COAXIAL

RF Instrument Amplifier TVA-82-213A+

50Ω 0.8 to 21 GHz SMA Female

FEATURES

- Instrument Model With Built-In Power Supply +110/+220 V AC
- High Output IP3, +30 dBm Typ.
- Unconditionally Stable
- Thermally Self-Protected, LED Indicator
- Good Matching at Input and Output
- Withstands Open or Short Load at 1 dB Comp. Point Output Power
- Excellent Isolation, 70 dB Typ.
- CE Marked

Generic photo used for illustration purposes only

Model No.	TVA-82-213A+
Case Style	PJ2059
Connectors	SMA Female

+RoHS Compliant
The +Suffix identifies RoHS Compliance.
See our website for methodologies and qualifications

APPLICATIONS

- Lab Use
- Wideband Test Instrumentation

ELECTRICAL SPECIFICATIONS AT +25 °C, UNLESS NOTED OTHERWISE

Parameter	Condition	Min	Typ.	Max.	Units
Frequency Range		0.8		21	GHz
Gain	0.8-21 GHz	18	25		dB
Gain Flatness	0.8-21 GHz		±3.0		dB
Output Power at 1 dB Compression	0.8-21 GHz		+24		dBm
Noise Figure	0.8-21 GHz		3.0	5.5	dB
Output Third Order Intercept Point	0.8-21 GHz		+30		dBm
Input VSWR	0.8-21 GHz		1.35		:1
Output VSWR	0.8-21 GHz		1.40		:1
AC Supply Voltage	50/60 Hz		+110/+220		V

Note: Keep area adjacent to the air vents 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.

ABSOLUTE MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	0 °C to +55 °C
Storage Temperature	-40 °C to +70 °C
Input RF Power (No Damage)	+4 dBm

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

REV. B
ECO-016928
ED15032401
TVA-82-213A+
260305

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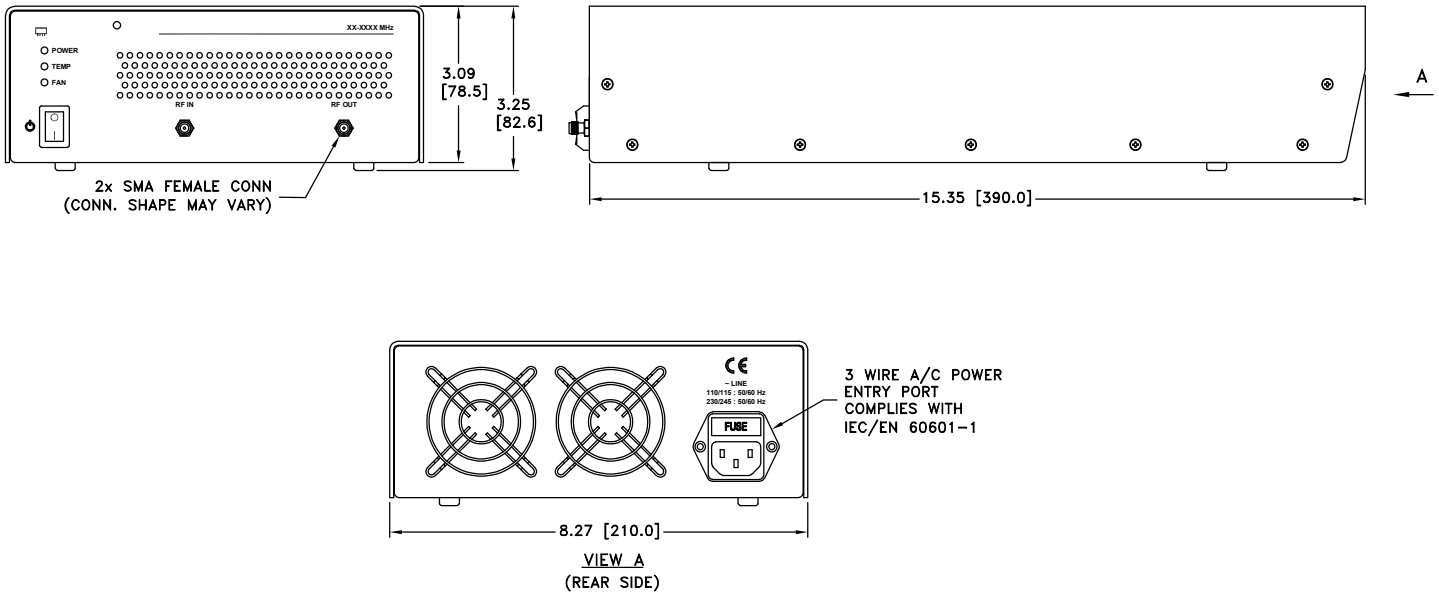
OUTLINE DRAWING



Weight: 2490 grams
Dimensions are in inches (mm). Tolerances: 2 Pl.±.03; 3 Pl. ±.015 inches

OUTLINE DIMENSIONS (Inch / mm)

A	B	C	D	WT.
15.35	8.27	3.25	3.09	GRAM
389.89	210.06	82.55	78.49	2490

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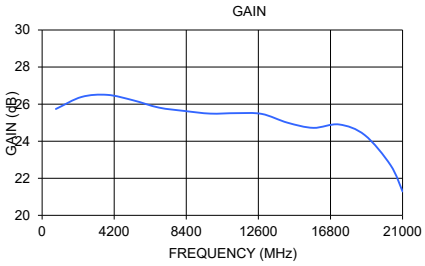
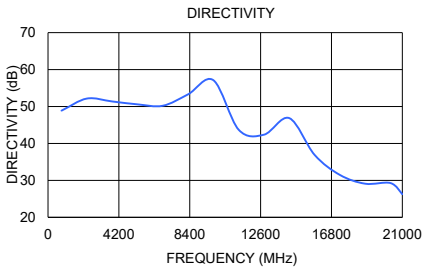
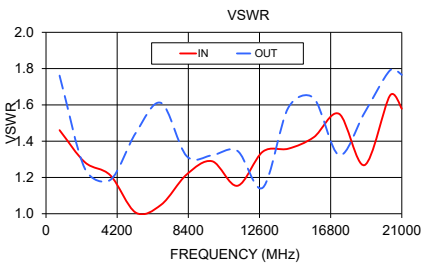
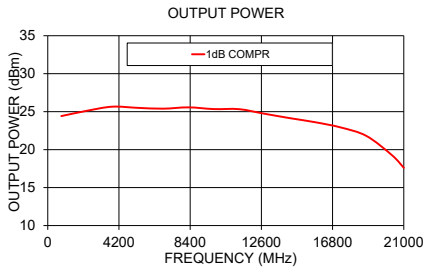
TYPICAL PERFORMANCE DATA AND CHARTS

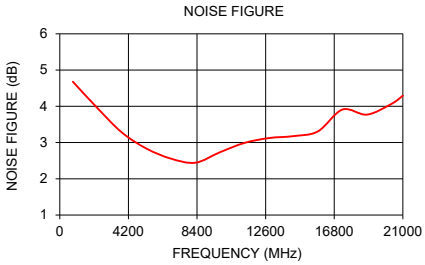
Frequency (MHz)	Gain (dB)	Directivity (dB)	VSWR (:1)		P_{OUT} at 1 dB COMPR. (dBm)	Noise Figure (dB)	IP3 (dBm)
			IN	OUT			
800	25.74	48.88	1.46	1.76	+24.42	4.68	+34.34
2300	26.39	52.15	1.28	1.25	+25.11	3.95	+33.12
3800	26.50	51.37	1.21	1.19	+25.65	3.28	+32.34
5300	26.21	50.58	1.01	1.45	+25.50	2.83	+31.69
6800	25.81	50.20	1.05	1.61	+25.39	2.56	+30.90
8300	25.63	53.29	1.22	1.32	+25.56	2.44	+30.32
9800	25.49	57.12	1.29	1.32	+25.34	2.73	+29.43
11300	25.51	43.71	1.15	1.35	+25.32	2.99	+28.42
12800	25.47	42.37	1.34	1.14	+24.72	3.12	+27.46
14300	25.00	46.85	1.36	1.58	+24.14	3.18	+26.33
15800	24.72	36.90	1.42	1.64	+23.60	3.31	+25.88
17300	24.90	31.47	1.55	1.32	+22.91	3.91	+24.92
18800	24.33	29.10	1.27	1.56	+21.80	3.77	+23.56
20300	22.71	29.27	1.65	1.79	+19.27	4.07	+21.05
21000	21.29	26.25	1.58	1.77	+17.60	4.29	+18.98

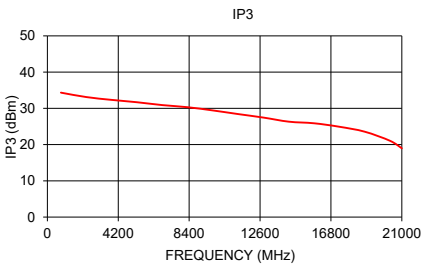












NOTES

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/terms/viewterm.html

RF Instrument Amplifier TVA-82-213A+

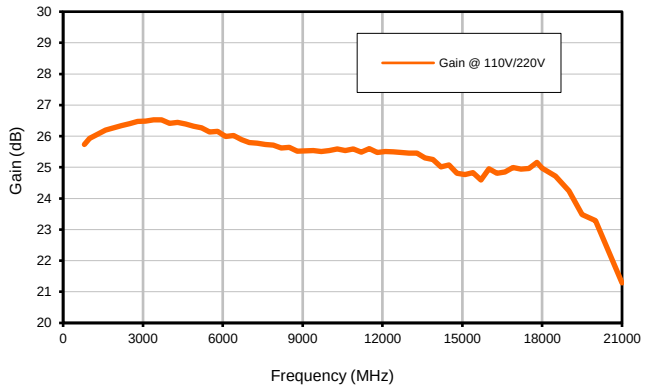
Typical Performance Data

FREQUENCY (MHz)	GAIN (dB)	DIRECTIVITY (dB)	VSWR (:1)		NOISE FIGURE (dB)	POUT @ 1 dB COMPRESSION (dBm)	OUTPUT IP3 (dBm)
			IN	OUT			
	110V/220V	110V/220V	110V/220V	110V/220V	110V/220V	110V/220V	110V/220V
800	25.74	48.88	1.46	1.76	4.68	24.42	34.62
1000	25.92	52.67	1.37	1.65	4.53	24.56	34.82
1300	26.06	53.65	1.30	1.59	4.38	24.63	34.38
1600	26.19	51.89	1.33	1.41	4.28	24.67	34.75
1900	26.27	52.58	1.26	1.41	4.14	24.74	34.46
2200	26.34	52.43	1.25	1.30	3.92	24.97	34.09
2500	26.41	49.61	1.31	1.20	3.95	25.18	33.78
2800	26.47	51.51	1.25	1.16	3.67	25.42	33.87
3100	26.49	49.91	1.30	1.07	3.74	25.60	33.80
3400	26.52	48.65	1.22	1.09	3.74	25.59	33.79
3700	26.52	48.94	1.16	1.14	3.33	25.81	33.36
4000	26.42	49.63	1.27	1.26	3.30	25.70	33.05
4300	26.44	51.41	1.16	1.24	3.30	25.66	33.20
4600	26.39	49.11	1.17	1.27	3.21	25.66	32.77
4900	26.32	48.78	1.22	1.30	3.31	25.66	32.90
5200	26.26	48.74	1.07	1.36	2.77	25.47	32.58
5500	26.13	48.27	1.12	1.48	2.75	25.54	32.53
5800	26.16	49.02	1.13	1.35	2.78	25.55	32.36
6100	25.99	48.84	1.05	1.54	2.58	25.46	32.19
6400	26.02	50.06	1.17	1.35	2.67	25.54	32.11
6700	25.88	50.21	1.07	1.52	2.64	25.39	31.79
7000	25.80	50.92	1.20	1.51	2.53	25.57	31.86
7300	25.77	51.04	1.31	1.35	2.56	25.66	31.42
7600	25.73	51.10	1.09	1.47	2.36	25.61	31.49
7900	25.71	51.62	1.27	1.22	2.48	25.58	31.32
8200	25.62	53.20	1.29	1.36	2.50	25.65	31.15
8500	25.64	55.59	1.13	1.30	2.34	25.52	30.76
8800	25.52	55.14	1.36	1.30	2.53	25.47	30.77
9100	25.53	57.33	1.26	1.31	2.61	25.36	30.71
9400	25.53	61.40	1.15	1.34	2.58	25.55	30.30
9700	25.51	57.75	1.31	1.23	2.87	25.32	30.52
10000	25.54	51.38	1.15	1.37	2.82	25.44	30.14
10300	25.59	49.12	1.12	1.20	2.76	25.25	29.97
10600	25.54	47.70	1.17	1.35	2.84	25.36	29.64
10900	25.59	45.65	1.03	1.26	2.69	25.08	29.59
11200	25.49	44.76	1.15	1.44	3.02	25.15	29.06
11500	25.60	43.92	1.09	1.27	2.95	25.17	29.02
11800	25.48	42.95	1.15	1.45	2.99	24.89	28.72
12100	25.51	42.66	1.24	1.26	3.01	25.01	28.71
12400	25.49	42.67	1.19	1.33	3.11	24.82	28.77
12700	25.48	42.96	1.30	1.19	3.17	24.93	28.39
13000	25.45	42.85	1.34	1.09	3.21	24.60	28.56
13300	25.46	43.49	1.28	1.06	3.01	24.54	27.97
13600	25.31	45.43	1.36	1.22	3.08	24.23	27.76
13900	25.25	45.49	1.44	1.20	3.28	24.06	27.62
14200	25.01	47.94	1.39	1.54	3.29	23.79	27.03
14500	25.07	46.72	1.37	1.40	3.25	24.36	27.47
14800	24.81	44.41	1.49	1.59	3.40	23.91	26.86
15100	24.77	42.62	1.37	1.74	3.25	24.16	26.90
15400	24.83	39.84	1.37	1.41	3.48	23.69	26.81
15700	24.59	38.04	1.48	1.78	3.37	23.68	26.47
16000	24.95	36.04	1.21	1.30	3.37	23.58	26.55
16300	24.81	35.71	1.35	1.53	3.50	23.21	26.11
16600	24.85	33.90	1.47	1.33	3.75	23.24	26.31
16900	25.00	32.46	1.13	1.45	3.69	23.02	25.89
17200	24.94	31.57	1.45	1.35	3.82	22.60	25.82
17500	24.96	30.93	1.50	1.41	3.65	22.79	25.32
17800	25.16	29.74	1.06	1.32	3.50	22.18	25.56
18000	24.97	29.67	1.26	1.33	3.46	22.67	25.09
18500	24.71	29.16	1.17	1.28	3.59	22.14	24.92
19000	24.24	28.72	1.29	1.30	3.65	20.90	23.15
19500	23.48	28.71	1.50	1.52	3.79	20.82	22.75
20000	23.29	27.14	1.22	1.20	3.78	21.12	22.68
21000	21.29	26.25	1.58	1.77	4.29	17.60	17.73

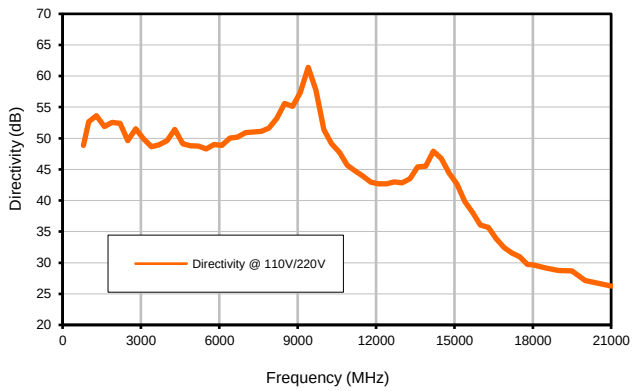
RF Instrument Amplifier TVA-82-213A+

Typical Performance Curves

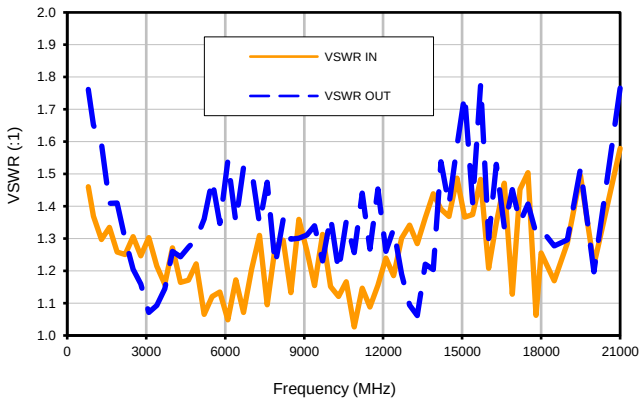
Gain



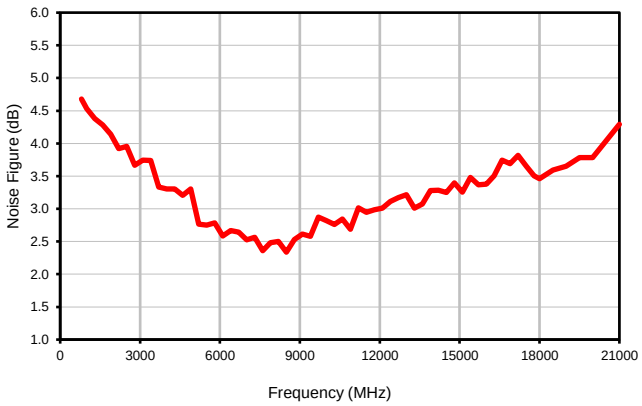
Directivity



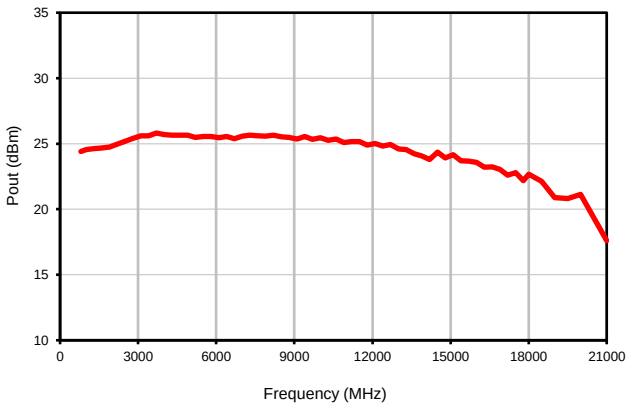
VSWR @ 110/220V



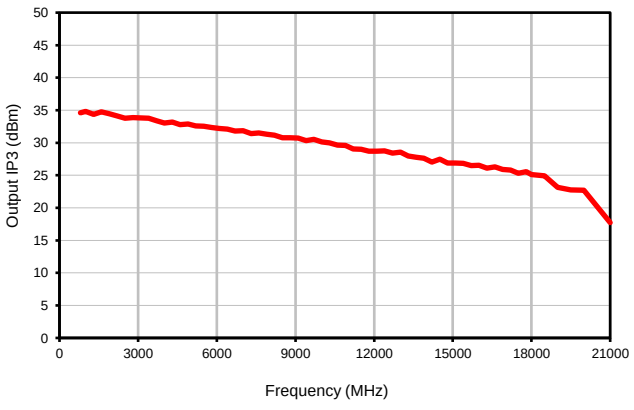
Noise Figure @ 110V/220V



Pout @ 1 dB @ 110V/220V

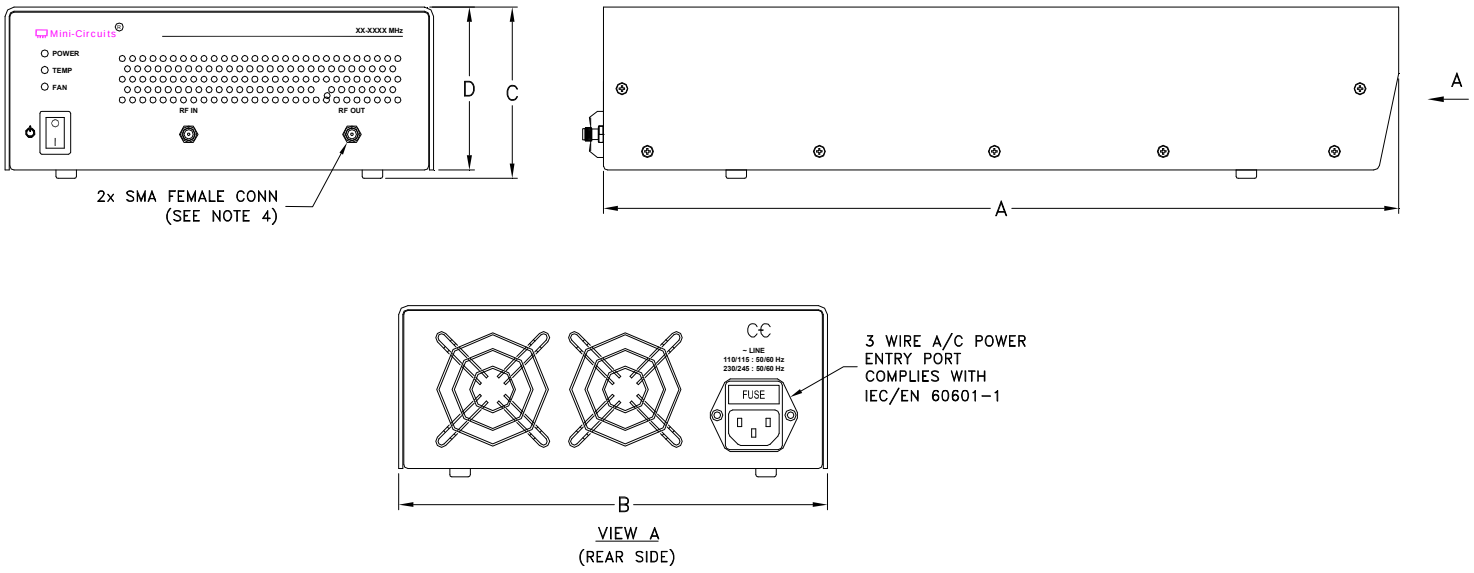


Ouput IP3 @ 110V/220V



Case Style PJ

Outline Dimensions PJ2059



CASE#	A	B	C	D	E	WT, GRAM
PJ2059	15.35 (390.0)	8.27 (210.0)	3.25 (82.6)	3.09 (78.5)	-- --	2490

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

Notes:

1. Case material: Aluminum alloy.
2. Finish: White paint.
3. Keep area adjacent to airvents 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. Connector shape may vary.

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INTERNET http://www.minicircuits.com
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661
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Mini-Circuits

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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