

Coaxial High Power Amplifier

ZHL-100W-13+

50Ω 100W 800 to 1000 MHz

Features

- saturated power 100W typ.
- wide bandwidth, usable 750 to 1050 MHz
- high gain, 50 dB typ.
- good gain flatness, ±1dB 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



| | | |
|------------|--------------------|----------------|
| Model No. | ZHL-100W-13+ | ▲ZHL-100W-13X+ |
| Case Style | BT1689 | |
| Connectors | IN-SMA, OUT-N-Type | |

Applications

- AM/FM
- multi-carrier amplification
- broadband swept signal
- linear pulse
- feed forward

+RoHS Compliant

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

Product Description

ZHL-100W-13+ 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-13+ ▲ZHL-100W-13X+ | | | Units |
|---|-----------------|--------------------------------|-----------------|------|-------|
| | | Min. | Typ. | Max. | |
| Frequency Range | | 800 | — | 1000 | MHz |
| Gain ¹ | 800 - 1000 | 45 | 50 | 57 | dB |
| Gain Flatness | 800 - 1000 | — | ±1.0 | ±1.5 | dB |
| Output Power at 1dB compression | 800 - 1000 | +47.5 | +49 | — | dBm |
| Output Power at 3dB compression | 800 - 1000 | +48.5 | +50 | — | dBm |
| Noise Figure | 800 - 1000 | — | 7 | 10 | dB |
| Output third order intercept point ² | 800 - 1000 | +52 | +60 | — | dBm |
| Input VSWR | 800 - 1000 | — | 1.3 | 1.6 | :1 |
| Output VSWR | 800 - 1000 | — | 1.4 | 1.6 | :1 |
| DC Supply Voltage | | — | 28 ⁴ | 30 | V |
| Supply Current ³ | | — | 10 | 14.5 | 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 17A at start up.
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 0.035°C/W max.

Maximum Ratings

| Parameter | Ratings |
|----------------------------|----------------|
| Operating Temperature | -20°C to 45°C |
| Base Plate Temperature | 60°C |
| Storage Temperature | -55°C to 100°C |
| DC Voltage | 30V |
| Input RF Power (no damage) | +7 dBm |

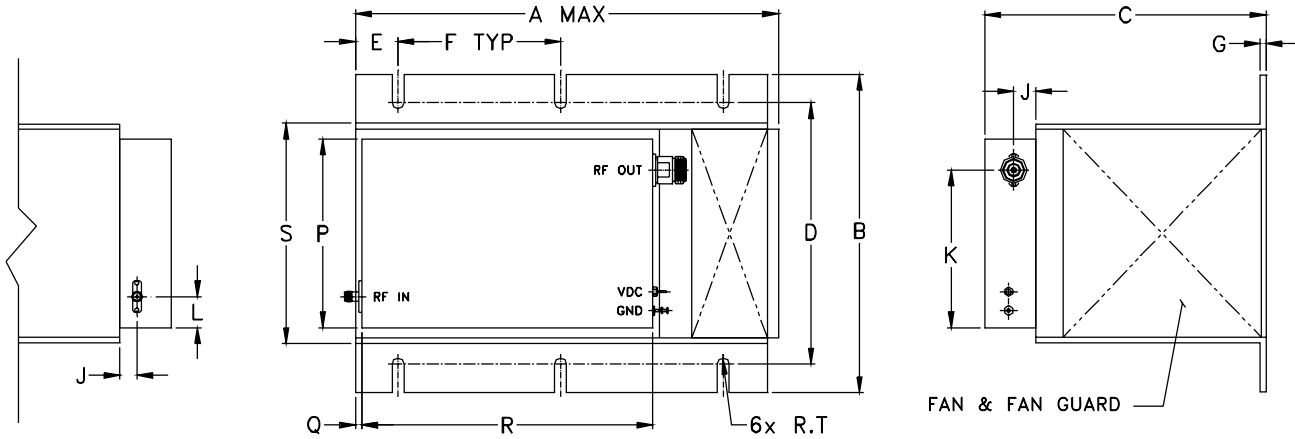
Permanent damage may occur if any of these limits are exceeded.

Notes

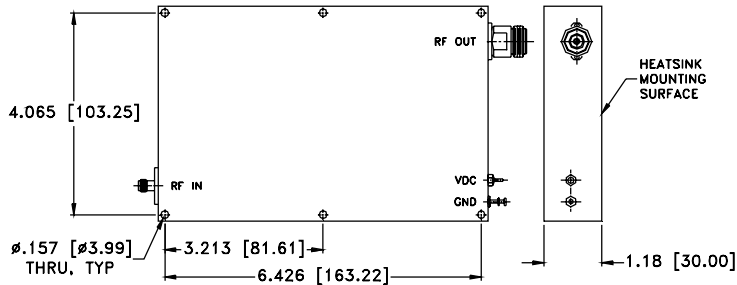
- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- C. 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/WCLStore/terms.jsp



Outline Drawing for models with heatsink



Outline Drawing for models without heatsink



Outline Dimensions (inch/mm)

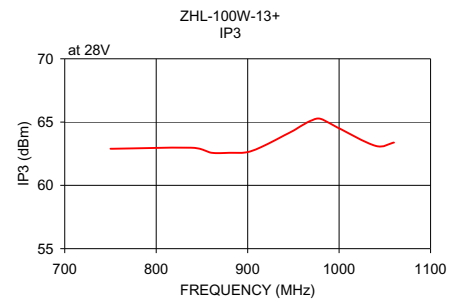
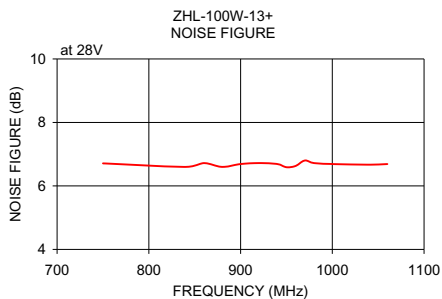
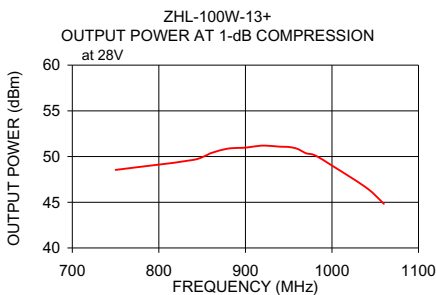
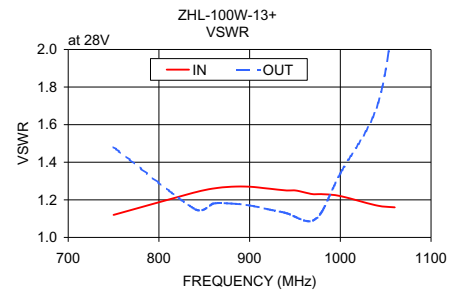
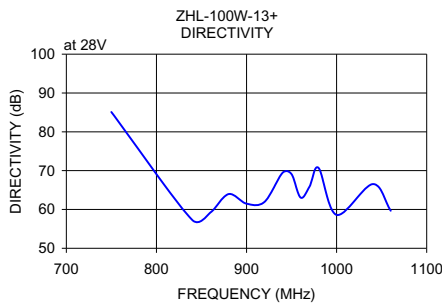
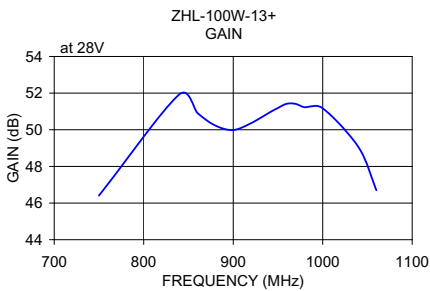
| A | B | C | D | E | F | G | J | K | L | P | Q | R | S | T | wt |
|--------|--------|--------|--------|-------|-------|------|-------|-------|-------|--------|------|--------|--------|-------------|------|
| 9.85 | 7.3 | 6.5 | 6.00 | .98 | 3.75 | .13 | .51 | 3.62 | .72 | 4.33 | .2 | 6.69 | 5.1 | .136 grams* | |
| 250.19 | 185.42 | 165.10 | 152.40 | 24.89 | 95.25 | 3.30 | 12.95 | 91.95 | 18.29 | 109.98 | 5.08 | 169.93 | 129.54 | 3.45 | 5645 |

*800 grams without heatsink

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| 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 |
| 750 | 46.41 | 85.10 | 1.12 | 1.48 | 48.54 | 6.71 | 62.89 |
| 840 | 51.94 | 57.24 | 1.24 | 1.15 | 49.64 | 6.60 | 62.97 |
| 860 | 50.92 | 59.22 | 1.26 | 1.18 | 50.37 | 6.72 | 62.58 |
| 880 | 50.23 | 63.96 | 1.27 | 1.18 | 50.87 | 6.60 | 62.57 |
| 900 | 49.99 | 61.48 | 1.27 | 1.17 | 50.97 | 6.69 | 62.63 |
| 920 | 50.36 | 61.95 | 1.26 | 1.15 | 51.20 | 6.72 | 63.20 |
| 940 | 50.93 | 69.45 | 1.25 | 1.13 | 51.08 | 6.69 | 63.95 |
| 950 | 51.19 | 69.08 | 1.25 | 1.11 | 51.05 | 6.59 | 64.32 |
| 960 | 51.42 | 63.07 | 1.24 | 1.09 | 50.84 | 6.63 | 64.76 |
| 970 | 51.41 | 65.92 | 1.23 | 1.09 | 50.36 | 6.80 | 65.13 |
| 980 | 51.23 | 70.67 | 1.23 | 1.14 | 50.15 | 6.72 | 65.25 |
| 1000 | 51.17 | 58.60 | 1.22 | 1.34 | 49.02 | 6.69 | 64.51 |
| 1040 | 49.05 | 66.54 | 1.17 | 1.69 | 46.57 | 6.67 | 63.12 |
| 1060 | 46.70 | 59.66 | 1.16 | 2.18 | 44.83 | 6.69 | 63.38 |



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