RF Instrument Amplifier

TVA-63-183

50Ω 6 to 18 GHz

Generic photo used for illustration purposes only

CASE STYLE: AP1601

The Big Deal

- Wide Bandwidth, 6 to 18 GHz
  Instrument Amplifier Gain 24dB
- Output Power, 18dBm
- Isolation, 62 dB
- Self Contained Power Supply with selectable 110 or 220 volts AC supply
- Thermally Self Protected

This model will be replaced in the future with a RoHS version. The new model will be TVA-63-183A+. It will have similar performance and will be in a new form factor.

Product Overview

The TVA-63-183 is a wideband instrument amplifier covering the 6,000 to 18,000 MHz frequency range while providing convenience, portability and ease of use.

Key Features

Feature	Advantages
Wideband Microwave	Covers microwave bands used for satellite broadcasting and radar.
Self Powered	An internal power supply means that only one unit need be transported and makes test set-ups quick and simple.
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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Features

- Instrument model with built-in power supply 110/220 VAC
- Gain, 24 dB typ.
- Unconditionally stable
- Output Power, up to 18 dBm typ.
- Excellent Isolation, 62 dB typ.
- Thermally self-protected, LED indicator
- Good matching at input and output
- CE marked

Applications

- Lab use
- Wideband test instrumentation

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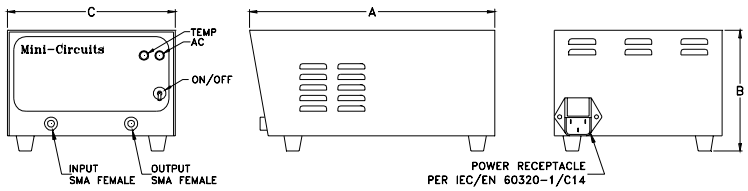
Connectors	Model
SMA	TVA-63-183

Electrical Specifications at 25°C, unless otherwise noted

Parameter	Condition (GHz)	Min	Typ.	Max.	Units
Frequency Range		6	—	18	GHz
Gain	6 - 18	20	23.6	—	dB
Gain Flatness	6 - 18	—	±1.0	—	dB
Output Power at 1dB compression	6 - 18	16	18	—	dBm
Noise Figure	6 - 18	—	6.9	—	dB
Output third order intercept point	6 - 18	—	26	—	dBm
Input VSWR	6 - 18	—	1.5	—	:1
Output VSWR	6 - 18	—	1.25	—	:1
AC Supply Voltage	6 - 18	—	110/220	—	V

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)	+20 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	--	grams
248.9	121.9	170.2	--	1200

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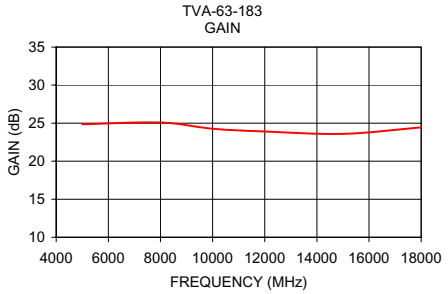
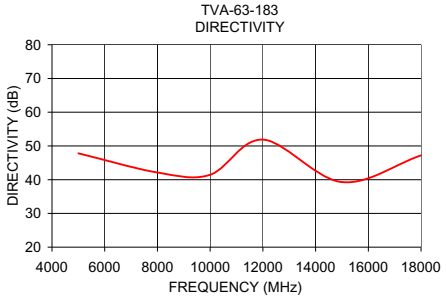
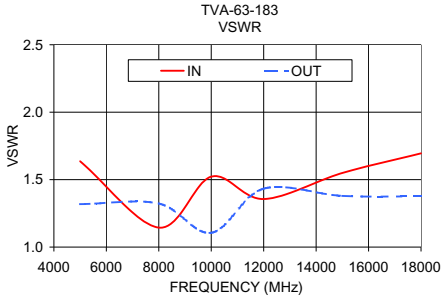
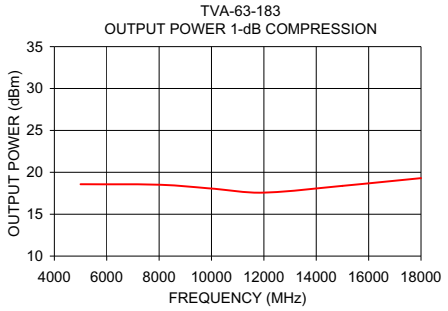
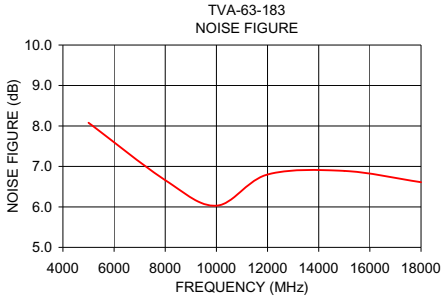
FREQUENCY (MHz)	GAIN (dB)	DIRECTIVITY (dB)	VSWR (:1)		NOISE FIGURE (dB)	POUT at 1 dB COMPR. (dBm)	IP3 (dBm)
			IN	OUT			
5000.00	24.86	47.82	1.64	1.32	8.08	18.58	26.49
8000.00	25.08	42.13	1.14	1.32	6.66	18.52	25.93
10000.00	24.26	41.45	1.52	1.11	6.03	18.06	25.91
12000.00	23.90	51.88	1.36	1.43	6.80	17.58	25.17
15000.00	23.60	39.30	1.55	1.38	6.89	18.38	25.61
18000.00	24.44	47.20	1.70	1.38	6.61	19.30	24.63

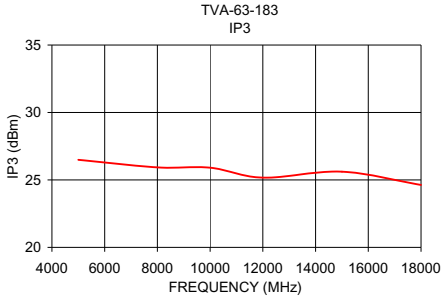












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Typical Performance Data

FREQ. (MHz)	GAIN (dB)	DIRECTIVITY (dB)	VSWR (:1) IN	VSWR (:1) OUT	NOISE FIGURE (dB)	POUT @ 1 dB COMPRESSION (dBm)	OUTPUT IP3 (dBm)
	110V/220V	110V/220V	110V/220V	110V/220V	110V/220V	110V/220V	110V/220V
5000.0	24.86	47.82	1.64	1.32	8.08	18.58	26.49
8000.0	25.08	42.13	1.14	1.32	6.66	18.52	25.93
10000.0	24.26	41.45	1.52	1.11	6.03	18.06	25.91
12000.0	23.90	51.88	1.36	1.43	6.80	17.58	25.17
15000.0	23.60	39.30	1.55	1.38	6.89	18.38	25.61
18000.0	24.44	47.20	1.70	1.38	6.61	19.30	24.63

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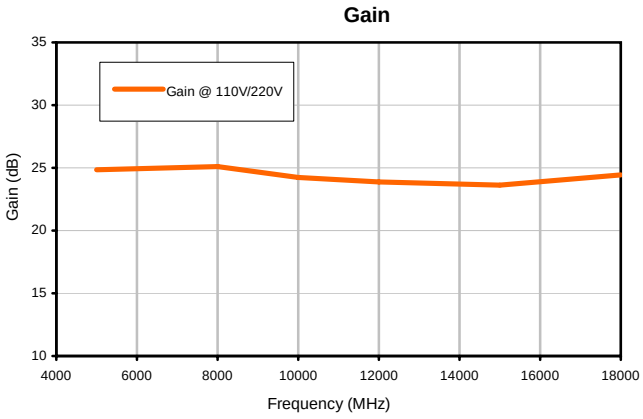
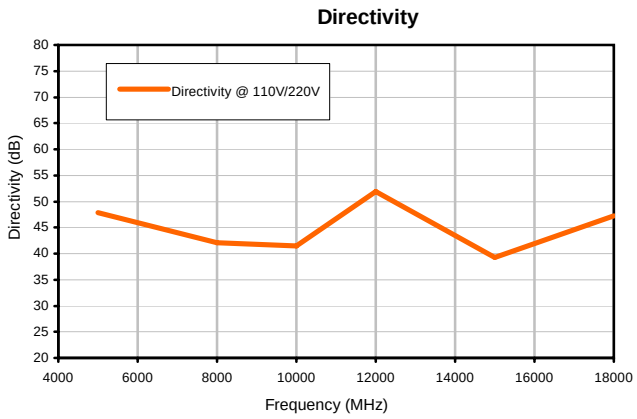
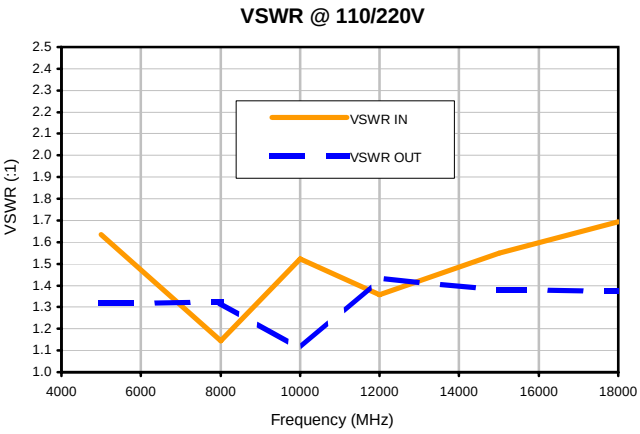
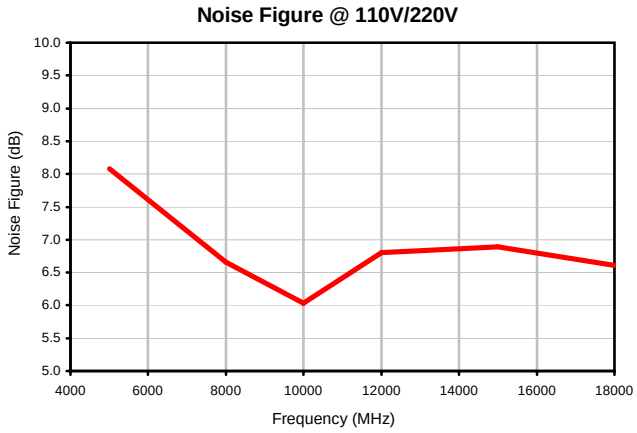
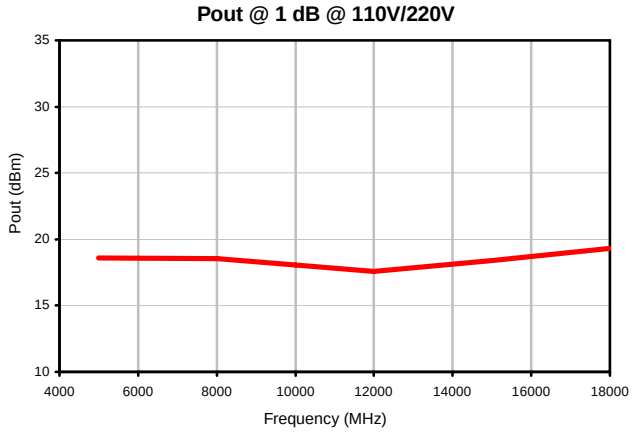
Typical Performance Curves

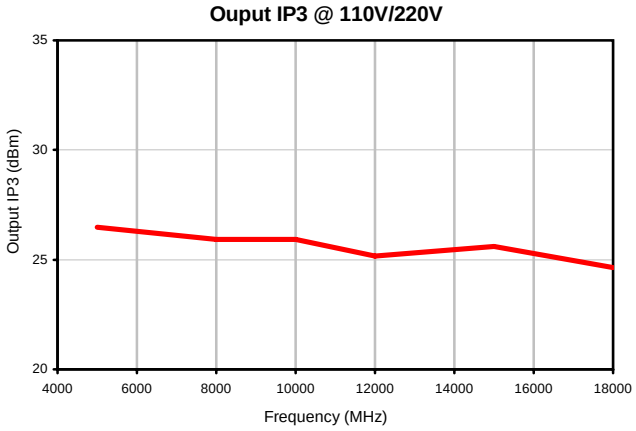






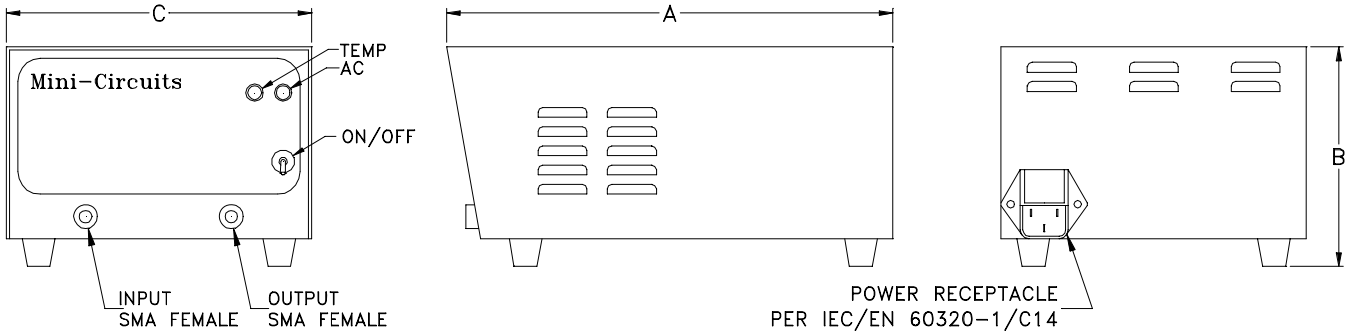






AP1601

Outline Dimensions



CASE #	A	B	C	D	WT. GRAM
AP1601	9.8 (248.9)	4.8 (121.9)	6.7 (170.2)	- -	1200

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

Notes:

1. Case material: Aluminum alloy.

2. Finish: Case: Gray paint over clear chemical conversion coating, non-chrome or trivalent chrome based.
   Cover: Blue paint over clear chemical conversion coating, non-chrome or trivalent chrome based.

3. Keep area adjacent to louvers clear to allow free air flow. Caution: Do not insert anything, especially conductors or fingers into case opening. Physical injury, shock or death may occur.

4. User selectable 110 or 220 AC volts operation.

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Environmental Specifications ENV35

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-0° to 55° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-40° to 70° C Ambient Environment	Individual Model Data Sheet

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