

Coaxial High Power Amplifier

ZHL-100W-43+

50Ω 100W 3500 to 4000 MHz



CASE STYLE: BT1834

The Big Deal

- High power, 100W
- High gain, 50 dB typ.
- Good gain flatness, ± 1.5 dB
- Self-protected from excessive drive, heat and reverse polarity
- Withstands short and open circuit at output while delivering up to 100 watts

Product Overview

The ZHL-100W-43+ is a Class AB, high-power amplifier providing saturated power of 100W over the 3500 to 4000 MHz band, ideal for a variety of high-power test setups as well as applications including radar, communications and more. The amplifier is unconditionally stable and features built-in protection from excessive drive, overheating and reverse polarity. Capable of withstanding short and open circuit loads while delivering signals up to 100W at the output, this rugged design provides highly reliable performance and long service life. Housed in an aluminum alloy case measuring 9.85 x 7.3 x 6.6", it features SMA connectors and a heat sink and fan attachment for cooling.

Key Features

Feature	Advantages
High power, 100W	Ideal for use across a wide range of high-power applications, including test setups, communications, military and radar.
Very high gain, 50 dB	Reduces the number of gain stages, lowering component count and overall system cost.
Good gain flatness, ± 1.5 dB	Provides consistent performance across frequency without the need for gain flattening using external components.
Built-in self-protection	In instances of potentially-damaging excessive drive current, heat buildup within the housing, unshorting of DC supply, and short or open loads at the output, an automatic sensing feature signals the unit to power down.
Unconditional stability	Provides reliable performance independent of input and load conditions.

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Features

- Saturated power 100W typ.
- Wide bandwidth, usable 3200 to 4100 MHz
- High gain, 50 dB typ.
- Good gain flatness, ± 1.5 dB typ.
- Unconditionally stable
- Self protected against excessive drive, high case temp., reverse polarity and shorting/unshorting
- Can withstand short and open circuit at output while delivering 100 watts

Applications

- high power test sets
- burn-in set-ups
- communications
- radar



CASE STYLE: BT1834
 Connectors Model
SMA/N-Type ZHL-100W-43+

+RoHS Compliant

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

Product Description

ZHL-100W-43+ is a Class-AB, unconditionally stable amplifier. It features a ruggedized case, the ability to withstand accidental open or short at output and reverse bias protection for added reliability under difficult conditions.

Electrical Specifications at 25°C

Parameter	Condition (MHz)	ZHL-100W-43+			Units
		Min.	Typ.	Max.	
Frequency Range		3500	—	4000	MHz
Gain ¹	3500-4000	45	50	57	dB
Gain Flatness ¹	3500-4000	—	± 1.5	± 2.0	dB
Output Power at 1dB compression	3500-4000	+48	+50	—	dBm
Output Power at 3dB compression	3500-4000	+49	+51	—	dBm
Noise Figure	3500-4000	—	8	12	dB
Output third order intercept point ²	3500-4000	+51	+54	—	dBm
Input VSWR ¹	3500-4000	—	1.6	2.0	:1
Output VSWR ¹	3500-4000	—	1.6	2.0	:1
DC Supply Voltage		—	28 ⁴	30	V
Supply Current ³		—	18	20	A

1. Small signal input power -15 dBm typ.

2. Two tones, 40 dBm/tone, 1 MHz spacing.

3. Power supply should be capable of delivering 20A at start up;
 18 A current measurement at 100 W output.

4. Recommended Operating Voltage.

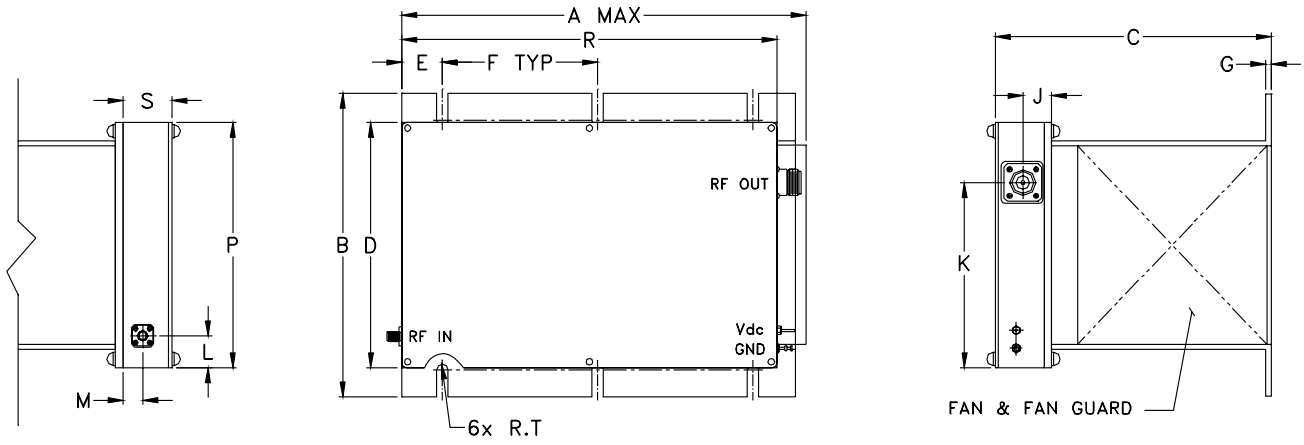
Maximum Ratings

Parameter	Ratings
Operating Ambient Temperature (With Mini-Circuits' heatsink and fan)	-20°C to 45°C
Storage Temperature	-55°C to 100°C
DC Voltage	30V
Input RF Power (no damage)	+7 dBm

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



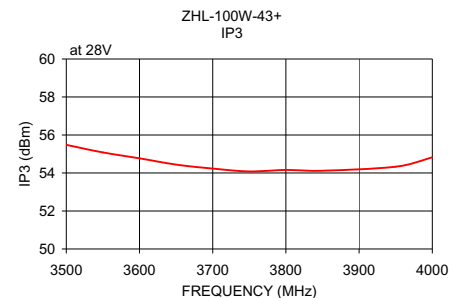
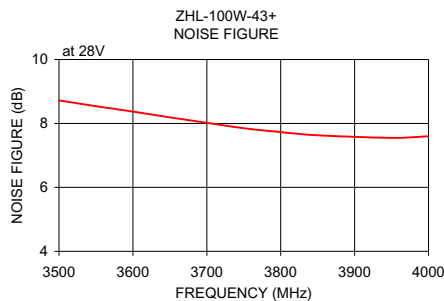
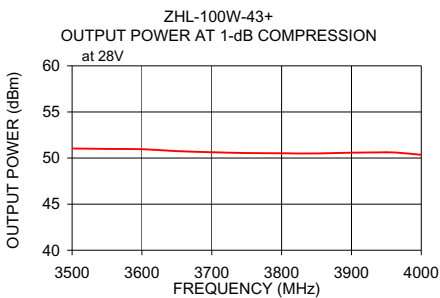
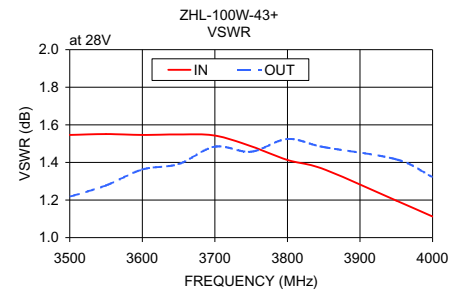
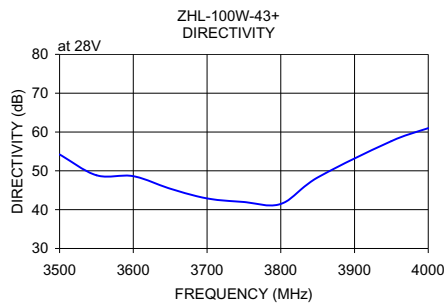
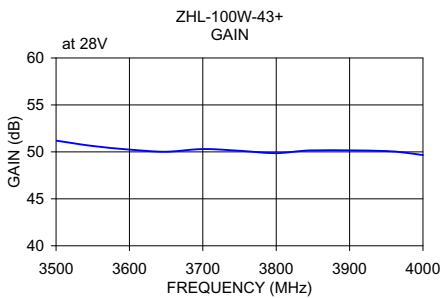
Outline Drawing for models with heatsink



Outline Dimensions (inch mm)

A	B	C	D	E	F	G	J	K	L	M	P	R	S	T	wt
9.85	7.3	6.6	6.00	.98	3.75	.13	.51	4.46	.77	.47	5.91	9.06	1.18	.135	grams*
250.19	185.42	167.64	152.40	24.89	95.25	3.30	12.95	113.28	19.56	11.94	150.11	230.12	29.97	3.43	5350

FREQUENCY (MHz)	GAIN (dB)	DIRECTIVITY (dB)	VSWR (:1)		POUT at 1 dB COMPR. (dBm)	NOISE FIGURE (dB)	IP3 (dBm)
	28V	28V	IN	OUT	28V	28V	28V
3500	51.19	54.21	1.55	1.22	51.03	8.72	55.48
3550	50.63	48.85	1.55	1.28	50.99	8.54	55.08
3600	50.24	48.62	1.55	1.36	50.96	8.37	54.77
3650	50.02	45.40	1.55	1.39	50.75	8.19	54.44
3700	50.30	42.89	1.54	1.48	50.63	8.02	54.23
3750	50.12	41.97	1.49	1.46	50.54	7.85	54.08
3800	49.87	41.46	1.41	1.52	50.52	7.73	54.16
3850	50.16	48.29	1.36	1.48	50.50	7.63	54.12
3950	50.08	57.64	1.20	1.42	50.62	7.55	54.33
4000	49.67	61.00	1.11	1.32	50.35	7.60	54.82



Additional Notes

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- 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/MCLStore/terms.jsp