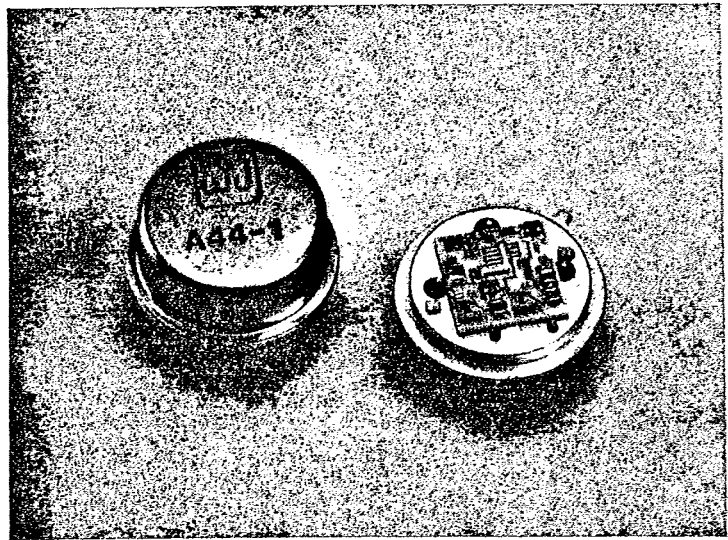


WJ-A44-1

3700 TO 4200 MHz TO-8 CASCADABLE AMPLIFIER

- COMMUNICATIONS BAND:
3700-4200 MHz
- THIRD ORDER I.P.: +23 dBm (TYP.)
- MEDIUM OUTPUT LEVEL:
10.5 dBm (TYP.)



Specifications

Characteristic	Typical	Guaranteed*	
		0° - 50°C	-54°C - +85°C
Frequency (Min.)	3700-4300 MHz	3700-4200 MHz	3700-4200 MHz
Small Signal Gain (Min.)	9.0 dB	7.3 dB	6.8 dB
Gain Flatness (Max.)	±0.4 dB	±0.7 dB	±1.0 dB
Noise Figure (Max.)	7.8 dB	8.7 dB	9.2 dB
Power Output at 1 dB Compression (Min.)	+10.5 dBm	+9.5 dBm	+9.0 dBm
VSWR (Max.)			
Input	1.4:1	2.0:1	2.0:1
Output	1.6:1	2.0:1	2.2:1
DC Current (Max.) at +15 Volts	45 mA	48 mA	49 mA

*Measured in a 50-Ohm system at +15 Vdc Nominal.

Typical Intermodulation Performance at 25°C

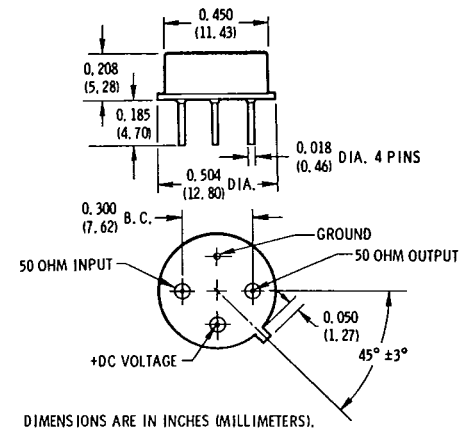
Second Order Harmonic Intercept Point	>60 dBm (Typ.)
Second Order Two Tone Intercept Point	>60 dBm (Typ.)
Third Order Two Tone Intercept Point	+23 dBm (Typ.)

Absolute Maximum Ratings

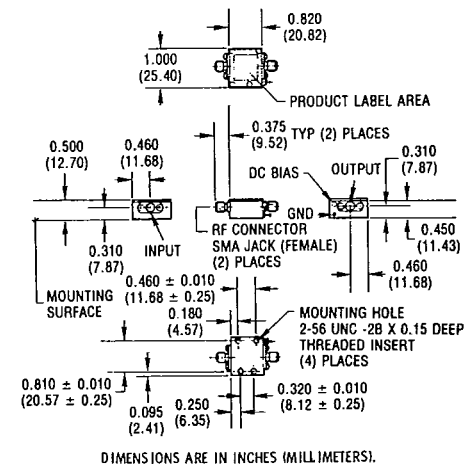
Ambient Operating Temperature	-54°C to +100°C
Storage Temperature	-62°C to +125°C
Maximum Case Temperature	+125°C
Maximum DC Voltage	+17 Volts
Maximum Continuous RF Power	+10 dBm
Maximum Short Term RF Input Power (1 Minute Max.)	50 Milliwatts
Maximum Peak Power	0.5 Watt (3 μsec Max.)
"S" Series Burn-In Temperature	125°C

Outline Drawings

A44-1



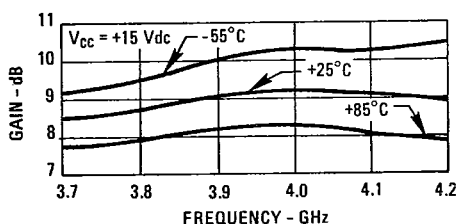
CA44-1



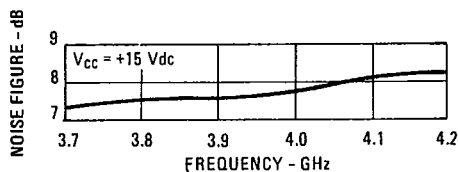
*WJ-CA44-1 is standard WJ-A44 installed in miniature SMA connector housing and guaranteed over 0°C to 50°C temperature range. See Cascaded Thin Film Amplifiers.

Typical Performance at 25°C

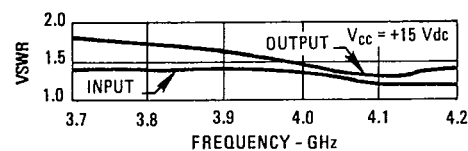
Gain



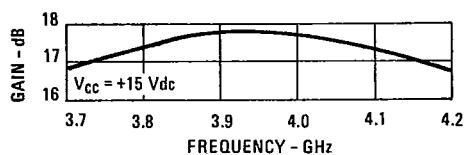
Noise Figure



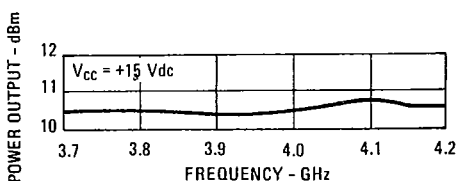
VSWR



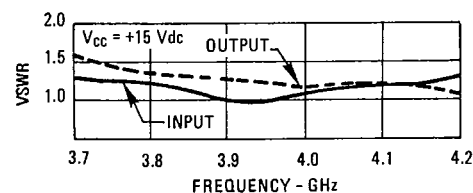
Cascaded Gain (Two Units)



Power Output*

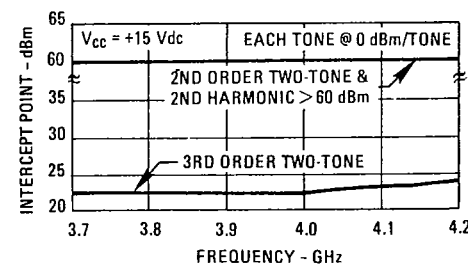


Cascaded VSWR (Two Units)



* at 1 dB Gain Compression

Intercept Point



V_{cc} = +12 Vdc

FREQ MHz	USMR IN	USMR OUT	GAIN DB
3700.	1.4	1.6	8.7
3800.	1.3	1.5	9.0
3900.	1.3	1.3	9.2
4000.	1.2	1.2	9.1
4100.	1.2	1.2	9.0
4200.	1.2	1.4	8.3
4300.	1.2	1.6	7.7
4400.	1.3	1.9	7.3

Linear S-Parameters

FREQ MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
3700.	.18	120.8	2.72	-21.9	.06	-101.9	.24	164.1
3800.	.14	106.1	2.83	-34.3	.06	-105.7	.20	149.4
3900.	.12	89.1	2.89	-46.2	.07	-111.7	.14	131.1
4000.	.09	63.9	2.84	-58.8	.07	-115.7	.09	94.8
4100.	.07	21.7	2.81	-72.2	.07	-124.3	.09	32.0
4200.	.08	-19.4	2.61	-87.5	.07	-133.9	.15	-14.6
4300.	.10	-48.1	2.43	-103.3	.07	-141.6	.23	-37.2
4400.	.14	-63.5	2.32	-117.0	.07	-147.9	.31	-51.7

Deviation from Linear Phase, Gain and Group Delay

FREQ MHz	DEV LIN Ø DEG	REL Ø DEG	GAIN DEV DB	GAIN DB	GROUP DELAY N-SEC
3700.	-.84	.00	-.09	8.69	.35
3800.	-.28	-12.42	.25	9.02	.34
3900.	.76	-24.38	.43	9.21	.34
4000.	1.14	-36.99	.30	9.07	.36
4100.	.76	-50.35	.20	8.97	.40
4200.	-1.55	-65.66	-.43	8.35	.43

Two A44-1's Cascaded

V_{cc} = +15 Vdc

V_{cc} = +15 Vdc

FREQ MHz	USMR IN	USMR OUT	GAIN DB
3700.	1.4	1.8	8.7
3800.	1.3	1.7	9.0
3900.	1.3	1.5	9.3
4000.	1.2	1.3	9.2
4100.	1.1	1.2	9.2
4200.	1.1	1.3	8.7
4300.	1.2	1.5	8.1
4400.	1.3	1.7	7.8

FREQ MHz	USMR IN	USMR OUT	GAIN DB
3700.	1.3	1.6	16.9
3800.	1.2	1.4	17.4
3900.	1.0	1.3	17.8
4000.	1.1	1.2	17.7
4100.	1.2	1.2	17.3
4200.	1.3	1.2	16.8
4300.	1.4	1.1	16.2
4400.	1.4	1.2	15.2

Linear S-Parameters

FREQ MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
3700.	.17	131.9	2.71	-17.5	.05	-101.3	.28	170.5
3800.	.14	120.1	2.82	-29.5	.06	-104.5	.25	157.0
3900.	.12	105.6	2.91	-40.9	.06	-109.8	.19	142.7
4000.	.08	86.6	2.90	-53.7	.06	-113.7	.13	121.0
4100.	.05	44.5	2.89	-66.5	.06	-121.1	.09	73.8
4200.	.06	-11.7	2.73	-81.8	.07	-130.5	.11	7.2
4300.	.08	-48.2	2.55	-97.6	.07	-138.3	.19	-25.5
4400.	.11	-64.6	2.45	-111.8	.06	-144.6	.27	-44.6

Linear S-Parameters

FREQ MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
3700.	.14	-167.0	6.99	-145.8	.00	-14.6	.24	-151.2
3800.	.08	-169.5	7.44	-173.1	.00	-31.7	.17	-131.8
3900.	.02	-126.7	7.80	-159.6	.00	-39.0	.12	-141.9
4000.	.06	-37.6	7.70	-130.7	.00	-46.6	.10	-129.0
4100.	.11	-41.6	7.35	-100.6	.00	-54.9	.09	-115.0
4200.	.14	-48.4	6.95	-69.8	.01	-71.9	.07	-106.5
4300.	.15	-51.6	6.45	-40.8	.01	-81.3	.04	-70.5
4400.	.15	-51.4	5.78	-13.8	.01	-91.3	.08	-15.1

Deviation from Linear Phase, Gain and Group Delay

FREQ MHz	DEV LIN Ø DEG	REL Ø DEG	GAIN DEV DB	GAIN DB	GROUP DELAY N-SEC
3700.	-.98	.00	-.30	8.67	.33
3800.	-.27	-12.02	.05	9.01	.33
3900.	1.04	-23.42	.30	9.26	.34
4000.	.39	-36.19	.28	9.25	.36
4100.	.91	-49.00	.24	9.21	.39
4200.	-1.69	-64.32	-.26	8.71	.43

Deviation from Linear Phase, Gain and Group Delay

FREQ MHz	DEV LIN Ø DEG	REL Ø DEG	GAIN DEV DB	ABS GAIN DB	GROUP DELAY N-SEC
3700.	-1.56	.00	-.45	16.89	.76
3800.	.01	-27.28	.08	17.43	.76
3900.	1.52	-54.62	.50	17.85	.78
4000.	1.49	-83.51	.38	17.73	.82
4100.	.23	-113.62	-.02	17.33	.85
4200.	-1.69	-144.39	-.50	16.84	.86