



FLAT GAIN

Wideband Amplifier

ZVA-443X+

50Ω 0.050 to 43500 MHz

THE BIG DEAL

- Excellent gain flatness, ±1.5 dB
- Single +5V supply with 80mA typ. current
- Small package



Generic photo used for illustration purposes only

| | |
|------------|--------------|
| Model No. | ZVA-443X+ |
| Case Style | AV2578 |
| Connectors | 2.4mm Female |

+RoHS Compliant

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

APPLICATIONS

- Very wideband test instrumentation
- Lab use
- 5G systems
- Optical communications

PRODUCT OVERVIEW

Mini-Circuits' ZVA-443X+ is a coaxial, ultra-wideband amplifier offering flat gain across an extremely wide frequency range from 50 kHz to 43.5 GHz. This model operates on a single +5V supply with just 80mA typical current consumption, and has exceptional noise figure performance of 4 dB typ. from 500 MHz to 26 GHz and less than 5 dB typ. to 43.5 GHz. The amplifier comes in a rugged, compact case (0.84 x 0.96 x 0.36") with 2.4mm RF connectors.

KEY FEATURES

| Feature | Advantages |
|--|--|
| Ultra-wideband, 50 kHz to 43.5 GHz | Enables a single amplifier to be used in a wide range of applications from 5G to satellite, military systems, fiber-optic equipment, test and measurement, and more. |
| Excellent gain flatness, ±1.5 dB across full frequency range | Provides consistent performance across its operating frequency, minimizing the need for external equalizing networks in wideband applications. |
| Single +5V supply | Avoids the requirement for dual supply voltage common among other amplifiers of similar bandwidth, simplifying system design, saving cost and space. |
| Small package, 0.84 x 0.96 x 0.36" | Saves space in tight system layouts. |

REV. B
ECO-008181
ZVA-443X+
ZL/CP/AM
210610





ELECTRICAL SPECIFICATIONS AT 25°C, VDD=+5.0V, UNLESS NOTED

| Parameter | Condition (MHz) | Min. | Typ. | Max. | Units |
|---------------------------------|-----------------|------|------|-------|-------|
| Frequency Range | | 0.05 | | 43500 | MHz |
| Gain ¹ | 50 - 7500 | 10.7 | 12.0 | | dB |
| | 7500 - 15000 | 10.0 | 11.5 | | |
| | 15000 - 30000 | 8.2 | 11.0 | | |
| | 30000 - 43500 | 8.0 | 10.5 | | |
| Noise Figure ² | 50 - 500 | | 6.0 | | dB |
| | 500 - 2000 | | 4.5 | | |
| | 2000 - 20000 | | 3.5 | | |
| | 20000 - 26500 | | 4.5 | | |
| Input Return Loss | 50 - 5000 | 11.0 | 14.0 | | dB |
| | 5000 - 18000 | 8.5 | 12.0 | | |
| | 18000 - 43500 | 7.0 | 10.0 | | |
| Output Return Loss | 50 - 18000 | 9.0 | 12.0 | | dB |
| | 18000 - 43500 | 7.0 | 9.5 | | |
| Output Power at 1dB Compression | 50 - 22000 | | 12.0 | | dBm |
| | 22000 - 43500 | | 10.0 | | |
| Output IP3 | 50 - 43500 | | 22.0 | | dBm |
| Device Operating Current | | 50 | 80 | 150 | mA |

1. This model is measured down to 50 MHz but the performance is usable to 50 KHz.

2. The Noise Figure is measured up to 26.5 GHz but the performance is usable to 43.5 GHz.

ABSOLUTE MAXIMUM RATINGS

| Parameter | Ratings |
|---------------------------------------|----------------|
| Operating Temperature (baseplate) | -10°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| Total Power Dissipation | 0.75W |
| Input Power (CW), V _{dd} =5V | +4 dBm |
| DC Voltage | 6V |

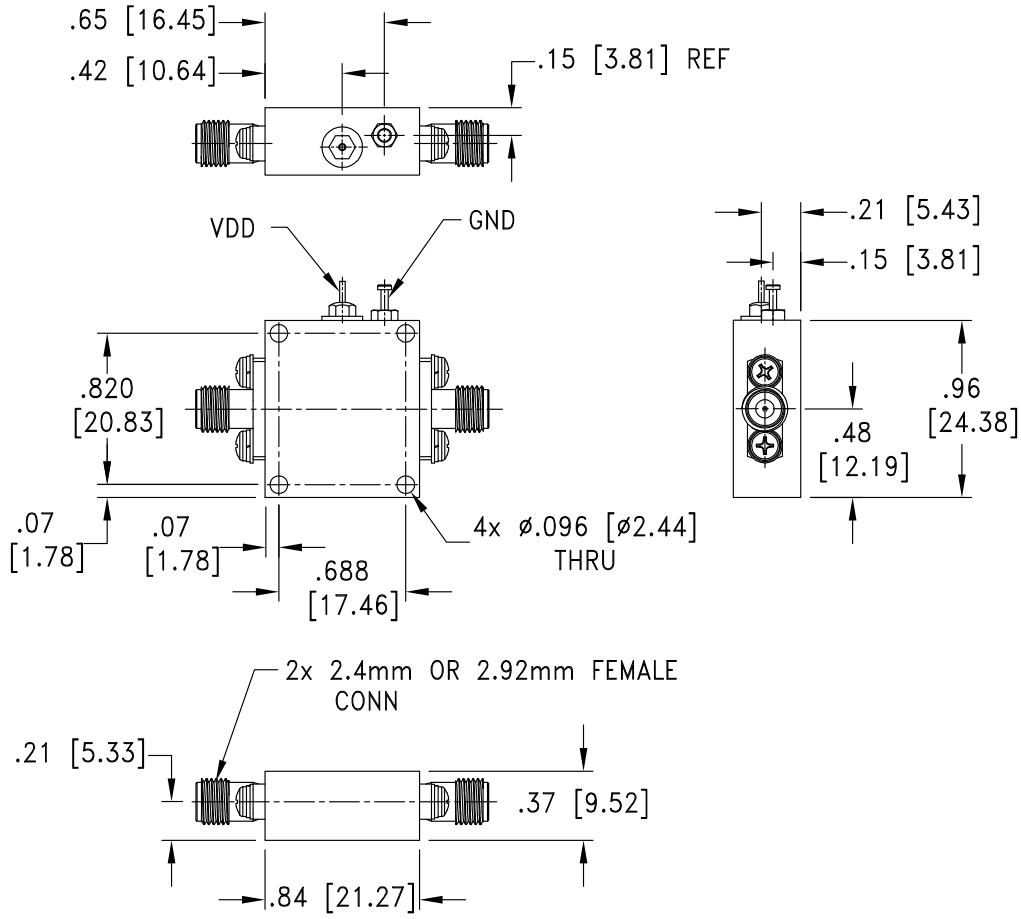


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OUTLINE DRAWING



Weight: 45 grams

Dimensions are in inches (mm). Tolerances: 2 Pl. \pm .03; 3 Pl. \pm .015

COAXIAL CONNECTIONS

| | |
|----|---------------------|
| J1 | RF IN (DC BLOCKED) |
| J2 | RF OUT (DC BLOCKED) |
| J3 | VDD |
| J4 | GROUND |



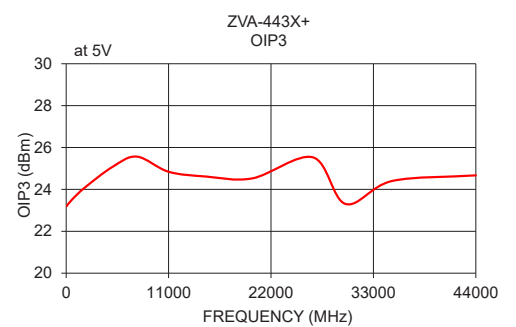
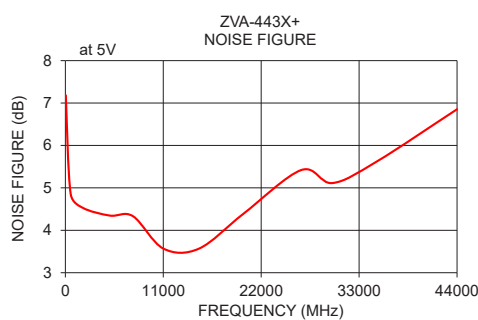
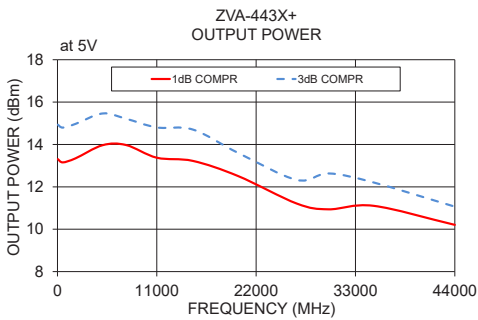
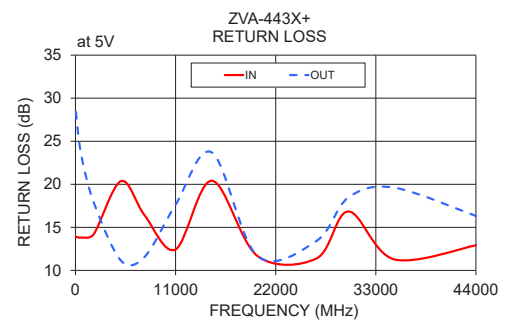
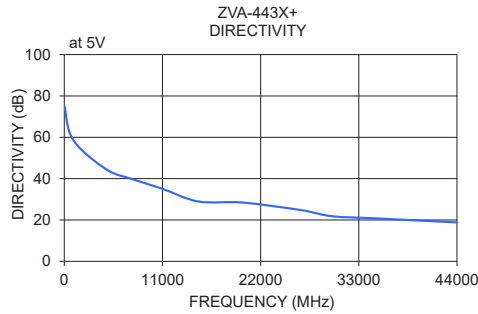
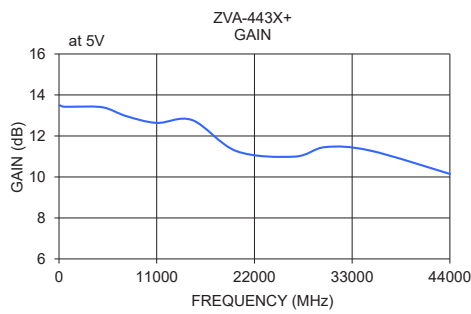
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TYPICAL PERFORMANCE DATA/CURVES

| Frequency (MHz) | Gain (dB) | Directivity (dB) | Return Loss (dB) | | POUT at 1 dB COMPR. (dBm) | POUT at 3 dB COMPR. (dBm) | Noise Figure (dB) | IP3 (dBm) |
|-----------------|-----------|------------------|------------------|-------|---------------------------|---------------------------|-------------------|-----------|
| | | | IN | OUT | | | | |
| 50 | 13.50 | 74.80 | 13.90 | 28.40 | 13.31 | 14.93 | 7.18 | 23.20 |
| 600 | 13.42 | 62.25 | 13.82 | 23.63 | 13.15 | 14.80 | 4.85 | 23.50 |
| 2000 | 13.43 | 53.67 | 14.19 | 17.92 | 13.35 | 14.97 | 4.53 | 24.09 |
| 5000 | 13.39 | 43.74 | 20.37 | 11.14 | 13.97 | 15.46 | 4.35 | 25.08 |
| 7600 | 12.96 | 39.78 | 16.39 | 11.57 | 13.97 | 15.21 | 4.33 | 25.57 |
| 11000 | 12.64 | 35.07 | 12.43 | 17.62 | 13.37 | 14.80 | 3.57 | 24.84 |
| 15000 | 12.77 | 28.95 | 20.41 | 23.69 | 13.22 | 14.70 | 3.57 | 24.62 |
| 20000 | 11.26 | 28.43 | 11.67 | 11.67 | 12.51 | 13.60 | 4.39 | 24.53 |
| 26500 | 10.99 | 24.80 | 11.40 | 13.44 | 11.21 | 12.33 | 5.42 | 25.53 |
| 30000 | 11.46 | 21.81 | 16.84 | 18.48 | 10.94 | 12.63 | 5.11 | 23.31 |
| 35000 | 11.29 | 20.76 | 11.29 | 19.62 | 11.10 | 12.21 | 5.62 | 24.40 |
| 44000 | 10.15 | 18.81 | 12.91 | 16.32 | 10.21 | 11.07 | 6.85 | 24.67 |



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.
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