

WJ-PA12-1 / SMPA12-1

10 to 1200 MHz
TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ HIGH OUTPUT POWER:
+22 dBm (TYP.) @ +12 VOLTS²
- ◆ WIDE BANDWIDTH: 10-1200 MHz
- ◆ LOW VSWR: < 1.5:1 (TYP.)
- ◆ WIDE POWER SUPPLY RANGE: +5 TO +14 VOLTS

Specifications *

Characteristics	Typical	Guaranteed	
		0° to -50°C	-54°C to +85°C
Frequency (Min.)	5-1300 MHz	10-1200 MHz	10-1200 MHz
Small Signal Gain (Min.)	9.0 dB	8.5 dB	8.0 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	+20.0 dBm	+19.5 dBm
VSWR (Max.) Input/Output	1.5:1	2.0:1	2.0:1
DC Current (Max.) at +12 Volts	97 mA	101 mA	106 mA

* Measured in a 50-ohm system at +12 Vdc Nominal.

Notes:

1. WJ-CPA12-1 is a standard WJ-PA12-1 installed in a miniature SMA connector housing and guaranteed over 0°C to 50°C temperature range.
2. The WJ-PA12-1 is similar to the WJ-PA12 except its DC bias has been designed for +12 volt operation to yield +20 dBm minimum output power as opposed to +15 Volts required on the WJ-PA12.

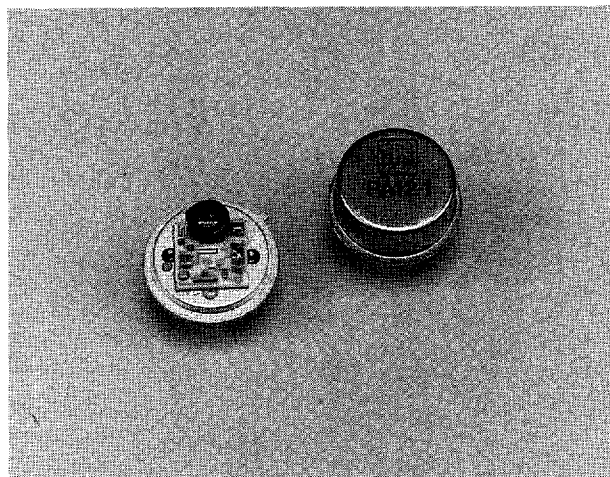
Typical Intermodulation Performance at 25°C

Second Order Harmonic Intercept Point.....+45 dBm (Typ.)
 Second Order Two-Tone Intercept Point+39 dBm (Typ.)
 Third Order Two-Tone Intercept Point+32 dBm (Typ.)

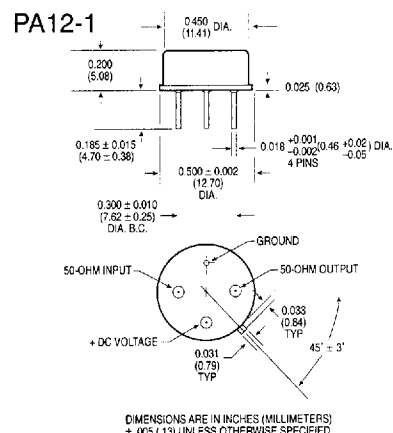
Absolute Maximum Ratings

Storage Temperature-62°C to +125°C
 Maximum Case Temperature+125°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 Power0.5 Watt (3 μ sec Max.)
 "S" Series Burn-In Temperature (Case)125°C

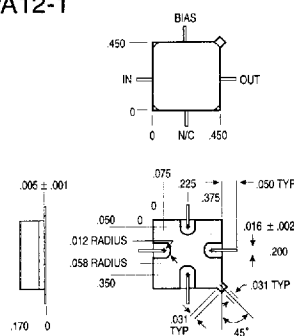
Weight approximately 2.0 grams (0.07 oz.)



Outline Drawings

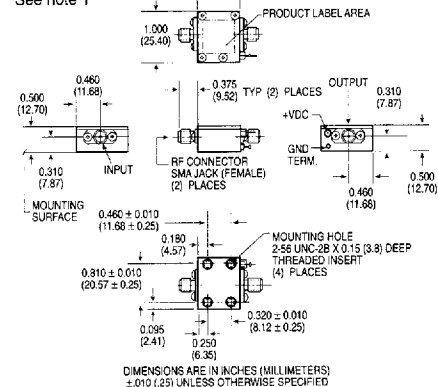


SMPA12-1



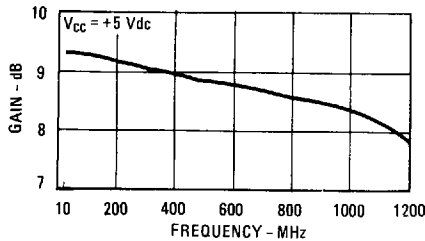
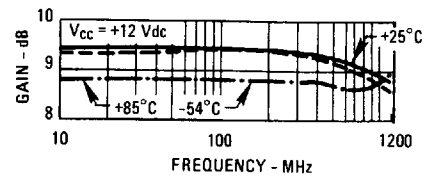
CPA12-1

See note 1

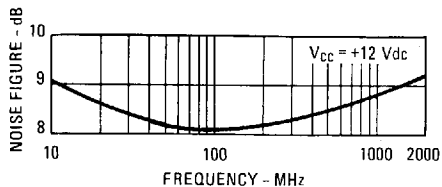


Typical Performance at 25°C

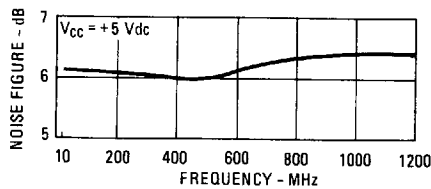
Gain



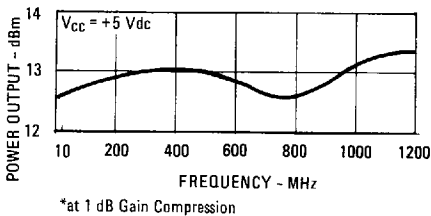
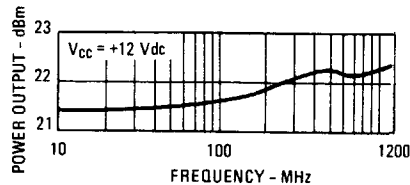
Noise Figure



Noise Figure

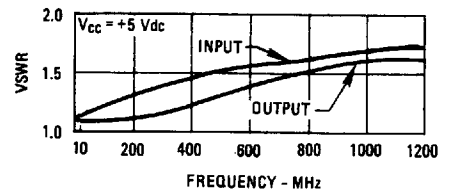
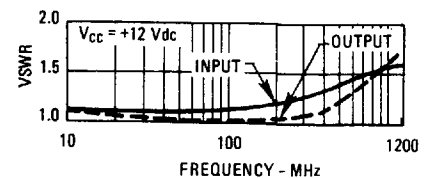


Power Output*

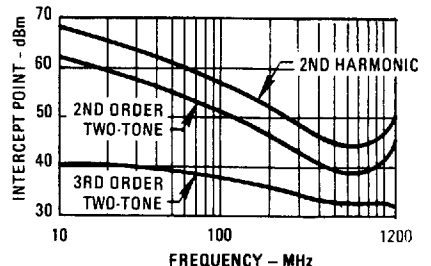


*at 1 dB Gain Compression

VSWR



Intercept Point



Typical Automatic Test Data

$V_{CC} = 12.0 \text{ V}$

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
2.0	1.7	2.0	8.4
5.0	1.3	1.4	8.9
10.0	1.3	1.3	9.0
50.0	1.3	1.2	9.2
100.0	1.3	1.2	9.1
200.0	1.3	1.2	9.1
300.0	1.3	1.2	9.1
400.0	1.3	1.1	9.2
500.0	1.3	1.1	9.3
600.0	1.3	1.1	9.4
700.0	1.3	1.2	9.4
800.0	1.3	1.3	9.5
900.0	1.3	1.3	9.6
1000.0	1.3	1.5	9.6
1100.0	1.2	1.6	9.5
1200.0	1.2	1.7	9.4
1300.0	1.2	1.8	9.2
1400.0	1.4	1.8	8.7

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
2.0	.267	-94	2.617	-147	.148	36	.343	154
5.0	.149	-132	2.787	-168	.160	14	.165	151
10.0	.127	-152	2.823	-175	.163	7	.129	157
50.0	.125	-178	2.872	174	.166	-1	.102	167
100.0	.118	176	2.845	167	.165	-5	.101	162
200.0	.120	174	2.857	153	.166	-10	.095	147
300.0	.118	172	2.867	139	.168	-15	.081	134
400.0	.114	166	2.900	124	.170	-21	.062	131
500.0	.116	165	2.903	111	.172	-26	.048	140
600.0	.119	163	2.935	96	.175	-32	.050	166
700.0	.120	158	2.964	81	.178	-38	.076	173
800.0	.130	151	2.989	65	.182	-45	.112	166
900.0	.136	140	3.008	50	.188	-52	.148	152
1000.0	.128	122	3.010	33	.191	-59	.188	134
1100.0	.104	99	2.970	16	.196	-67	.223	115
1200.0	.078	57	2.944	-1	.203	-75	.251	92
1300.0	.081	-21	2.871	-20	.209	-85	.279	67
1400.0	.165	-73	2.718	-40	.215	-96	.289	42

Thermal Data: $V_{CC} = 12 \text{ Vdc}$

Thermal Resistance θ_{JC} 45°C/W
 Transistor Power Dissipation P_D 0.758 W
 Junction Temperature Rise Above Case T_{JC} ...34°C