25.17	25.21	25.00	22.70	22.50	1.16	1.56	7.53	24.37

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Page 1 of 1



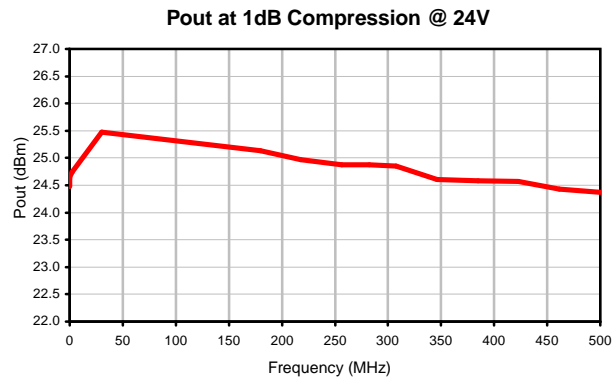
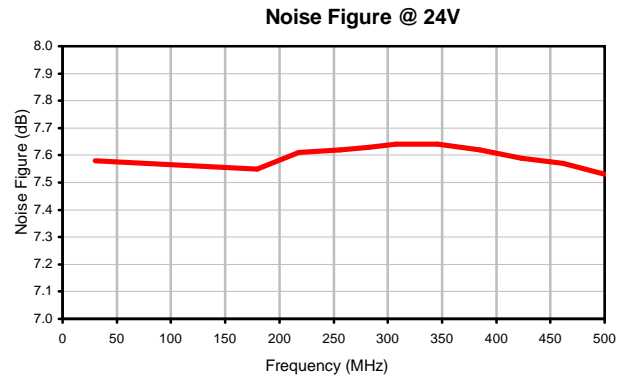
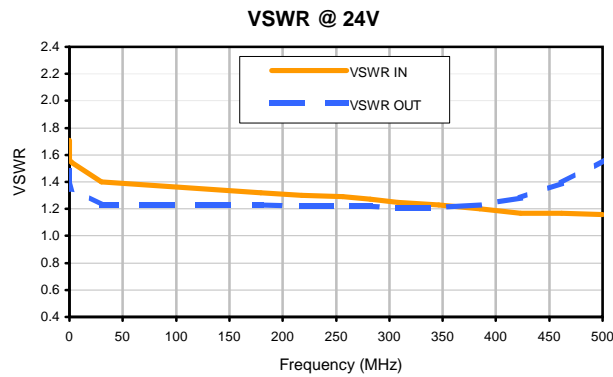
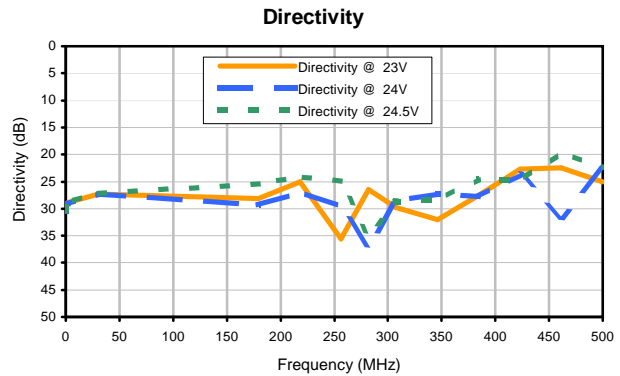
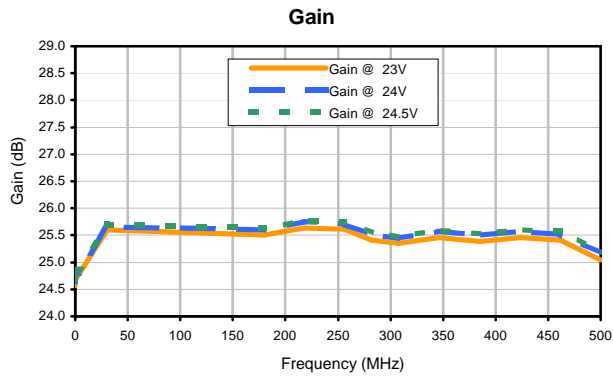
IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS 9100 CERTIFIED RoHS compliant  
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661



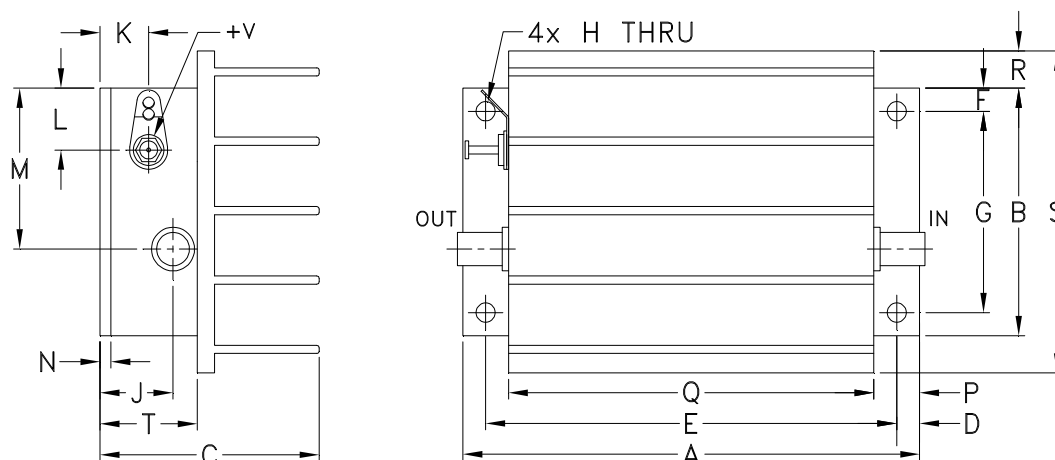
The Design Engineers Search Engine finds the model you need, Instantly • For detailed performance specs & shopping online see



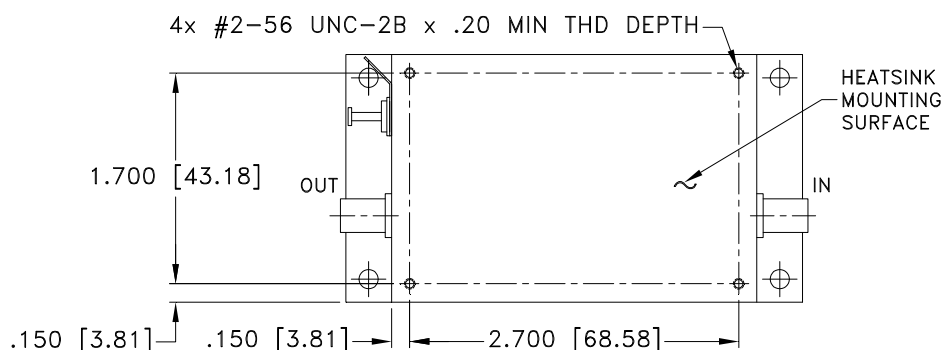
## Typical Performance Curves



### Outline Dimensions



#### MOUNTING INFORMATION FOR MODELS WITHOUT HEATSINK



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
S32	3.75 (95.25)	2.00 (50.80)	1.80 (45.72)	.19 (4.83)	3.375 (85.73)	.19 (4.83)	1.625 (41.28)	.144 (3.66)	.50 (12.70)	.40 (10.16)	.50 (12.70)	1.30 (33.02)	.10 (2.54)

CASE#	P	Q	R	S	T	WT. GRAMS	WT. WITHOUT HEATSINK GRAMS
S32	.38 (9.65)	3.00 (76.20)	.30 (7.62)	2.60 (66.04)	.80 (20.32)	220.0	150.0

Dimensions are in inches (mm). Tolerances: 2 Pl.  $\pm .03$ ; 3 Pl.  $\pm .015$

#### Notes:

- Case material: Aluminum alloy.
- Case finish:  
For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.
- Heat sink finish: Black anodize.



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: [www.minicircuits.com](http://www.minicircuits.com)

RF/IF MICROWAVE COMPONENTS



All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-20° to 65° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Stabilization Bake	(non-operating) 125°C, 24 hours	- - -
Burn-in at Elevated Temp.	(DC on) 160 hours at 85° C	MIL-STD-202, Method 108
Thermal Shock	-55° to 100°C, 5 cycles	MIL-STD-202, Method 107, Condition A, except 100°C