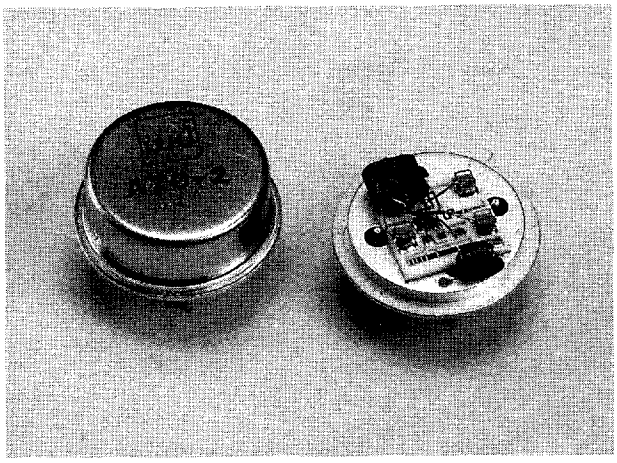
WJ-A70-2 / SMA70-2



10 to 250 MHz
TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ LOW NOISE: 2.2 dB (TYP.)
- ◆ HIGH OUTPUT POWER: +19 dBm (TYP.)
- ◆ HIGH THIRD ORDER IP: +35 dBm (TYP.)
- ◆ LOW DC CURRENT: 25 mA (TYP.) @ +15 Vdc

Specifications*

Characteristics	Typical	Guaranteed	
		0° to 50°C	-54° to +85°C
Frequency (Min.)	10-300 MHz	10-250 MHz	10-250 MHz
Small Signal Gain (Min.)			
10-50 MHz	7.0 dB	6.5 dB	6.0 dB
50-250 MHz	7.5 dB	7.0 dB	6.5 dB
Gain Flatness (Max.)	±0.4 dB	±0.8 dB	±1.0 dB
Noise Figure (Max.)	2.2 dB	2.7 dB	3.2 dB
Power Output			
at 1 dB Compression (Min.)	+19.0 dBm	+18.0 dBm	+17.5 dBm
VSWR (Max.) Input/Output	1.9:1	2.1:1	2.3:1
DC Current (Max.) at 15 Volts	25 mA	27 mA	29 mA

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

Notes:

1. WJ-CA70-2 is a standard WJ-A70-2 installed in a miniature SMA connector housing and guaranteed over 0°C to 50°C temperature range.

Typical Intermodulation Performance at 25°C

Second Order Harmonic Intercept Point.....+45 dBm (Typ.)
Second Order Two Tone Intercept Point.....+40 dBm (Typ.)
Third Order Two Tone Intercept Point.....+35 dBm (Typ.)

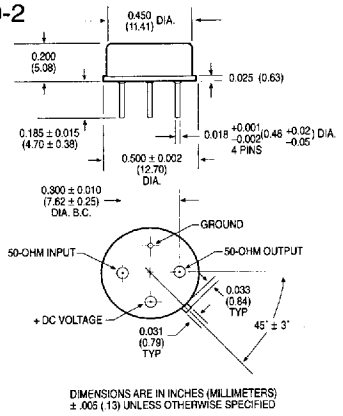
Absolute Maximum Ratings

Storage Temperature .....-62°C to +125°C
Maximum Case Temperature .....125°C
Maximum DC Voltage.....+17 Volts
Maximum Continuous RF Input Power .....+13 dBm
Maximum Short Term RF Input Power (1 Minute Max.)..... +17 dBm
Maximum Peak Power .....0.5 Watt (3 µsec Max.)
"S" Series Burn-In Temperature .....125°C

Weight approximately 2.0 grams (0.07oz.)

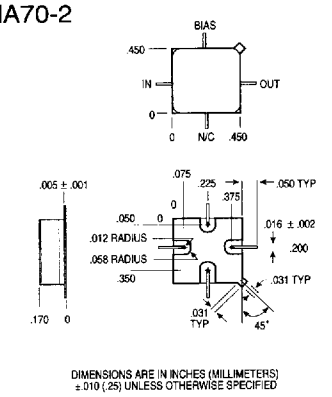
Outline Drawings

A70-2



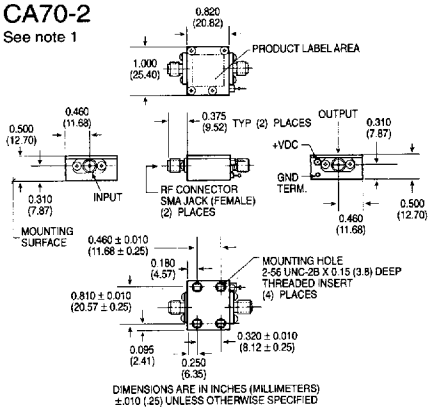
DIMENSIONS ARE IN INCHES (MILLIMETERS)
± .005 (.13) UNLESS OTHERWISE SPECIFIED

SMA70-2



DIMENSIONS ARE IN INCHES (MILLIMETERS)
± .010 (.25) UNLESS OTHERWISE SPECIFIED

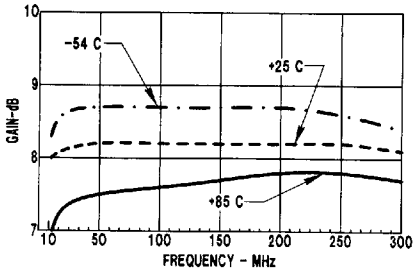
CA70-2
See note 1



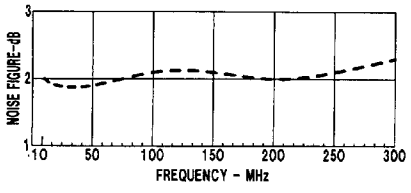
DIMENSIONS ARE IN INCHES (MILLIMETERS)
±.010 (.25) UNLESS OTHERWISE SPECIFIED

Typical Performance at 25°C

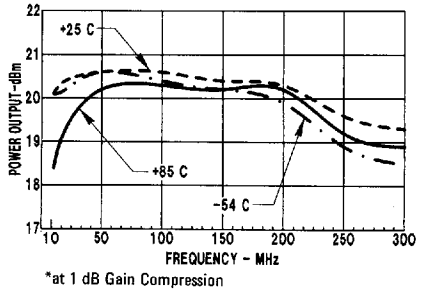
Gain vs. Frequency vs. Temperature



Noise Figure

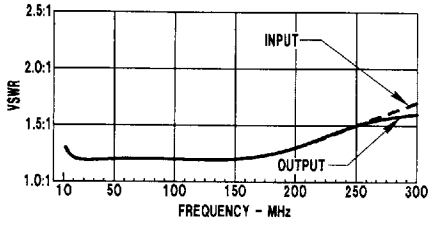


Power Output *

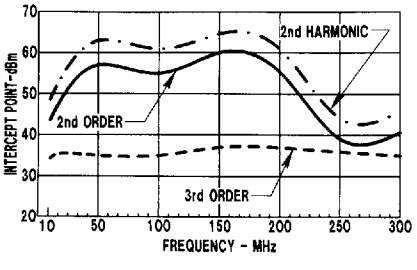


*at 1 dB Gain Compression

Input/Output VSWR



Intercept Points



Typical Automatic Test Data

V_{CC} = 15.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
5.0	1.5	1.6	7.5
10.0	1.3	1.3	7.9
50.0	1.2	1.2	8.1
100.0	1.3	1.3	8.1
150.0	1.5	1.4	8.0
200.0	1.6	1.5	8.0
250.0	1.8	1.7	7.9
300.0	2.1	1.9	8.0
350.0	2.3	2.0	7.8
400.0	2.4	2.1	7.9

Linear S-Parameters

Frequency	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5.0	.204	142	2.384	20	.272	21	.220	148
10.0	.137	149	2.470	9	.279	9	.146	149
50.0	.098	−173	2.536	−9	.285	−9	.093	178
100.0	.134	−153	2.528	−22	.282	−22	.122	−171
150.0	.189	−151	2.516	−34	.277	−34	.166	−175
200.0	.243	−154	2.526	−47	.272	−45	.213	174
250.0	.292	−162	2.483	−59	.262	−58	.259	160
300.0	.346	−174	2.501	−71	.256	−69	.300	146
350.0	.385	174	2.445	−84	.245	−82	.337	132
400.0	.405	160	2.486	−98	.241	−94	.358	119

V_{CC} = 12.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
5.0	1.2	1.2	8.0
10.0	1.2	1.2	8.1
50.0	1.2	1.2	8.2
100.0	1.3	1.3	8.1
150.0	1.5	1.4	8.1
200.0	1.7	1.6	8.1
250.0	1.9	1.7	7.9
300.0	2.1	1.9	7.9
350.0	2.3	2.1	7.7
400.0	2.4	2.2	7.9

Linear S-Parameters

Frequency	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5.0	.097	166	2.506	12	.284	12	.101	172
10.0	.082	173	2.554	4	.288	4	.081	174
50.0	.096	−155	2.570	−11	.289	−10	.085	−162
100.0	.141	−147	2.555	−23	.285	−23	.128	−160
150.0	.195	−145	2.529	−36	.279	−35	.176	−169
200.0	.257	−152	2.533	−48	.273	−47	.225	178
250.0	.313	−162	2.475	−60	.262	−59	.271	164
300.0	.362	−173	2.488	−73	.257	−70	.313	149
350.0	.402	174	2.432	−86	.244	−83	.349	135
400.0	.417	159	2.470	−100	.239	−96	.372	121

Thermal Data: V_{CC} = 15 Vdc

Thermal Resistance θ_{jc} ..... 45°C/W
Transistor Power Dissipation P_d ..... 0.024 W
Junction Temperature Rise Above Case T_{jc} ... 1°C