

WJ-PA10-1

WATKINS-JOHNSON CO 73 DE 9621629 0006286 0

10 TO 1000 MHz TO-8 CASCADABLE AMPLIFIER

- HIGH OUTPUT POWER: +22 dBm (TYP.)
- WIDE BANDWIDTH: 10-1000 MHz
- LOW VSWR: < 1.5:1 (TYP.)
- V_{CC} = 12 VOLTS



Specifications

Characteristic	Typical	Guaranteed*	
		0° -50°C	-54°C - +85°C
Frequency (Min.)	5-1100 MHz	10-1000 MHz	10-1000 MHz
Small Signal Gain (Min.)	10.0 dB	9.5 dB	9.0 dB
Gain Flatness (Max.)	< ±0.2 dB	±0.5 dB	±0.7 dB
Noise Figure (Max.)	8.5 dB	9.5 dB	10.0 dB
Power Output at 1 dB Compression (Min.)	+22.0 dBm	+21.0 dBm	+20.0 dBm
VSWR (Max.) Input/Output	1.6:1	2.0:1	2.0:1
DC Current (Max.) at 12 Volts	98 mA	101 mA	106 mA

* Measured on a 50 ohm system at +12 Vdc nominal. The WJ-PA10-1 is similar to the WJ-PA10 except its DC bias has been designed for +12 volt operation to yield +20 dBm minimum output power opposed to +15 volts required on the WJ-PA10.

Typical Intermodulation Performance at 25°C

Second Order Harmonic Intercept Point	+44 dBm (Typ.)
Second Order Two Tone Intercept Point	+38 dBm (Typ.)
Third Order Two Tone Intercept Point	+35 dBm (Typ.)

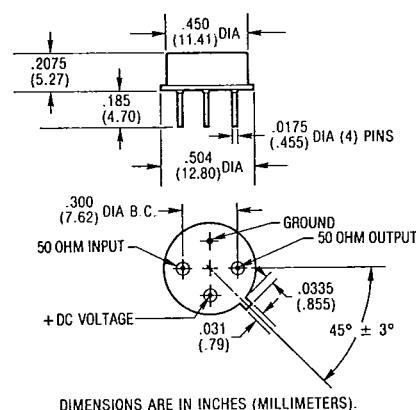
Absolute Maximum Ratings

Ambient Operating Temperature	-54°C to +85°C
Storage Temperature	-62°C to +125°C
Maximum Case Temperature	100°C
Maximum DC Voltage	+16 Volts
Maximum Continuous RF Input Power	+17 dBm
Maximum Short Term RF Input Power (1 Minute Max.)	100 Milliwatts
Maximum Peak Power	0.5 Watt (3 μsec Max.)

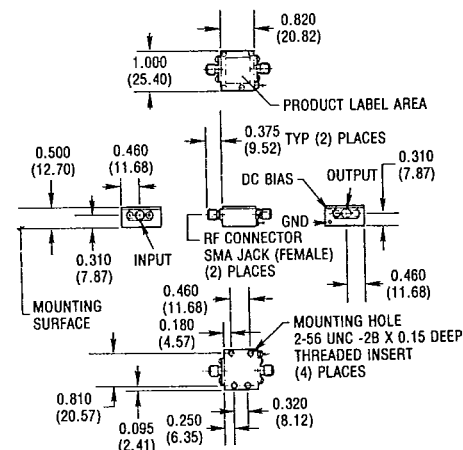
"S" Series Burn-In Temperature. 100°C
Proper heat sinking required to insure reliable performance.

Outline Drawings

PA10-1



CPA10-1



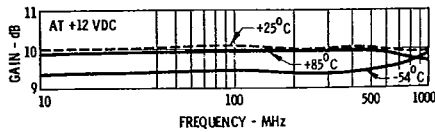
*WJ-CPA10-1 is standard WJ-PA10-1 installed in miniature SMA connector housing and guaranteed over 0°C to 50°C temperature range. See Cascaded Thin Film Amplifiers.

Weight

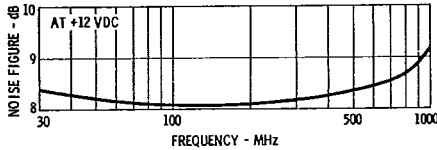
2.27 grams (0.08 oz.) maximum

Typical Performance at 25°C Typical Automatic Test Data

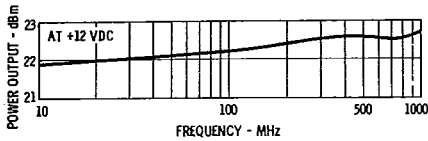
Gain



Noise Figure

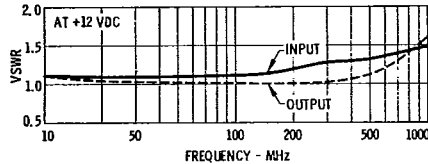


Power Output*

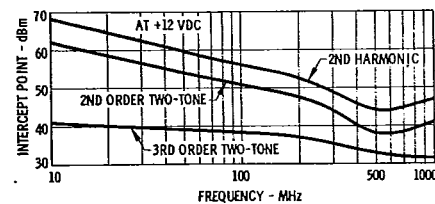


* At 1 dB gain compression.

VSWR



Intercept Point



Vcc = 12 V

FREQ MHz	USWR IN	USWR OUT	GAIN dB
100.	1.1	1.0	10.1
200.	1.2	1.0	10.0
300.	1.2	1.0	10.0
400.	1.3	1.1	10.1
500.	1.3	1.1	10.0
600.	1.3	1.2	10.0
700.	1.4	1.3	10.0
800.	1.4	1.3	9.9
900.	1.4	1.3	9.9
1000.	1.5	1.6	10.0
1100.	1.7	1.9	9.9

Linear S-Parameters

FREQ MHz	S11 dB	S11 deg	S21 dB	S21 deg	S12 dB	S12 deg	S22 dB	S22 deg
100.	.07	-156.6	3.18	172.3	.16	6.1	.00	139.7
200.	.08	-153.5	3.17	165.4	.16	10.2	.01	-106.7
300.	.10	-154.5	3.17	157.6	.16	14.3	.02	-104.9
400.	.12	-158.9	3.19	150.2	.16	18.1	.04	-113.7
500.	.13	-164.6	3.16	142.2	.17	21.6	.06	-126.2
600.	.14	-174.8	3.15	134.0	.17	23.9	.08	-142.6
700.	.16	-171.2	3.16	125.6	.18	25.8	.11	-160.6
800.	.17	-153.6	3.11	116.7	.19	27.3	.15	-177.1
900.	.18	-127.4	3.13	107.2	.19	28.1	.19	-163.4
1000.	.21	93.6	3.15	96.5	.21	27.1	.24	-141.0
1100.	.27	57.7	3.12	85.3	.22	23.9	.30	-115.8
1200.	.36	21.6	2.97	73.1	.23	18.1	.36	88.0

Deviation from Linear Phase, Gain and Group Delay

FREQ MHz	DEV LIN P deg	REL P deg	GAIN DEV dB	ABS GAIN dB	GROUP DELAY n-sec
100.	-1.32	.00	.09	10.05	.22
200.	-1.84	-7.90	.06	10.02	.22
300.	-1.26	-15.72	.06	10.02	.21
400.	.72	-23.13	.10	10.06	.21
500.	1.11	-31.12	.03	9.99	.23
600.	1.29	-39.33	.01	9.97	.23
700.	1.34	-47.67	.03	9.99	.24
800.	.85	-56.55	-.10	9.86	.26
900.	-.25	-66.04	-.05	9.91	.28
1000.	-2.62	-76.80	-.00	9.96	.30

