COAXIAL

High Power Amplifier ZHL-100W-52-S+

50Ω 100W 50 to 500 MHz

FEATURES

- High Power, 100 Watt
- Excellent IP3, +58 dBm typ.
- Class A amplifier, usable up to 100W.
- No damage with an open or short output load under full CW output power[1]
- Shuts off when base plate temperature exceeds +100°C
- Internal power regulator (current remains constant over +22 to +28V)
- Over voltage protection, shut off above +29V
- Protected by US Patent 7,348,854

Generic photo used for illustration purposes only

Model No.	ZHL-100W-52-S+
Case Style	BT1165
Connectors	SMA

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

APPLICATIONS

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

ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Units
Frequency Range		50		500	MHz
Gain		47	52	—	dB
Gain Flatness		—	±1.2	±1.8	dB
Output Power at 1dB compression	200 - 300 50 - 500	+46.5 +45	+48.5 +47.5	— —	dBm
Saturated Output Power at 3dB compression	200 - 300 50 - 500	+47.5 +46.5	+49.5 +49	— —	dBm
Noise Figure		—	4.5	8.0	dB
Output third order intercept point		—	+58	—	dBm
Input VSWR		—	1.75	—	:1
Output VSWR		—	2.5	—	:1
DC Supply Voltage		—	24	25	V
Supply Current		—	—	10.5	A

1. At constant open or short load 24V nominal supply voltage

ABSOLUTE 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[2] (no damage)	3 dBm

2. At nominal output load, +24V nominal supply voltage.
Permanent damage may occur if any of these limits are exceeded.

REV. J
ECO-017544
ZHL-100W-52-S+
MCL NY
230420

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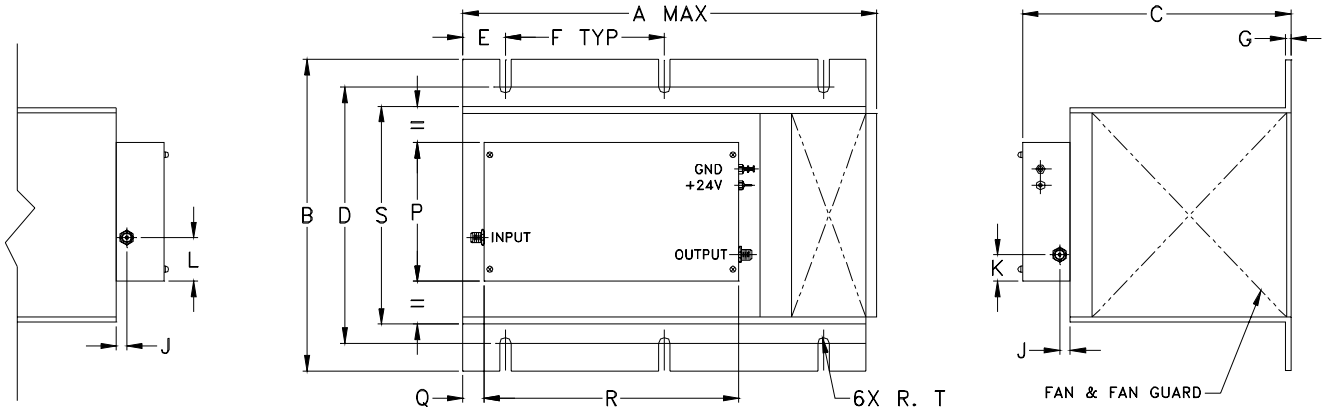
50Ω 100W 50 to 500 MHz

OUTLINE DRAWING FOR MODELS WITH HEATSINK



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

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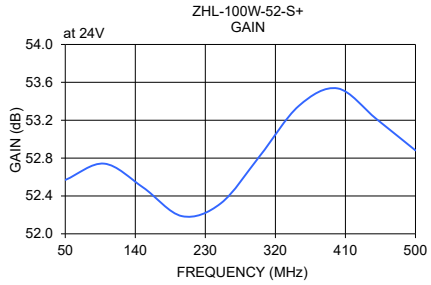
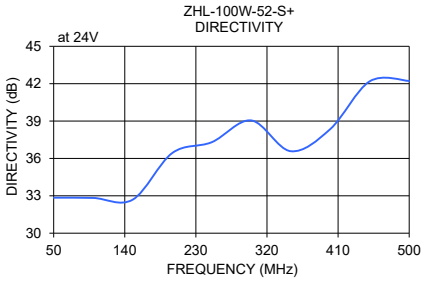
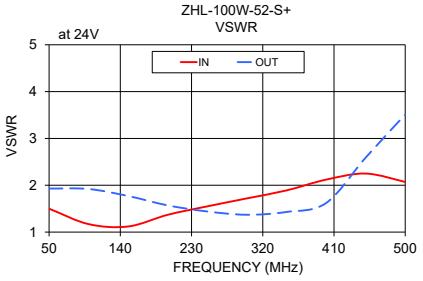
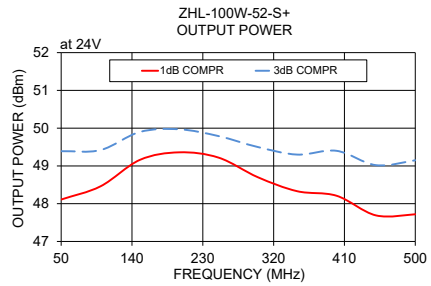
TYPICAL PERFORMANCE DATA AND CHARTS

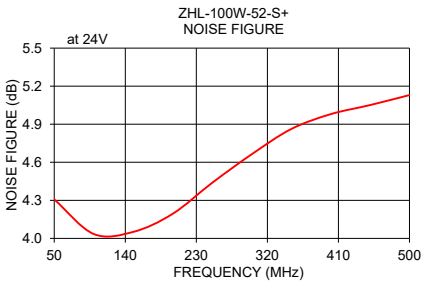
FREQUENCY (MHz)	GAIN (dB)	DIRECTIVITY (dB)	VSWR (:1)		POUT at 1 dB COMPR. (dBm)	POUT at 3 dB COMPR. (dBm)	NOISE FIGURE (dB)	OIP3 (dBm)
	24V	24V	IN	OUT	24V	24V	24V	24V
50	52.57	32.85	1.50	1.93	48.11	49.39	4.31	60.14
100	52.74	32.83	1.17	1.92	48.46	49.42	4.03	59.75
150	52.49	32.69	1.12	1.77	49.16	49.90	4.05	60.53
200	52.19	36.43	1.37	1.57	49.36	49.97	4.19	61.26
250	52.32	37.30	1.55	1.44	49.22	49.79	4.44	60.54
300	52.82	39.05	1.72	1.37	48.70	49.50	4.66	60.44
350	53.35	36.58	1.89	1.43	48.33	49.30	4.86	59.69
400	53.54	38.35	2.12	1.62	48.21	49.40	4.98	58.94
450	53.21	42.19	2.25	2.59	47.69	49.02	5.05	58.46
500	52.88	42.22	2.07	3.51	47.72	49.15	5.13	57.83

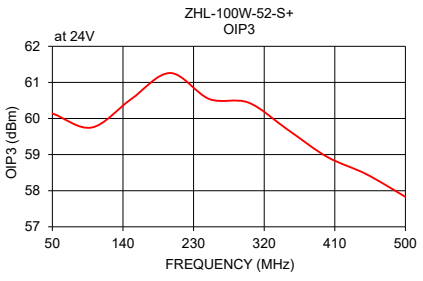












NOTES

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

High Power Amplifier ZHL-100W-52+

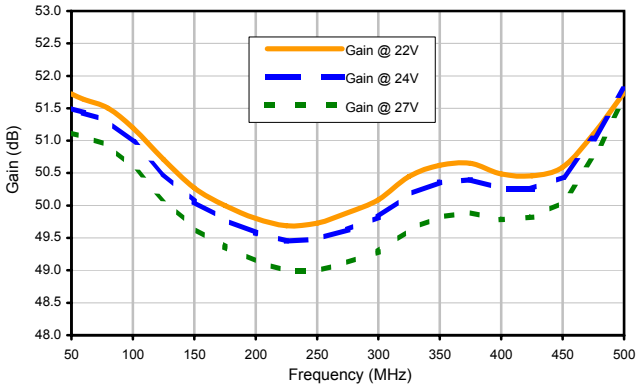
Typical Performance Data

Frequency (MHz)	Gain			Directivity (dB)	VSWR In (:1)	VSWR Out (:1)	Noise Figure (dB)	Pout at 1dB Compression (dBm)	Output IP3 (dBm)
	22V	24V	27V	24V	24V	24V	24V	24V	24V
50.0	51.72	51.50	51.12	23.55	1.39	1.38	7.20	47.43	60.28
60.0	51.64	51.43	51.06	23.64	1.41	1.43	6.66	47.95	61.38
80.0	51.50	51.30	50.93	22.54	1.43	1.45	6.43	47.89	61.21
100.0	51.20	50.98	50.58	21.68	1.43	1.44	6.30	47.72	60.81
125.0	50.71	50.50	50.10	28.38	1.43	1.48	6.19	47.84	60.21
150.0	50.27	50.06	49.65	30.66	1.43	1.56	6.13	48.17	59.40
175.0	50.00	49.78	49.36	35.23	1.43	1.69	6.08	48.42	59.48
200.0	49.80	49.58	49.14	23.65	1.42	1.87	6.13	48.29	59.03
225.0	49.69	49.45	48.99	29.72	1.40	2.08	6.24	48.27	58.57
250.0	49.73	49.48	48.99	26.53	1.36	2.33	6.29	48.64	58.31
275.0	49.89	49.63	49.12	24.78	1.30	2.59	6.41	48.34	58.09
300.0	50.09	49.82	49.29	29.40	1.21	2.89	6.47	48.36	58.04
325.0	50.45	50.17	49.63	32.75	1.12	3.19	6.52	47.97	57.74
350.0	50.62	50.36	49.82	31.19	1.16	3.48	6.58	47.75	57.54
375.0	50.65	50.40	49.89	28.91	1.35	3.75	6.64	47.72	57.38
400.0	50.49	50.26	49.78	32.24	1.59	4.03	6.65	48.16	57.41
425.0	50.46	50.26	49.82	29.20	1.81	4.27	6.81	48.26	57.40
450.0	50.59	50.44	50.05	30.91	1.97	4.56	6.91	48.06	57.41
475.0	51.10	51.03	50.73	34.50	2.05	5.01	6.95	47.68	57.32
500.0	51.74	51.79	51.63	22.34	1.96	5.67	7.06	47.18	56.97

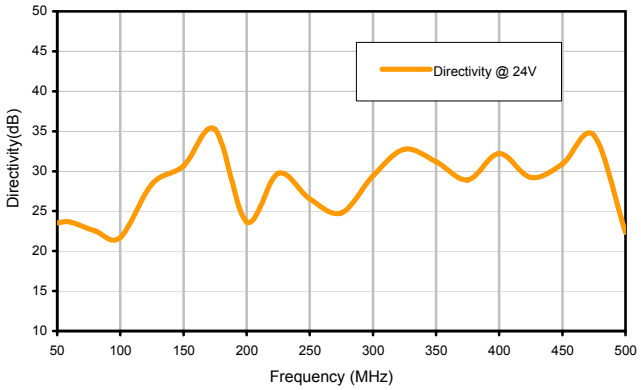
High Power Amplifier ZHL-100W-52+

Typical Performance Curves

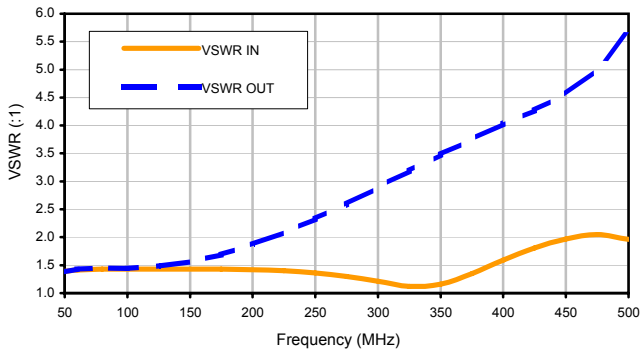
Gain



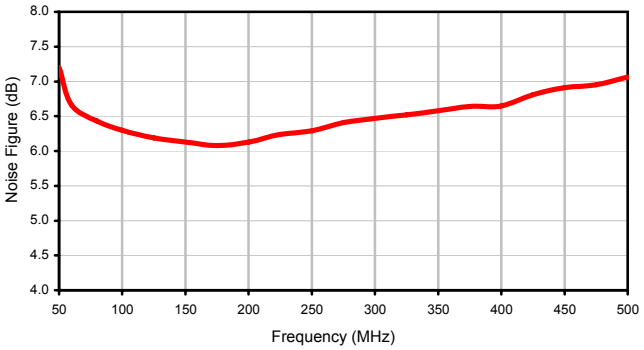
Directivity



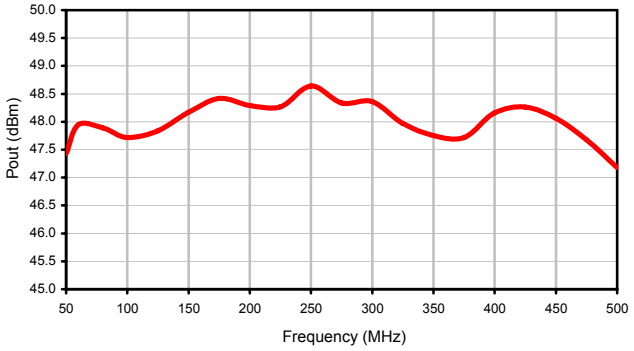
VSWR @ 24V



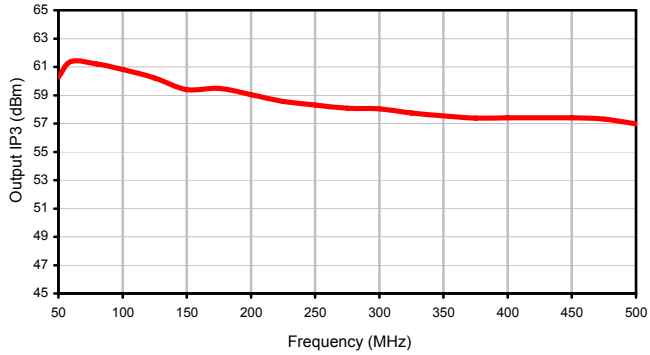
Noise Figure @ 24V



Pout @ 1dB Compression @ 24V



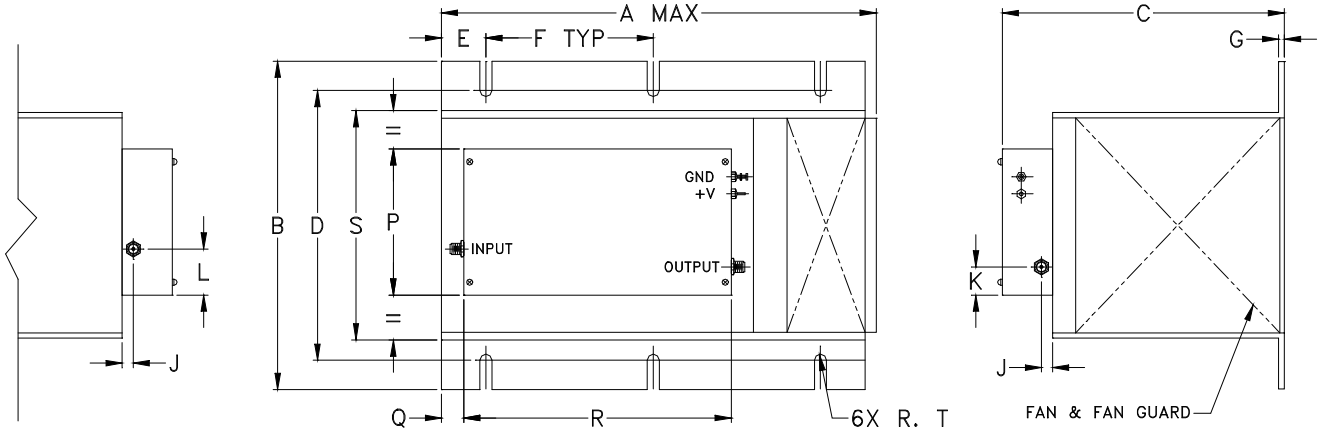
Output IP3 @ 24V



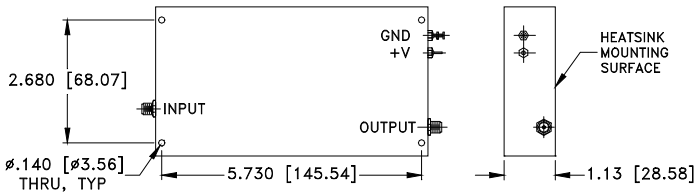
Case Style BT

BT1165

Outline Dimensions



MOUNTING INFORMATION FOR MODELS WITHOUT HEATSINK.



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
BT1165	9.85 (250.19)	7.3 (185.42)	6.3 (160.02)	6.00 (152.40)	1.00 (25.40)	3.75 (95.25)	.13 (3.30)	- -	.25 (6.35)	.63 (16.00)	1.03 (26.16)	- -	- -

CASE#	P	Q	R	S	T	WT, GRAM	WT WITHOUT HEATSINK, GRAM
BT1165	3.25 (82.55)	.5 (12.70)	6.00 (152.40)	5.1 (129.54)	.135 (3.43)	4185	500

Dimensions are in inches (mm). Tolerances: 1 Pl. ± .1; 2 Pl. ± .03; 3 Pl. ± .015

Notes:

1. Case material: Aluminum alloy.
2. Finish:
   For RoHS Case Styles: Clear Chemical conversion coating, non-chrome or trivalent chrome based.
   For non RoHS Case Styles: Yellow Chromate with low electrical Resistance.
3. Heatsink finish: Black anodize.
4. Refer to the individual model data sheet for the type of connectors available.
5. Recommended screws for mounting model without heat sink on 3/32" thick sheet: #6-32, 1.50" Length.

Mini-Circuits

Environmental Specifications **ENV23T14**

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 85° 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