

WJ-PA30/SMPA30

0.5 TO 2.0 GHz

TO-8 GaAs FET AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ WIDE BANDWIDTH: 0.3 TO 2.2 GHz (TYP.)
- ◆ HIGH OUTPUT POWER: 25 dBm (TYP.)
- ◆ MODERATE GAIN: 14.5 dB (TYP.)
- ◆ MODERATE NOISE FIGURE: 5.5 dB (TYP.)
- ◆ LOW DC CURRENT: 155 mA at +12 VOLTS Vdc
- ◆ GaAs FET DESIGN



Specifications*

Characteristics	Typical	Guaranteed	
		0° to 50°C	-54°C to +85°C
Frequency (Min.)	0.3-2.2 GHz	0.5-2.0 GHz	0.5 -2.0 GHz
Small Signal Gain (Min.)	14.5 dB	13.5 dB	13.0 dB
Gain Flatness (Max.)	±0.3 dB	±0.5 dB	±0.7 dB
Noise Figure (Max.)	5.5 dB	6.0 dB	6.5 dB
Power Output			
at 1 dB Compression (Min.)			
1.0 to 2.0 GHz	+25.0 dBm	+23.5 dBm	+23.0 dBm
0.5 to 2.0 GHz	+24.5 dBm	+23.0 dBm	+22.5 dBm
VSWR			
Input/Output (Max.)	1.7:1	1.9:1	2.0:1
DC Current at 12 Volts (Max.)	155 mA	170 mA	180 mA

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

Typical Intermodulation Performance at 25°C

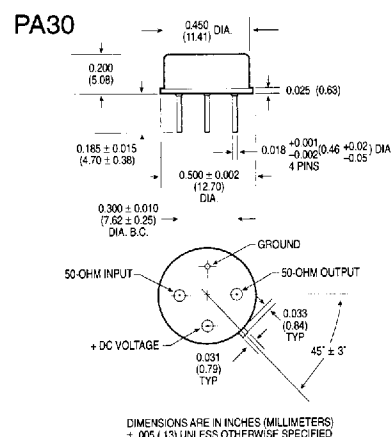
Second Order Harmonic Intercept Point	+55 dBm (Typ.)
Second Order Two Tone Intercept Point	+50 dBm (Typ.)
Third Order Two-Tone Intercept Point	+32 dBm (Typ.)

Absolute Maximum Ratings

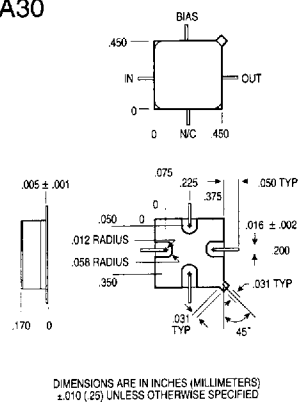
Storage Temperature.....	-62°C to +125°C
Maximum Case Temperature.....	100°C
Maximum DC Voltage.....	15 Volts
Maximum Continuous RF Input Power.....	20 dBm
Maximum Short Term RF Input Power (1 Minute Max.)	200 Milliwatts
Maximum Peak Power.....	1/4 Watt (3 µsec Max.)
"S" Series Burn-in Temperature (Case).....	100°C

Weight: 3.0 grams (0.11 oz.)

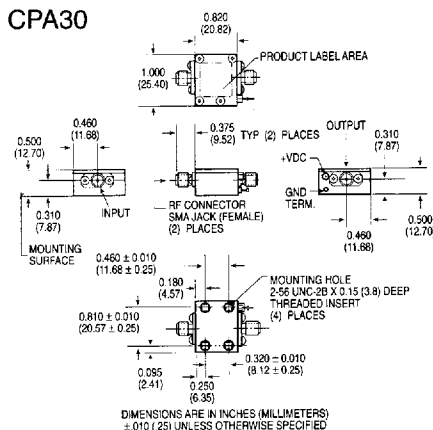
Outline Drawings



SMPA30

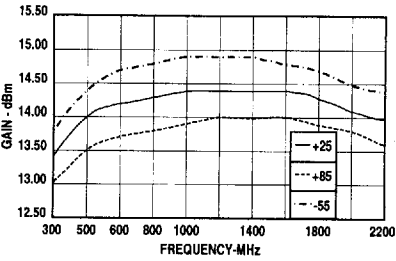


CPA30

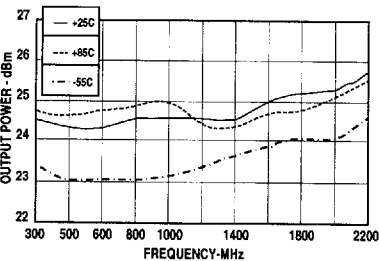


Typical Performance at 25°C

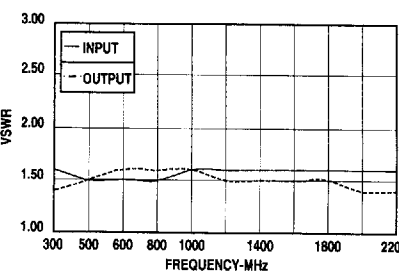
Gain



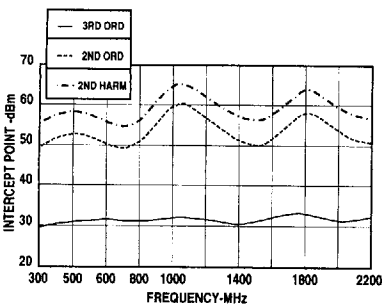
Power Output



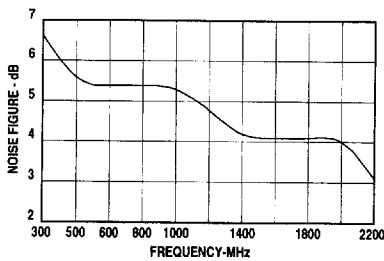
VSWR



Intercept Point



Noise Figure



Typical Automatic Test Data

V_{CC} = 12.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
300.0	1.6	1.4	13.4
500.0	1.5	1.5	14.1
600.0	1.5	1.6	14.2
800.0	1.5	1.6	14.4
1000.0	1.6	1.6	14.4
1200.0	1.6	1.5	14.5
1400.0	1.6	1.5	14.4
1600.0	1.6	1.5	14.4
1800.0	1.6	1.5	14.3
2000.0	1.6	1.4	14.1
2200.0	1.6	1.4	14.1

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
300.0	.228	-77	4.688	-158	.010	85	.178	14
500.0	.207	-90	5.064	179	.016	89	.207	-14
600.0	.205	-98	5.108	172	.020	91	.219	-25
800.0	.210	-117	5.271	161	.028	91	.225	-43
1000.0	.217	-136	5.243	153	.037	90	.217	-61
1200.0	.225	-157	5.313	144	.045	89	.212	-80
1400.0	.230	179	5.275	138	.054	87	.203	-99
1600.0	.228	154	5.220	130	.062	85	.191	-120
1800.0	.220	125	5.198	124	.069	84	.191	-142
2000.0	.217	89	5.065	115	.077	81	.178	-165
2200.0	.235	47	5.048	107	.086	78	.172	-167

Thermal Data: V_{CC} = 12 Vdc

Thermal Resistance θ_{JC} 82°C/W
Transistor Power Dissipation P_D 1.35 W
Junction Temperature Rise Above Case T_{JC} ... 110°C