

Coaxial High Power Amplifier

ZHL-15W-422-S+
ZHL-15W-422X-S+

50Ω 15W 600 to 4200 MHz

The Big Deal

- Saturated power, 15W
- Wide bandwidth, 600 to 4200 MHz
- High gain, 46 dB typ.
- Self-protected against high case temp., reverse polarity and shorting / unshorting
- Withstands short and open circuit at output while delivering up to 10W



ZHL-15W-422-S+



ZHL-15W-422X-S+

Product Overview

The ZHL-15W-422+ is a Class A, high-power amplifier providing 15W saturated power over the 600 to 4200 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, shorting/unshorting and overheating. It is capable of withstanding short and open circuits at output while continuously delivering 10W of power. Housed in a rugged aluminum alloy case measuring 4.3 x 6.7 x 1.2", the unit features SMA connectors and an optional heat sink and fan attachment for cooling.

Key Features

Feature	Advantages
Wideband, usable from 500 to 4300 MHz	Suitable for a broad range of high-power, wideband applications, including test setups, communications and defense applications.
High gain, 46 dB typ.	Enables signal amplification to 15W output without the need for multiple gain stages.
Built-in self-protection	Self-protected against high case temperature, reverse polarity and shorting / unshorting
Unconditional stability	Provides reliable performance independent of input and load conditions.

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50Ω 15W 600 to 4200 MHz

ZHL-15W-422-S+ ZHL-15W-422X-S+

Features

- Saturated power 15W typ.
- Wide bandwidth, 600 to 4200 MHz
- High gain, 46 dB typ.
- Good gain flatness, ± 2.0 dB typ.
- Unconditionally stable
- Self-protected from heat and reverse polarity
- Withstands short and open circuit at output while delivering up to 10W

Applications

- High power test sets
- Burn-in set-ups
- Communications
- Radar



ZHL-15W-422-S+

ZHL-15W-422X-S+

Case Style: CP2548

Connectors	Model No.
IN-SMA, OUT-SMA	ZHL-15W-422-S+
IN-SMA, OUT-SMA	ZHL-15W-422X-S+ [▲]

+RoHS Compliant

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

Electrical Specifications at 25°C

Parameter	Condition (MHz)	ZHL-15W-422-S+ ZHL-15W-422X-S+ [▲]			Units
		Min	Typ.	Max.	
Frequency Range		600		4200	MHz
Gain ¹	600 - 4200	41	46	51	dB
Gain Flatness ¹	600 - 4200	—	± 2.0	—	dB
Output Power at 1dB compression	600 - 4200		+39		dBm
Output Power Saturated	600 - 4200		+42		dBm
Noise Figure	600 - 4200		10		dB
Output third order intercept point ²	600 - 4200		+47		dBm
Input VSWR ¹	600 - 4200		1.3		:1
Output VSWR ¹	600 - 4200		2.0		:1
DC Supply Voltage		26	28 ³	32	V
Supply Current ¹		—	—	3.5	A

1. Small signal input power -50 dBm typ.

2. Two tones, 27 dBm/tone, 1 MHz spacing.

3. Recommended Operating Voltage.

Power Supply should be capable of delivering 4A at start-up.

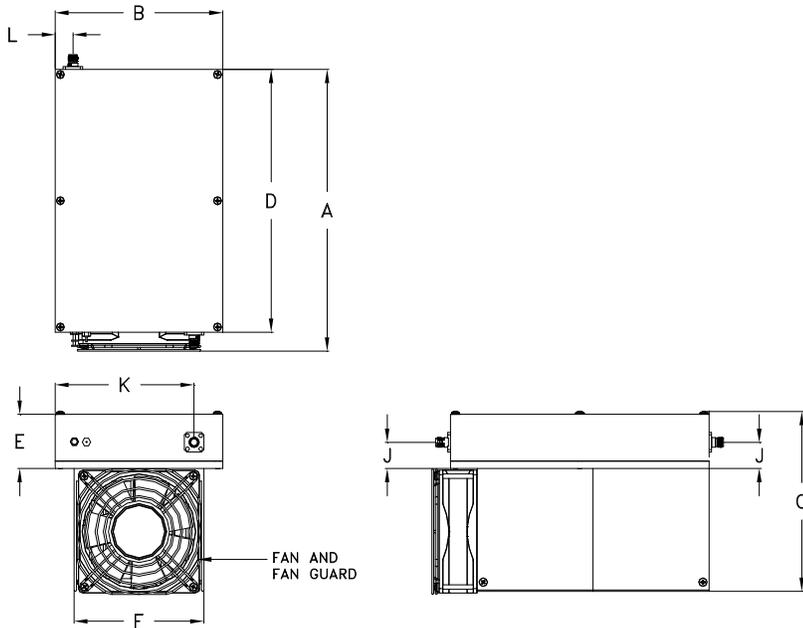
[▲]Heat sink and fan not included. Alternative heat sinking and heat removal must be provided by the user to limit maximum base-plate temperature to 85°C, in order to ensure proper performance. For reference, this requires thermal resistance of user's external heat sink to be 0.3°C/W max.

Maximum Ratings

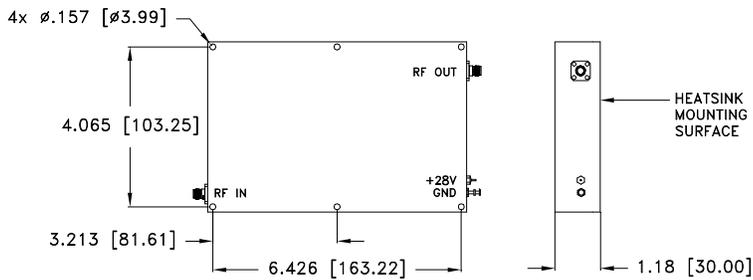
Parameter	Ratings
Operating Temperature	-20°C to 50°C
Base Plate Temperature	85°C
Storage Temperature	-55°C to 100°C
DC Voltage	32V
Input RF Power (no damage)	+7 dBm

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

Outline Drawing for model with heatsink



MOUNTING INFORMATION OF MODEL WITHOUT HEATSINK



Outline Dimensions (inch/mm)

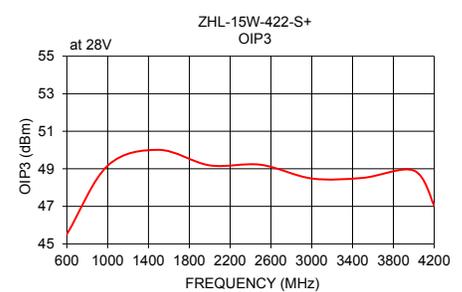
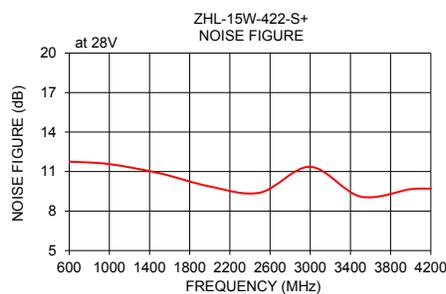
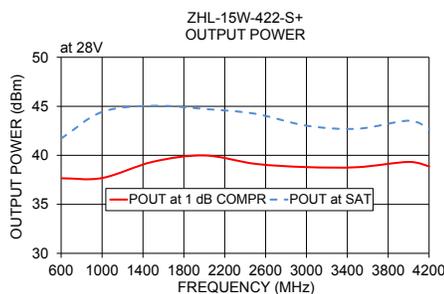
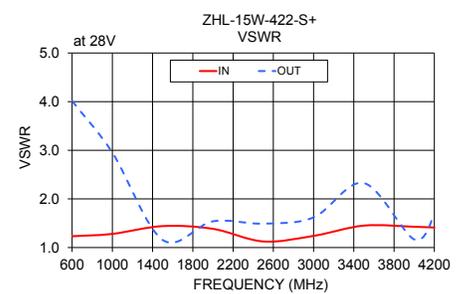
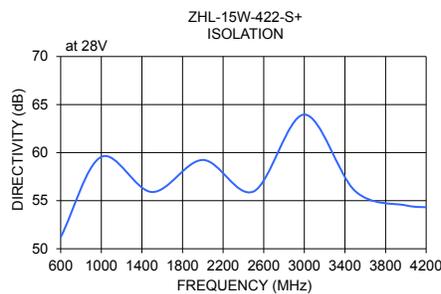
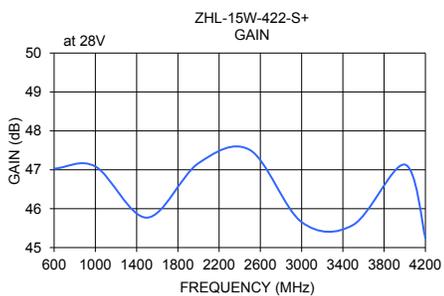
A	B	C	D	E	F	G	H	J	K	L	M	N	wt
7.25	4.33	4.58	6.69	1.38	3.36	--	--	0.67	3.34	0.71	--	--	grams*
184.15	110.00	116.33	170.00	35.05	85.34	--	--	17.05	84.80	18.00	--	--	2041

*880 grams without heatsink

Typical Performance Data/Curves

ZHL-15W-422-S+ ZHL-15W-422X-S+

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
600	47.03	51.20	1.23	4.01	37.66	41.71	11.76	45.51
1000	47.09	59.56	1.28	2.95	37.68	44.43	11.57	49.17
1500	45.77	55.90	1.44	1.16	39.35	45.05	10.87	50.01
2000	47.17	59.24	1.38	1.54	39.99	44.73	9.87	49.18
2500	47.51	55.96	1.13	1.49	39.13	44.24	9.40	49.22
3000	45.65	63.96	1.24	1.62	38.80	43.03	11.36	48.48
3500	45.58	56.00	1.45	2.33	38.79	42.71	9.10	48.52
4000	47.13	54.51	1.43	1.17	39.33	43.53	9.66	48.91
4200	45.25	54.32	1.41	1.67	38.87	42.70	9.70	47.04



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