



CASE STYLE: GC957

The Big Deal

- Industry Leading High IP3, 46 dBm typ.
- Output Power at 1 dB Compression, +23 dBm
- Wideband, 500 to 1200 MHz

Product Overview

The ZX60-H122+ (RoHS compliant) uses Mini-Circuits' high dynamic MMIC technology and optimization circuits to provide industry leading linearity over a focused frequency range. Housed in a rugged, cost effective unibody chassis, this amplifier supports a wide variety of applications requiring moderate power output, low distortion and 50 ohm matched input/output ports.

Key Features

| Feature | Advantages |
|--|--|
| Extreme High IP3 vs. Current 46.2 dBm typical at 900 MHz versus DC Power consumption of 145mA | The ZX60-H122+ offers industry leading IP3 performance relative to power consumption. The combination of the design and E-PHEMT provides enhanced linearity as evidence in the IP3. This feature makes this amplifier ideal for use in: <ul style="list-style-type: none"> • driver amplifiers for complex waveform upconverter paths • drivers in linearized transmit systems • secondary amplifiers in ultra high dynamic range receivers |
| Optimized Frequency Range | Covering primary wireless communication bands: cellular and LTE |
| Low Noise Figure, 2.5 dB typ. | A unique feature of the ZX60-H122+ is the combination of low noise figure performance with the high dynamic range, differentiating this amplifier from the competition. |
| Unconditionally Stable | Capable to operate to a wide range of source and load impedances. |
| Very Small Size, 0.75" x 0.75" | The unique unibody size and construction enable the ZX60-H122+ to be used in extremely compact connected applications. |

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/MCLStore/terms.jsp



Ultra High IP3

Wideband Amplifier

ZX60-H122+

50Ω

500 to 1200 MHz

Features

- Ultra High IP3, +46.2 dBm typ. at 0.9 GHz
- Gain, 14.9 dB typ. at 0.9 GHz
- High Pout, P1dB, +22.8 dBm typ. at 0.9 GHz
- Low noise figure, 2.5 dB typ. at 0.9 GHz

Applications

- LTE
- Buffer amplifier
- Test equipment
- High dynamic range lab driver amps



Generic photo used for illustration purposes only

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| | |
|------------|------------|
| Connectors | Model |
| SMA | ZX60-H122+ |

+RoHS Compliant

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

Electrical Specifications at 25°C and 5.5V unless noted

| Parameter | Condition (GHz) | Min. | Typ. | Max. | Units |
|---------------------------------|-----------------|------|------|------|-------|
| Frequency Range | | 0.5 | | 1.2 | GHz |
| Gain | 0.5 | 13.4 | 15.6 | 16.4 | dB |
| | 0.7 | | 15.3 | | |
| | 0.9 | | 14.9 | | |
| | 1.2 | | 14.2 | | |
| Input Return Loss | 0.5 | | 18.4 | | dB |
| | 0.7 | | 16.9 | | |
| | 0.9 | | 14.4 | | |
| | 1.2 | | 11.2 | | |
| Output Return Loss | 0.5 | | 16.6 | | dB |
| | 0.7 | | 13.6 | | |
| | 0.9 | | 11.4 | | |
| | 1.2 | | 8.9 | | |
| Output IP3 | 0.5 | 41.0 | 41.9 | | dBm |
| | 0.7 | | 45.2 | | |
| | 0.9 | | 46.2 | | |
| | 1.2 | | 40.6 | | |
| Output Power @ 1 dB compression | 0.5 | | 22.3 | | dBm |
| | 0.7 | | 22.4 | | |
| | 0.9 | | 22.8 | | |
| | 1.2 | | 23.0 | | |
| Noise Figure | 0.5 | | 2.3 | | dB |
| | 0.7 | | 2.4 | | |
| | 0.9 | | 2.5 | | |
| | 1.2 | | 2.5 | | |
| Directivity (Isolation-Gain) | 0.5 - 1.2 | | 6 | | dB |
| DC Voltage | | 5.5 | — | 7.0 | V |
| DC Current | | 110 | 145 | 180 | mA |

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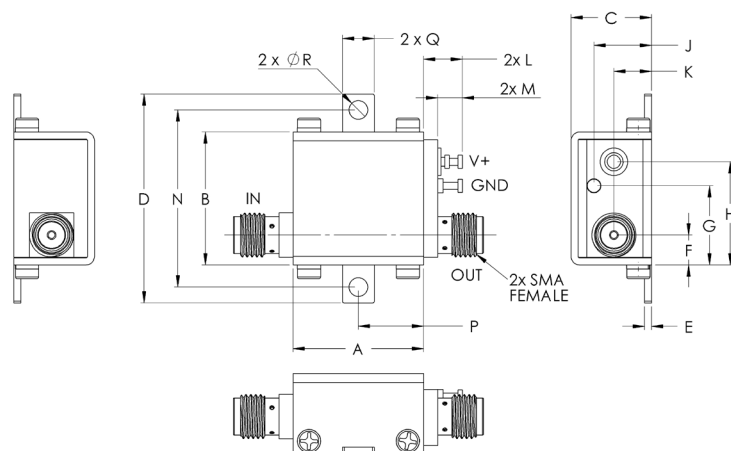
REV. B
ECO-000670
ED-14675
ZX60-H122+
CW/TH/CP
191118
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Maximum Ratings

| Parameter | Ratings |
|----------------------------|--------------------|
| Operating Temperature | -40°C to 85°C Case |
| Storage Temperature | -55°C to 100°C |
| DC Voltage | 7 V |
| Input RF Power (no damage) | 24 dBm |
| Power Consumption | 1.25 W |

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

Outline Drawing



NOTE: When soldering the DC connections, caution must be used to avoid overheating the DC terminal. See Application Note. [AN-40-010](#).

Outline Dimensions (inch/mm)

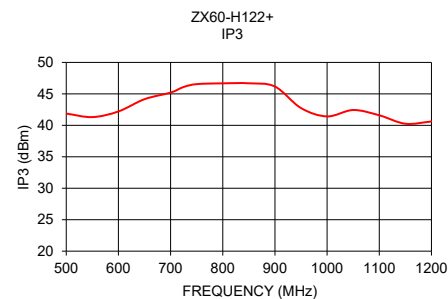
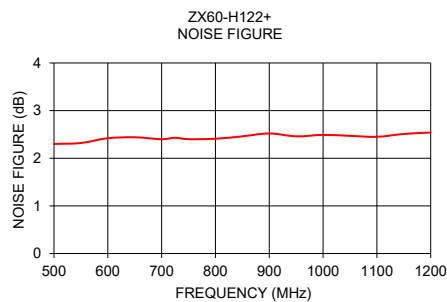
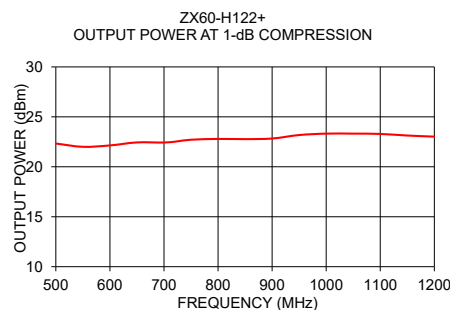
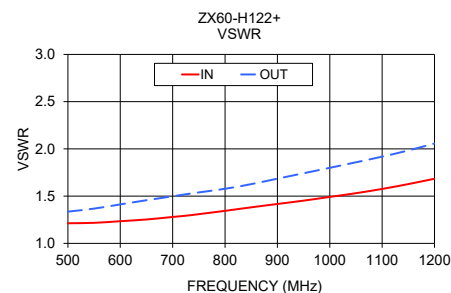
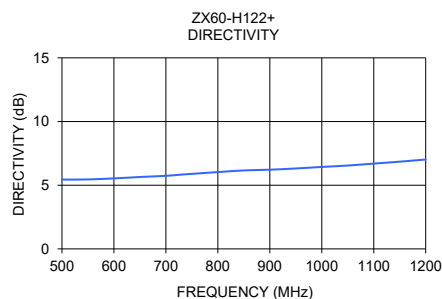
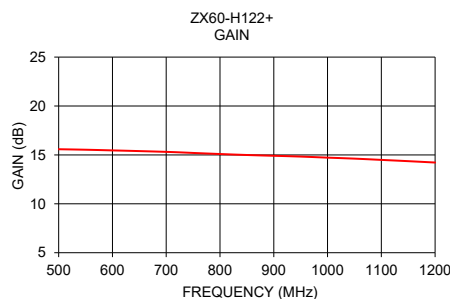
| A | B | C | D | E | F | G | H | J | K | L | M | N | P | Q | R | wt |
|-------|------|-------|------|------|------|------|-------|------|------|------|------|-------|------|------|------|-------|
| .74 | .75 | .46 | 1.18 | .04 | .17 | .45 | .59 | .33 | .21 | .22 | .14 | 1.00 | .37 | .18 | .106 | grams |
| 18.80 | 19.1 | 11.68 | 30.0 | 1.02 | 4.32 | 11.4 | 14.99 | 8.38 | 5.33 | 5.59 | 3.56 | 25.40 | 9.40 | 4.57 | 2.69 | 23.0 |

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| FREQUENCY (MHz) | GAIN (dB) | DIRECTIVITY (dB) | VSWR (:1) | | POUT at 1dB COMPR. (dBm) | NOISE FIGURE (dB) | OUTPUT IP3 (dBm) |
|--------------------|--------------|---------------------|--------------|------|-----------------------------------|-------------------------|------------------------|
| | | | IN | OUT | | | |
| 500.00 | 15.58 | 5.44 | 1.21 | 1.34 | 22.3 | 2.3 | 41.9 |
| 550.00 | 15.53 | 5.45 | 1.22 | 1.37 | 22.0 | 2.3 | 41.3 |
| 600.00 | 15.46 | 5.53 | 1.23 | 1.41 | 22.1 | 2.4 | 42.2 |
| 650.00 | 15.39 | 5.64 | 1.25 | 1.46 | 22.4 | 2.4 | 44.2 |
| 700.00 | 15.31 | 5.74 | 1.28 | 1.50 | 22.4 | 2.4 | 45.2 |
| 725.00 | 15.26 | 5.82 | 1.29 | 1.52 | 22.6 | 2.4 | 46.1 |
| 750.00 | 15.20 | 5.89 | 1.31 | 1.54 | 22.7 | 2.4 | 46.5 |
| 800.00 | 15.09 | 6.03 | 1.34 | 1.58 | 22.8 | 2.4 | 46.7 |
| 850.00 | 14.99 | 6.16 | 1.38 | 1.63 | 22.8 | 2.5 | 46.7 |
| 900.00 | 14.91 | 6.22 | 1.42 | 1.68 | 22.8 | 2.5 | 46.2 |
| 950.00 | 14.83 | 6.31 | 1.45 | 1.74 | 23.2 | 2.5 | 42.7 |
| 1000.00 | 14.72 | 6.43 | 1.49 | 1.80 | 23.3 | 2.5 | 41.4 |
| 1050.00 | 14.62 | 6.54 | 1.53 | 1.86 | 23.3 | 2.5 | 42.4 |
| 1100.00 | 14.49 | 6.70 | 1.58 | 1.92 | 23.3 | 2.5 | 41.6 |
| 1150.00 | 14.36 | 6.85 | 1.63 | 1.98 | 23.1 | 2.5 | 40.3 |
| 1200.00 | 14.22 | 7.02 | 1.68 | 2.06 | 23.0 | 2.5 | 40.6 |



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