

RF Instrument Amplifier

TVA-R5-13

50Ω

0.50 to 1000 MHz



CASE STYLE: AP1600

The Big Deal

- Wide band, 0.50-1000 MHz
- Output Power, +35 dBm
- High Gain, 38 dB Typical
- Excellent isolation, 80 dB typical
- Self Contained Power Supply with selectable 110 or 220 volts AC supply
- BNC to N-Type Adapters included
- Connector Caddy
- Thermally self protected
- Protected by US Patent 5,101,171

This model will be replaced in the future with a RoHS version. The new model will be [TVA-R5-13A+](#). It will have similar performance and will be in a new form factor.

Product Overview

The TVA-R5-13 is an instrument amplifier offering typically 35 dBm over the highly used, wideband of 0.5 to 1000 MHz while affording convenience, portability and ease of use.

Key Features

| Feature | Advantages |
|----------------------|--|
| Wide Frequency Range | Covers the AM, FM, TV and communications bands including cellular. |
| Power | Provides typically 35 dBm of power. |
| High Gain | Provides typically 38 dB of gain, allowing the unit to be driven to full output power with only zero dBm of input power. |
| Self Powered | An internal power supply means that only one unit need be transported and makes test set-ups quick and simple. |
| Cooling System | A self contained cooling system provides cooling to the amplifier. |
| Warning System | Over temperature warning and automatic shut down are safety features to aid in providing a long operating life. |
| Carrying Handle | A single strap carrying handle provides a means for conveniently transporting the unit. |

Notes

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 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



Coaxial

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50Ω

0.50 to 1000 MHz

Features

- Instrument model with built-in power supply, 110V/220V operation
- High power output at 3.5dB compression, 37dBm typ.
- High Gain, 38 dB typ.
- High reverse isolation, 80 dB typ.
- 100% burn-in at +25°C, 48 hrs
- Thermally self-protected, LED indicator
- Protected by US Patent 5,101,171
- CE marked

Applications

- Lab use
- Wideband test instrumentation



CASE STYLE: AP1600

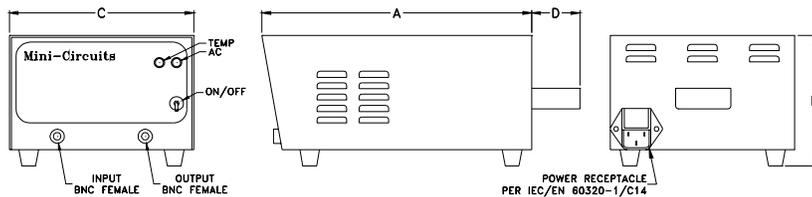
| Connectors | Model |
|------------------------------------|-----------------------|
| BNC | TVA-R5-13 |
| BNC Male - N-Female Adapter | NF-BM50+ (2 Included) |

Electrical Specifications at 25°C, unless otherwise noted

| Parameter | Condition (MHz) | Min | Typ. | Max. | Units |
|--|-----------------|------|---------|------|-------|
| Frequency Range | | 0.50 | — | 1000 | MHz |
| Gain ² | 0.50 - 1000 | 35 | 41 | — | dB |
| Gain Flatness | 0.50 - 1000 | — | ±1.0 | ±2.2 | dB |
| Output Power at 1dB compression ² | 0.50 - 1000 | +32 | +35 | — | dBm |
| Noise Figure ¹ | 0.50 - 1000 | — | 8 | — | dB |
| Output third order intercept point | 0.50 - 1000 | — | +40 | — | dBm |
| Input VSWR ³ | 0.50 - 1000 | — | 1.5 | — | :1 |
| Output VSWR ³ | 0.50 - 1000 | — | 2.5 | — | :1 |
| AC Supply | | — | 110/220 | — | V |

1. Noise Figure above 400MHz. At low frequency, NF increases to 16 dB typ.
 2. Gain and maximum output power specified at 25°C±5°C, over temperature, specifications degrade approximately 1dB, gain flatness ± 2.5 dB maximum.
 3. VSWR specified at 340-1000 MHz
- Open load is not recommended, potentially can cause damage. With no load derate max input power by 20 dB
 Note: Keep area adjacent to the louvers clear to allow free air flow.

Outline Drawing



Maximum Ratings

| Parameter | Ratings |
|----------------------------|---------------|
| Operating Temperature | 0°C to 55°C |
| Storage Temperature | -40°C to 70°C |
| Input RF Power (no damage) | +7 dBm |

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

Outline Dimensions (inch/mm)

| A | B | C | D | wt |
|-------|-------|-------|------|-------|
| 9.8 | 4.8 | 6.7 | 1.75 | grams |
| 248.9 | 121.9 | 170.2 | 44.5 | 3400 |

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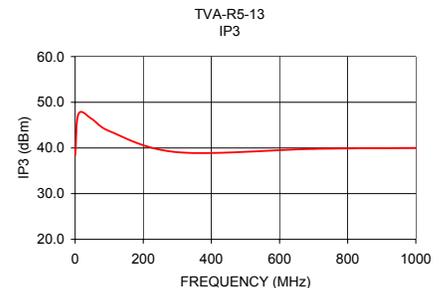
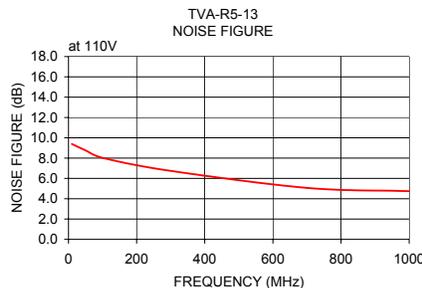
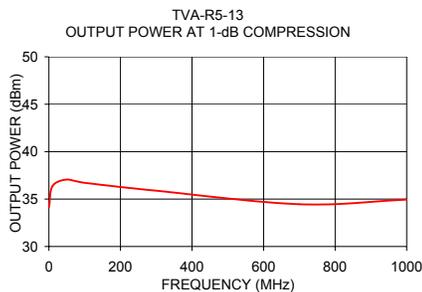
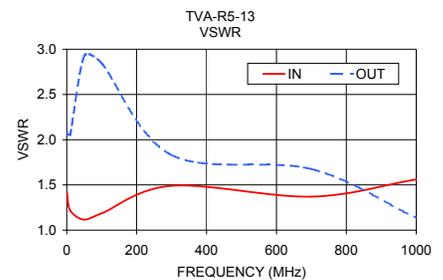
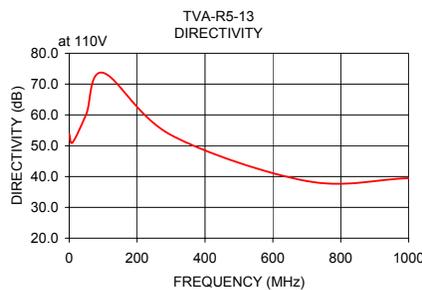
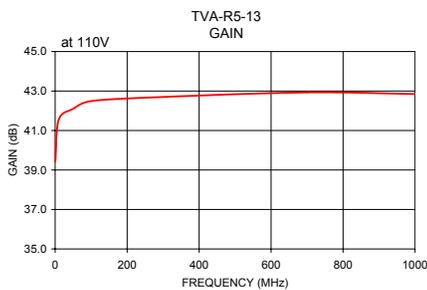


NON-CATALOG

Typical Performance Data/Curves

TVA-R5-13

| FREQUENCY (MHz) | GAIN (dB) | DIRECTIVITY (dB) | VSWR (:1) | | NOISE FIGURE (dB) | POUT at 1 dB COMPR. (dBm) | IP3 (dBm) |
|--------------------|--------------|---------------------|--------------|------|-------------------------|------------------------------------|--------------|
| | | | IN | OUT | | | |
| 0.50 | 39.42 | 53.77 | 1.42 | 2.07 | — | 34.18 | 38.46 |
| 10.00 | 41.54 | 51.08 | 1.22 | 2.06 | 9.39 | 36.37 | 47.45 |
| 50.00 | 42.10 | 60.15 | 1.12 | 2.92 | 8.76 | 37.06 | 46.30 |
| 100.00 | 42.49 | 73.68 | 1.19 | 2.84 | 8.02 | 36.71 | 43.70 |
| 300.00 | 42.70 | 53.49 | 1.49 | 1.83 | 6.74 | 35.88 | 39.07 |
| 700.00 | 42.93 | 38.53 | 1.37 | 1.68 | 5.07 | 34.46 | 39.79 |
| 1000.00 | 42.85 | 39.47 | 1.56 | 1.14 | 4.74 | 34.94 | 40.01 |



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