

# Coaxial High Power Amplifier

50Ω    100W    3250 to 3850 MHz

**ZHL-100W-382+**

## The Big Deal

- Output Power at Saturation 100W typ.
- Wide bandwidth, 3250 to 3850 MHz
- High gain, 47 dB typ.
- Good gain flatness,  $\pm 1.0$  dB typ.
- Unconditionally stable
- Self protected against high case temp., reverse polarity and shorting/unshorting
- Can withstand short and open circuit at output while delivering 100 watts



ZHL-100W-382+



ZHL-100W-382X+

## Product Overview

The ZHL-100W-382+ is a Class AB, high-power amplifier providing 100W saturated power over the 3250 to 3850 MHz band, ideal for a variety of high-power test setups as well as applications including communications, radar and more. The ruggedly-designed amplifier provides unconditional stability and built-in self-protection against reverse polarity and overheating. It is capable of withstanding short and open circuits at output while continuously delivering 100W of power. Housed in a rugged aluminum alloy case measuring 5.6 x 8.8 x 1.2", the unit features SMA-N type connectors and an optional heat sink and fan attachment for cooling.

## Key Features

Feature	Advantages
Wideband, usable from 3100 to 4000 MHz	Suitable for a broad range of high-power, wideband applications, including test setups, communications and defense applications.
High gain, 47 dB	Enables signal amplification to 100W output without the need for multiple gain stages.
Good gain flatness, $\pm 1.0$ dB	Provides consistent performance across frequency without the need for gain flattening using external components.
Built-in self-protection	In instances of potentially-damaging 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

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- Wide bandwidth, 3250 to 3850 MHz
- High gain, 47 dB typ.
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- Unconditionally stable
- Self protected against 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



Model No.	ZHL-100W-382+	▲ZHL-100W-382X+
Case Style	BT1834	
Connectors	IN-SMA, OUT-N-Type	

### +RoHS Compliant

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

## Product Description

ZHL-100W-382+ 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-382+ ▲ZHL-100W-382X+			Units
		Min.	Typ.	Max.	
Frequency Range		3250	—	3850	MHz
Gain <sup>1</sup>	3250-3850	44	47	56	dB
Gain Flatness <sup>1</sup>	3250-3850	—	$\pm 1.0$	$\pm 2.0$	dB
Output Power at 1dB compression	3250-3850	+48	+50	—	dBm
Output Power at saturation	3250-3850	+49	+51	—	dBm
Noise Figure	3250-3850	—	9.5	13	dB
Output third order intercept point <sup>2</sup>	3250-3850	+49	+58	—	dBm
Input VSWR <sup>1</sup>	3250-3850	—	1.3	2.5	:1
Output VSWR <sup>1</sup>	3250-3850	—	1.3	2.5	:1
DC Supply Voltage		—	28 <sup>4</sup>	30	V
Supply Current <sup>3</sup>		—	18	20	A

1. Small signal input power -15 dBm typ.

2. Two tones, 40 dBm/line, 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.

▲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 60°C, in order to ensure proper performance. For reference, this requires thermal resistance of user's external heat sink to be 0.05°C/W max.

## Maximum Ratings

Parameter	Ratings
Operating Ambient Temperature (With Mini-Circuits' heatsink and fan)	-20°C to 45°C
Base Plate Temperature (When used with alternative heatsink)	-20°C to 60°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.

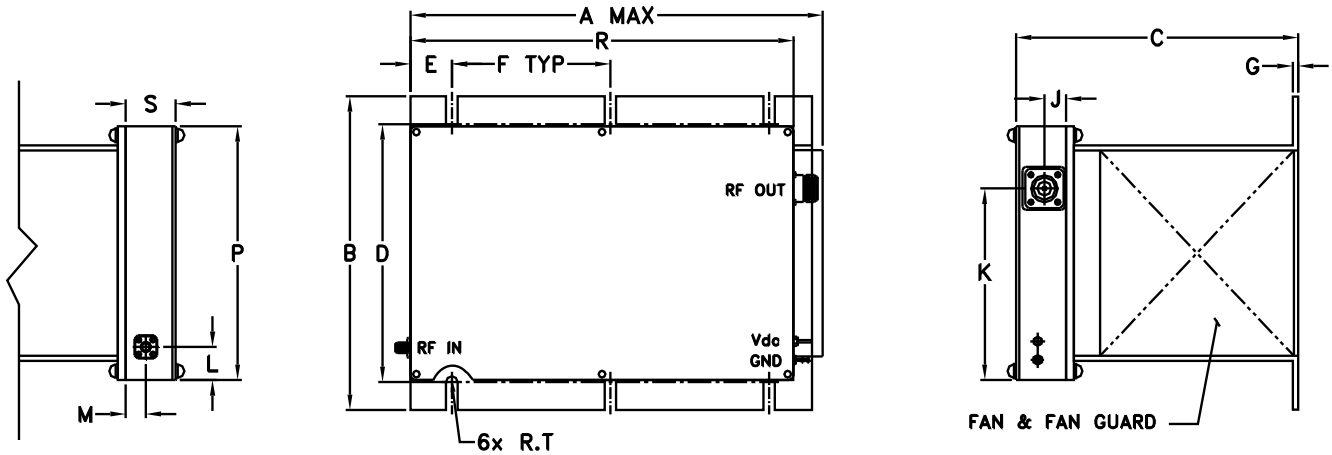


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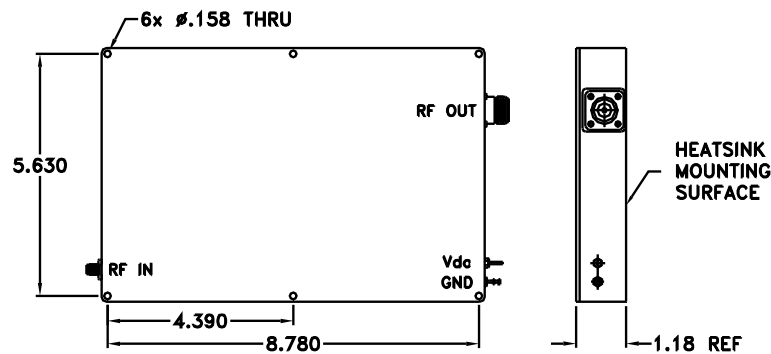
REV. OR  
M164492  
ZHL-100W-382+  
SK/CP/AM  
171024

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## Outline Drawing for models with heatsink



## MOUNTING INFORMATION FOR MODELS WITHOUT HEATSINK.

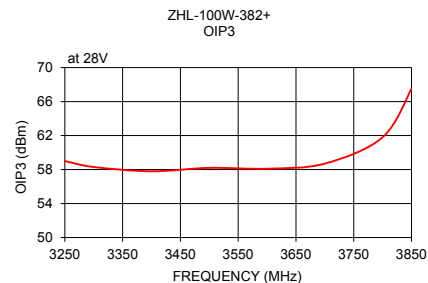
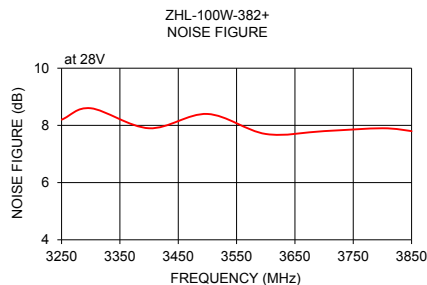
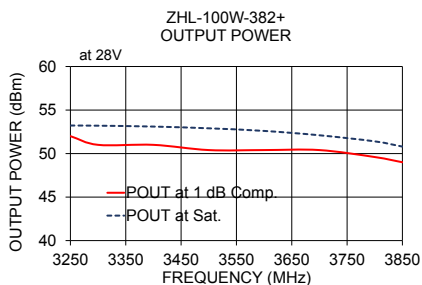
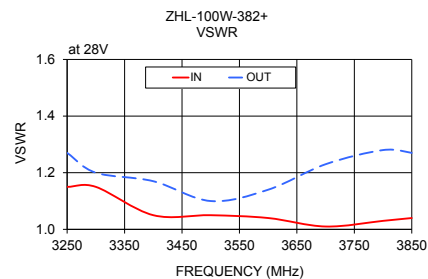
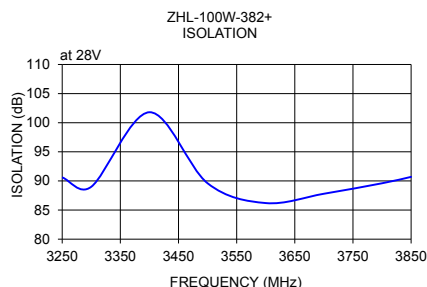
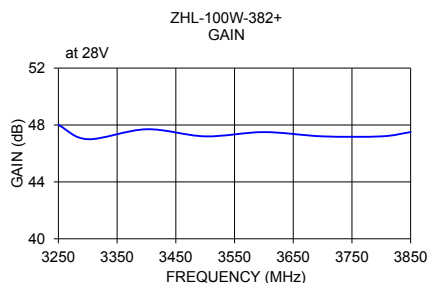


## Outline Dimensions (inch/mm)

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

\*1670 grams without heatsink

FREQUENCY (MHz)	GAIN (dB)	ISOLATION (dB)	VSWR (:1)		POUT at 1 dB COMPR. (dBm)	POUT at SAT (dBm)	NOISE FIGURE (dB)	OUTPUT IP3 (dBm)
	28V	28V	IN	OUT	28V	28V	28V	28V
3250	48.00	90.60	1.15	1.27	52.00	53.22	8.20	59.00
3300	47.00	89.00	1.15	1.20	51.00	53.20	8.60	58.30
3400	47.70	101.80	1.05	1.17	51.00	53.10	7.90	57.80
3500	47.20	89.60	1.05	1.10	50.40	52.90	8.40	58.20
3600	47.50	86.20	1.04	1.14	50.40	52.60	7.70	58.10
3700	47.20	87.80	1.01	1.23	50.40	52.10	7.80	58.70
3800	47.20	89.60	1.03	1.28	49.60	51.40	7.90	61.80
3850	47.50	90.70	1.04	1.27	49.00	50.80	7.80	67.50



## 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](http://www.minicircuits.com/MCLStore/terms.jsp)