

Coaxial Amplifier

ZHL-42+

50Ω Medium High Power 600 to 4200 MHz

The Big Deal

- Wideband, 600 to 4200 MHz
- High gain, 38 dB
- Excellent gain flatness, ± 0.8 dB
- High IP3, +44 dBm



Product Overview

Mini-Circuits' ZHL-42+ is a medium-power connectorized amplifier supporting a wide range of applications from 600 to 4200 MHz, such as test instrumentation, SatCom, and mobile communications systems, including those operating in the new telecom Band 71 allocation (617 to 698 MHz). This model provides +31 dBm output power at saturation and extremely flat gain (39 ± 0.8 dB) across its full bandwidth, making it ideal for systems where consistent performance across frequency is required. The amplifier operates on a 15V DC supply and comes housed in compact aluminum alloy case (7.00 x 3.25 x 2.13") with SMA connectors, built-in bracket for mounting, and an optional heat sink for efficient cooling.

Key Features

Feature	Advantages
Wideband, 600 to 4200 MHz	One amplifier supports a broad range of system and test lab applications. Extended bandwidth down to 600 MHz supports new telecom Band 71 allocation (617 to 698 MHz)
High gain, 38 dB	Reduces the number of gain stages, lowering component count and overall system cost.
Excellent gain flatness, ± 0.8 dB	Provides consistent performance across frequency, minimizing the need for external equalizing networks in wideband applications.
Medium output power, +31 dBm P3dB	Supports a wide range of power requirements.
High OIP3, +44 dBm	Provides highly linear performance with excellent sensitivity and two-tone spur-free dynamic range.

Notes

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ZHL-42+

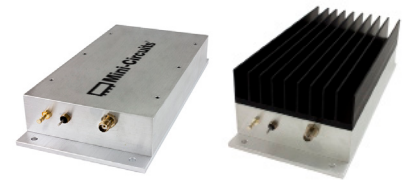
50Ω Medium High Power 600 to 4200 MHz

Features

- wideband, 600 to 4200 MHz
- high IP3, +44 dBm typ.
- high gain, 35 dB min.

Applications

- communication systems
- cellular
- instrumentation
- laboratory



ZHL-42X+

ZHL-42+

CASE STYLE: U36

Connectors	Model
SMA	ZHL-42+
SMA	ZHL-42X+

+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-42+ ▲ZHL-42X+			Units
		Min.	Typ.	Max.	
Frequency Range		600	—	4200	MHz
Gain	600-4200	35	38	42	dB
Gain Flatness	600-4200	—	±0.8	±1.3	dB
Output Power at 1dB compression	600-4200	+28	+30	—	dBm
Output Power at 3dB compression	600-4200	+29	+31	—	dBm
Noise Figure	600-4200	—	8.5	—	dB
Output third order intercept point	600-4200	—	+44	—	dBm
Input VSWR	600-4200	—	1.5	2.5	:1
Output VSWR	600-4200	—	2.0	2.5	:1
DC Supply Voltage		—	15	—	V
Supply Current		—	—	1.0	A

Open load is not recommended, potentially can cause damage.
With no load derate max. input power by 20 dB.

▲Heat sink not included. Alternative heat sinking and heat removal must be provided by the user to limit maximum base-plate temperature to 65°C, in order to ensure proper performance. For reference, this requires thermal resistance of user's external heat sink to be 1.3°C/W max.

Maximum Ratings

Parameter	Ratings
Operating Temperature	-20°C to 65°C
Storage Temperature	-55°C to 100°C
DC Voltage	+20V
Input RF Power (no damage)	+5 dBm

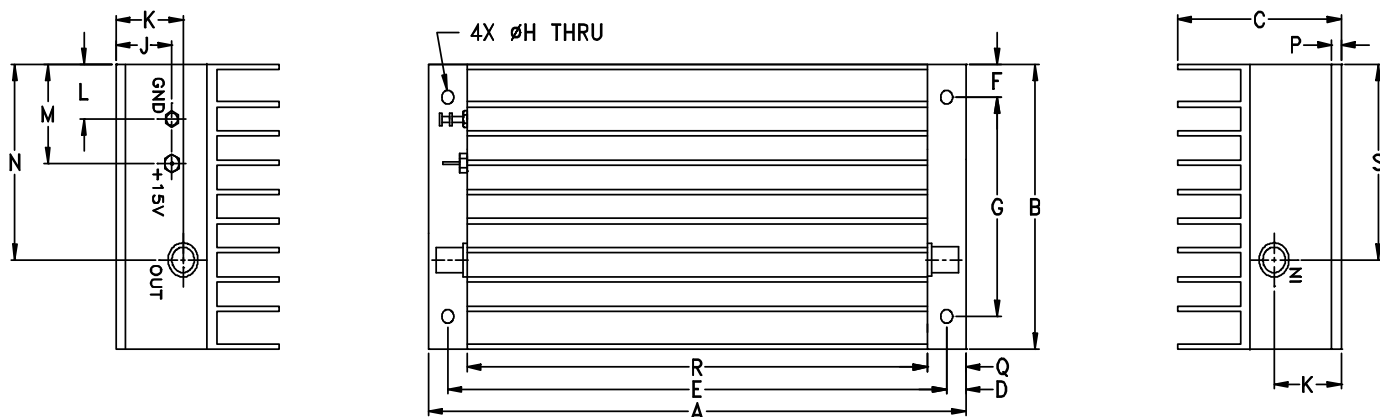
Permanent damage may occur if any of these limits are exceeded.

Notes

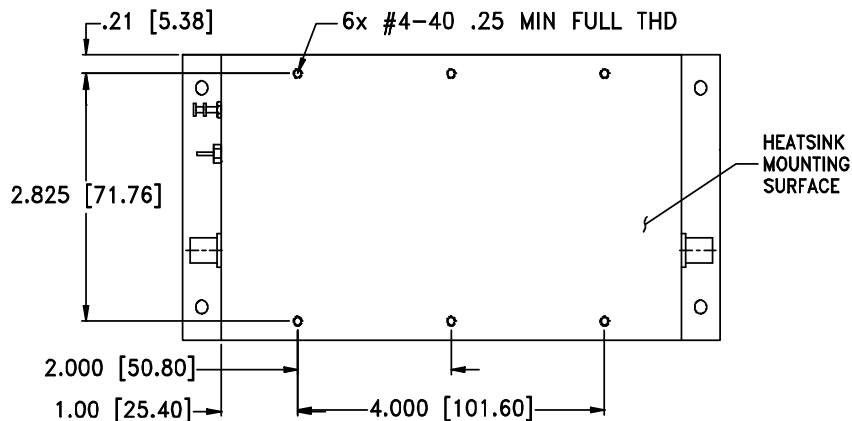
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Outline Drawing for models with heatsink



MOUNTING INFORMATION FOR MODELS WITHOUT HEATSINK



Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	wt
7.00	3.25	2.13	.25	6.500	.38	2.500	.156	.73	.88	.63	1.13	2.23	.125	.50	6.00	2.23	grams
177.80	82.55	54.10	6.35	165.10	9.65	63.50	3.96	18.54	22.35	16.00	28.70	56.64	3.18	12.70	152.40	56.64	900

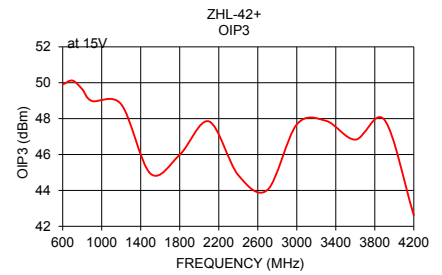
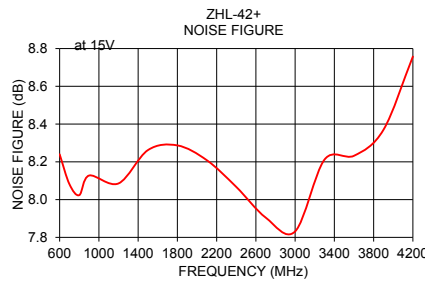
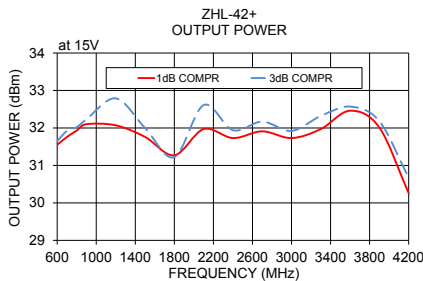
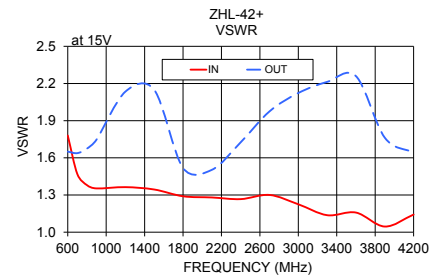
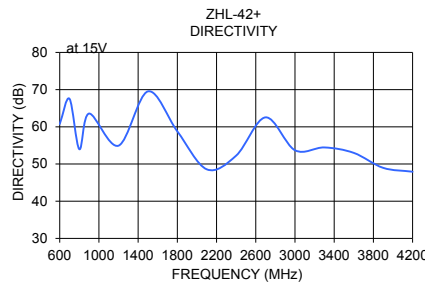
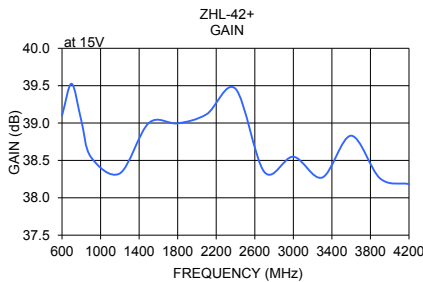
*600 grams without heatsink

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FREQUENCY (MHz)	GAIN (dB)	DIRECTIVITY (dB)	VSWR (:1)		POUT at 1 dB COMPR. (dBm)	POUT at 3 dB COMPR. (dBm)	NOISE FIGURE (dB)	IP3 (dBm)
	15V	15V	IN	OUT	15V	15V	15V	15V
600	39.10	60.75	1.78	1.65	31.55	31.65	8.24	49.90
700	39.53	67.53	1.47	1.64	31.76	31.92	8.08	50.12
800	39.03	53.97	1.38	1.67	31.93	32.02	8.02	49.64
900	38.54	63.56	1.35	1.75	32.10	32.23	8.13	48.98
1200	38.33	54.93	1.36	2.13	32.07	32.79	8.09	48.80
1500	39.00	69.53	1.34	2.15	31.76	32.00	8.26	44.93
1800	39.00	58.78	1.29	1.52	31.27	31.22	8.29	45.99
2100	39.12	48.57	1.28	1.50	31.97	32.61	8.21	47.85
2400	39.46	52.25	1.27	1.73	31.73	31.94	8.07	44.85
2700	38.34	62.54	1.30	1.97	31.91	32.17	7.90	44.03
3000	38.55	53.70	1.23	2.12	31.73	31.92	7.83	47.68
3300	38.27	54.45	1.14	2.21	31.97	32.32	8.21	47.88
3600	38.83	52.99	1.16	2.26	32.46	32.57	8.23	46.83
3900	38.26	48.96	1.05	1.76	32.01	32.18	8.37	47.92
4200	38.18	47.93	1.14	1.64	30.26	30.67	8.76	42.62



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