



Mini-Circuits

COAXIAL

High Power Amplifier

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

50Ω 15 W 600 to 4200 MHz Input- & Output-SMA Female

THE BIG DEAL

- Saturated Power, 15 W
- 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 10 W

APPLICATIONS

- High Power Test Sets
- Burn-In Setups
- Communications
- Radar

PRODUCT OVERVIEW

Mini-Circuits' ZHL-15W-422(X)-S+ is a Class A, high-power amplifier providing 15 W 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 10 W of power. Housed in a rugged aluminum alloy case measuring 4.3x6.7x1.2", the unit features SMA connectors and an optional heatsink and fan attachment for cooling.

KEY FEATURES

Feature	Advantages
Wideband Operation	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 15 W 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.



Generic photo used for illustration purposes only

Model No.	ZHL-15W-422-S+	ZHL-15W-422X-S+ ▲
Case Style	CP2548	
Connectors	Input-SMA female, Output-SMA female	

+RoHS Compliant

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





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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 1 dB 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 4 A at startup.

▲ Heatsink and fan not included. Alternative heat sinking and heat removal must be provided by the user to limit maximum baseplate temperature to +85 °C, in order to ensure proper performance. For reference, this requires thermal resistance of user's external heatsink to be 0.3 °C/W max.

ABSOLUTE MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-20 °C to +50 °C
Baseplate Temperature	+85 °C
Storage Temperature	-55 °C to +100 °C
DC Voltage	+32 V
Input RF Power (No Damage)	+7 dBm

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





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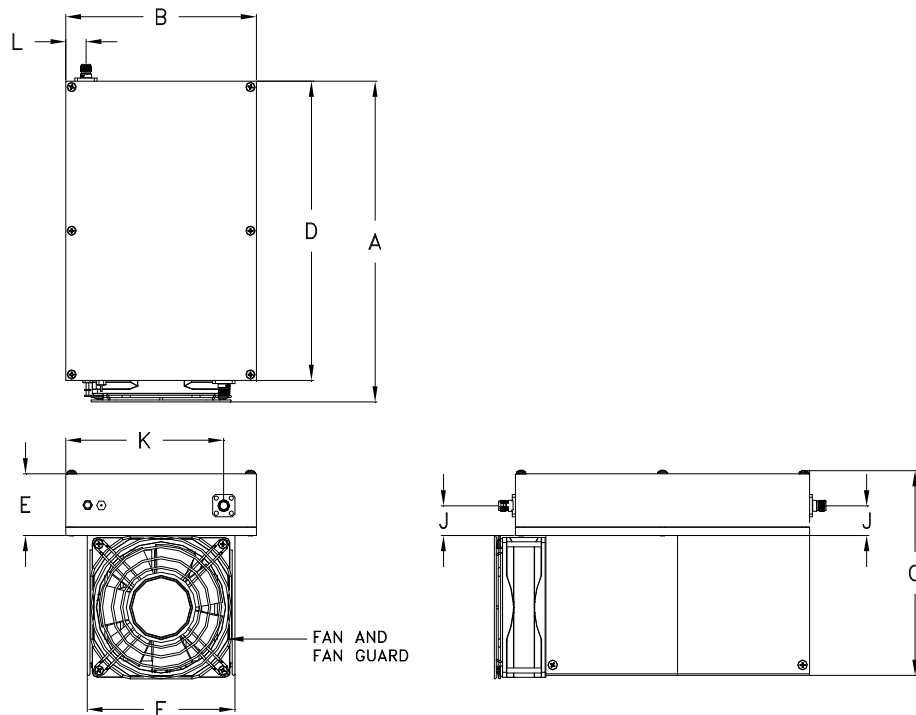
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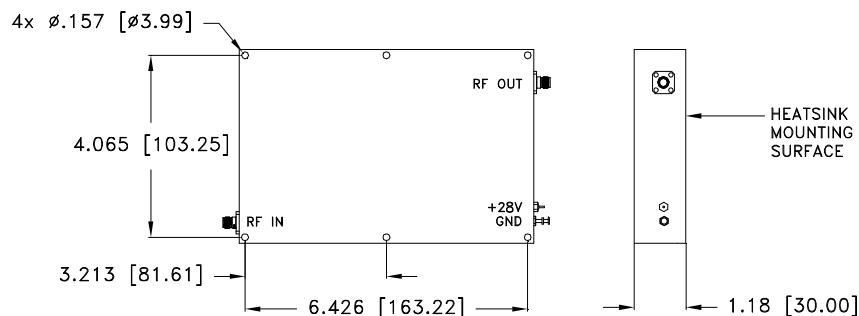
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OUTLINE DRAWING FOR MODEL WITH HEATSINK



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



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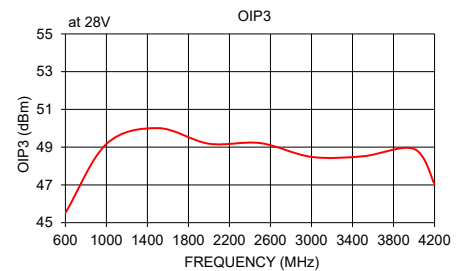
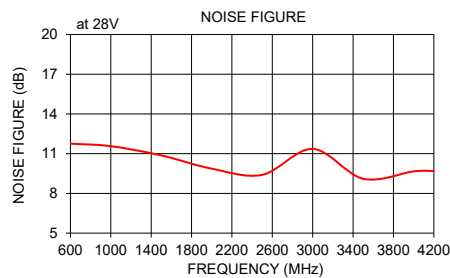
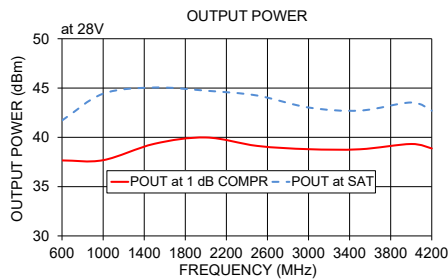
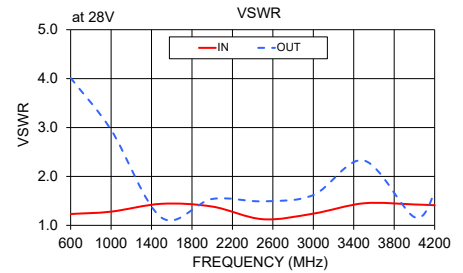
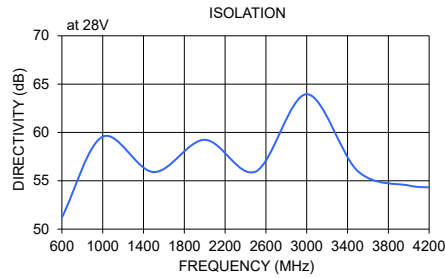
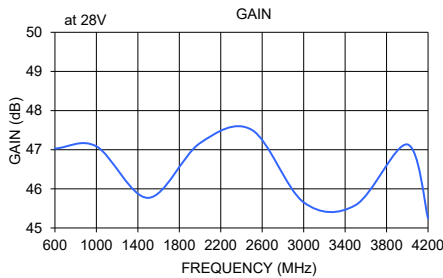
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TYPICAL PERFORMANCE DATA/CURVES

FREQUENCY (MHz)	GAIN (dB)	ISOLATION (dB)	VSWR (:1)		P _{OUT} at 1 dB COMPR. (dBm)	P _{OUT} at SAT (dBm)	NOISE FIGURE (dB)	OUTPUT IP3 (dBm)
	+28 V	+28 V	IN	OUT	+28 V	+28 V	+28 V	+28 V
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



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/terms/viewterm.html

