COAXIAL HIGH IP3

Low Noise Amplifier

ZHL-3010+

50Ω Medium High Power 50 to 1000 MHz

FEATURES

- Wideband, 50 to 1000 MHz
- Low Noise, 5.5 dB typ.
- High IP3, +46 dBm typ.
- Very High IP2, +68 - +83 dBm typ.
- Protected by US Patent 6,943,629

Generic photo used for illustration purposes only

Model No.	ZHL-3010+
Case Style	S32
Connectors	SMA

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

APPLICATIONS

- VHF/UHF
- Cellular
- Test Equipment
- Instrumentation
- Laboratory

ELECTRICAL SPECIFICATIONS

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Frequency Range		50		1000	MHz
Noise Figure	50 - 1000		5.5		dB
Gain	50 - 1000	30			dB
Gain Flatness	50 - 1000			±1.0	dB
Output Power at 1 dB compression	50 - 1000	+26		-3	dBm
Output third order intercept point	50 - 1000		+46		dBm
Input VSWR	50 - 1000			2.5	:1
Output VSWR	50 - 1000			2.0	:1
DC Supply Voltage			+12		V
Supply Current				1.0	A

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	+13V Max.
RF Input Power (no damage)	-3 dBm

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

REV. D
ECO-017949
ZHL-3010+
MCL NY
230524

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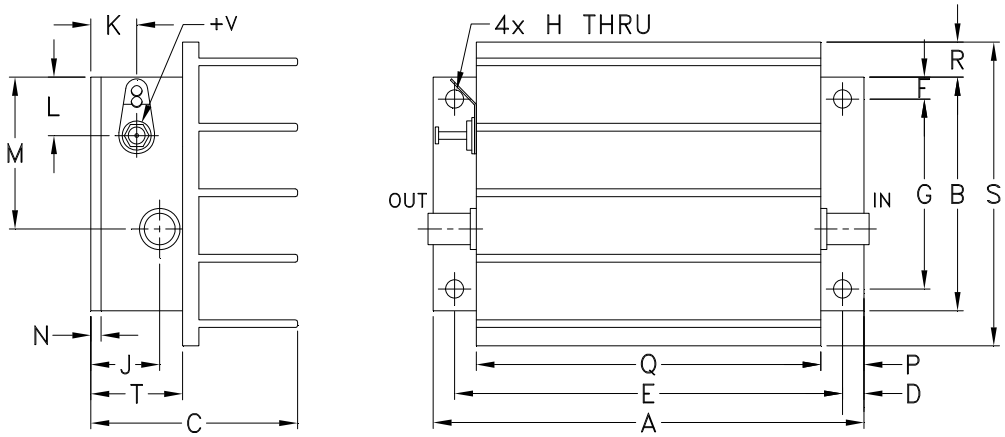
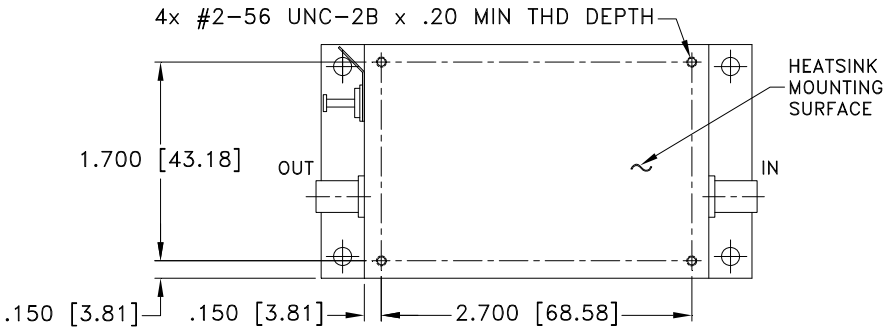
OUTLINE DRAWING



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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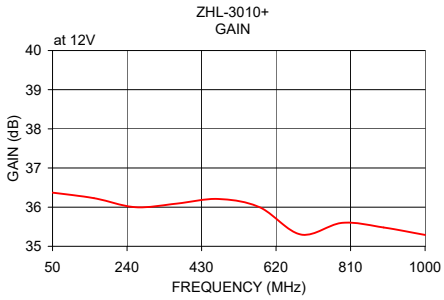
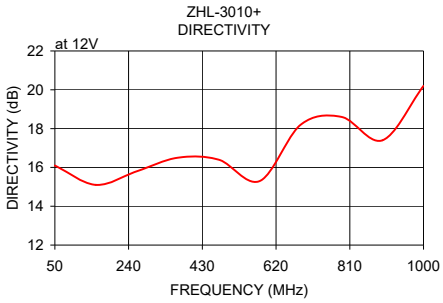
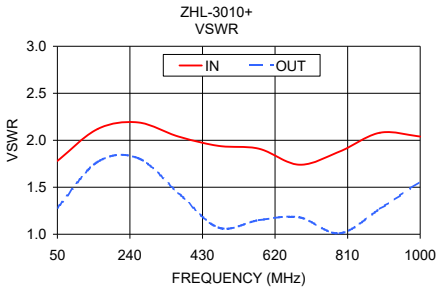
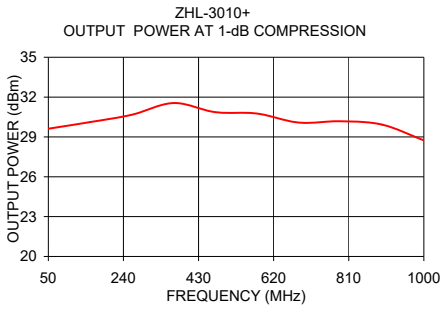
TYPICAL PERFORMANCE DATA/CURVES

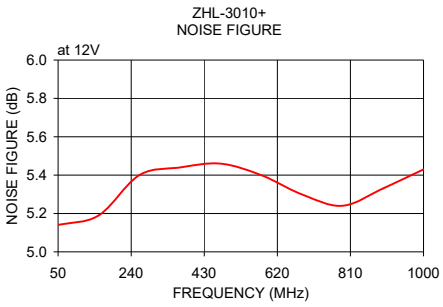
FREQUENCY (MHz)	GAIN (dB)	DIRECTIVITY (dB)	VSWR (:1)		NOISE FIGURE (dB)	POUT at 1 dB COMPR. (dBm)
	12V	12V	IN	OUT	12V	12V
50.00	36.37	16.10	1.78	1.28	5.14	29.62
155.60	36.23	15.10	2.12	1.77	5.19	30.12
261.10	36.00	15.80	2.19	1.81	5.40	30.67
366.70	36.09	16.50	2.04	1.44	5.44	31.55
472.20	36.21	16.40	1.94	1.07	5.46	30.87
577.80	36.00	15.30	1.91	1.15	5.40	30.76
683.30	35.30	18.20	1.74	1.18	5.30	30.08
788.90	35.60	18.60	1.88	1.01	5.24	30.18
894.40	35.48	17.40	2.08	1.27	5.33	29.93
1000.00	35.29	20.20	2.04	1.56	5.43	28.74











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

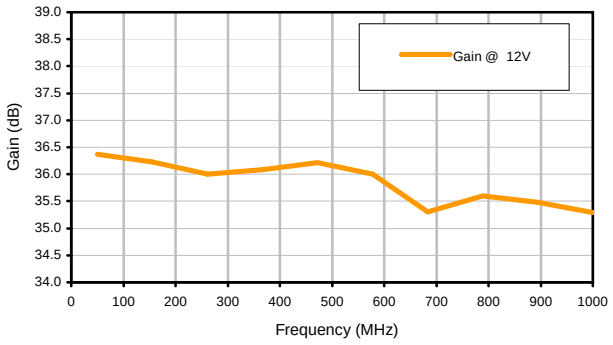
Low Noise Amplifier ZHL-3010+

Typical Performance Data

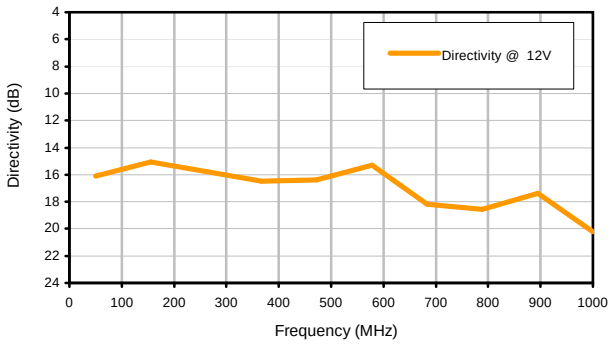
FREQUENCY (MHz)	GAIN (dB) 12V	DIRECTIVITY (dB) 12V	VSWR IN (:1) 12V	VSWR OUT (:1) 12V	NOISE FIGURE (dB) 12V	Pout at 1dB Comp. (dBm) 12V
50.0	36.37	16.12	1.78	1.28	5.14	29.62
155.6	36.23	15.05	2.12	1.77	5.19	30.12
261.1	36.00	15.76	2.19	1.81	5.40	30.67
366.7	36.09	16.47	2.04	1.44	5.44	31.55
472.2	36.21	16.41	1.94	1.07	5.46	30.87
577.8	36.00	15.29	1.91	1.15	5.40	30.76
683.3	35.30	18.17	1.74	1.18	5.30	30.08
788.9	35.60	18.58	1.88	1.01	5.24	30.18
894.4	35.48	17.36	2.08	1.27	5.33	29.93
1000.0	35.29	20.20	2.04	1.56	5.43	28.74

Typical Performance Curves

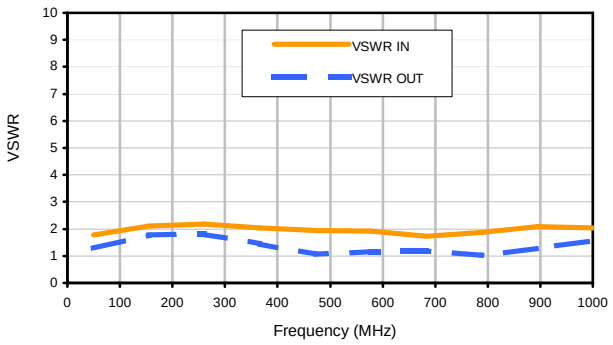
Gain



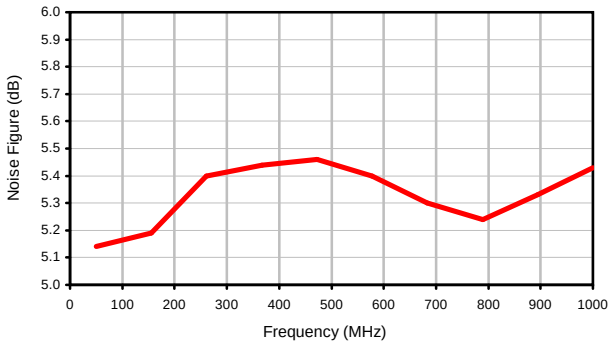
Directivity



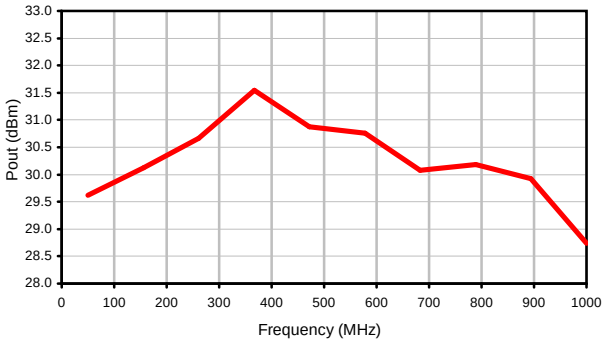
VSWR @ 12V



Noise Figure @ 12V



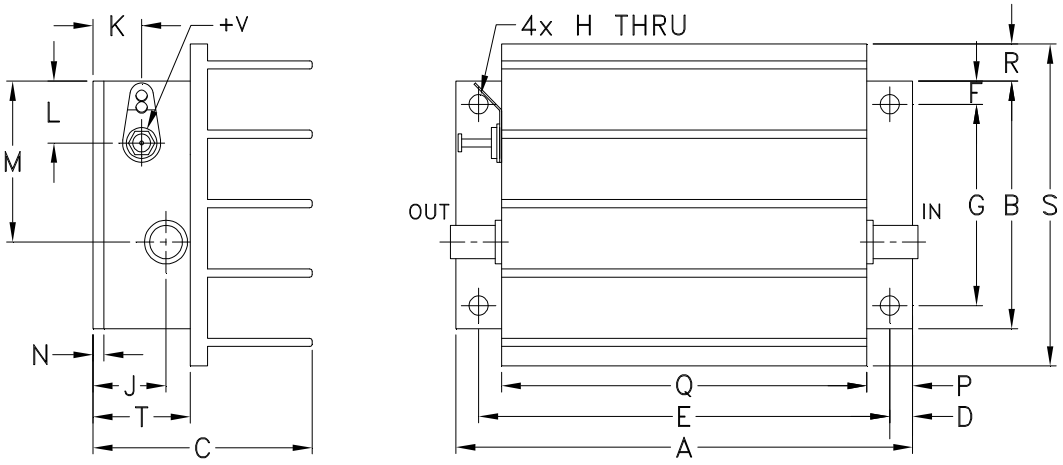
Pout at 1dB Compression @ 12V



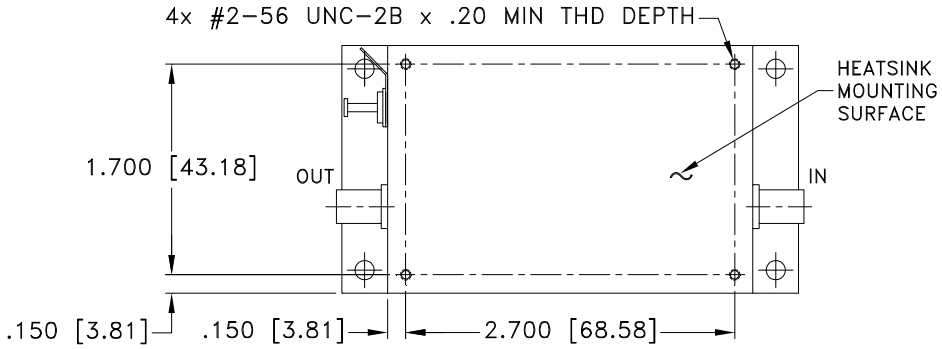
Case Style S

S32

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. ± .03; 3 Pl. ± .015

Notes:

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

Mini-Circuits

Environmental Specifications **ENV23T3**

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