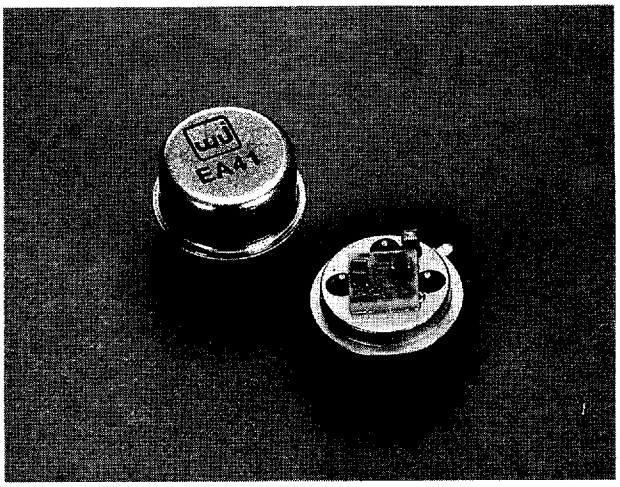
WJ-EA41



1000 to 4000 MHz
TO-5 CASCADABLE AMPLIFIER

- ◆ WIDE BANDWIDTH: 1000 TO 4000 MHz
- ◆ MEDIUM OUTPUT POWER: +12 dBm (TYP.)
- ◆ LOW NOISE: 3.5 dB (TYP.)
- ◆ MEDIUM THIRD ORDER INTERCEPT POINT: +23 dBm (TYP.)
- ◆ VERY SMALL SIZE: TO-5 PACKAGE

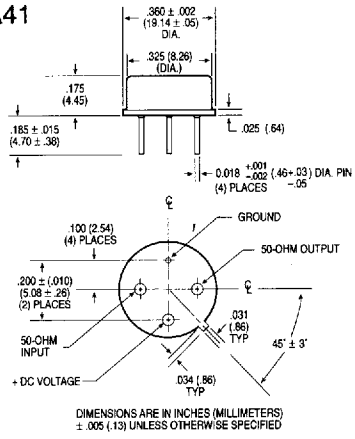
Specifications*

Characteristics	Typical	Guaranteed 0° to +50°C	Guaranteed -54° to +85°C
Frequency (Min.)	800-4200 MHz	1000-4000 MHz	1000-4000 MHz
Small Signal Gain (Min.)	8.0 dB	7.0 dB	6.5 dB
Gain Flatness (Max.)	±.4 dB	±.7 dB	±.9 dB
Noise Figure (Max.)	3.5 dB	5.0 dB	5.5 dB
Power Output at 1 dB Compression (Min.)	+12.0 dBm	+11.0 dBm	+10.5 dBm
VSWR (Max.)			
Input	1.6:1	2.1:1	2.2:1
Output	1.6:1	2.1:1	2.2:1
DC Current (Max.) at +5 Volts	35 mA	40 mA	42 mA

*Measured in a 50-ohm system at +5 Vdc Nominal.

Outline Drawings

EA41



WJ-CA package is not available for TO-5's.

Typical Intermodulation Performance at 25°C

Second Order Harmonic Intercept Point.....+35 dBm (Typ.)
Second Order Two Tone Intercept Point.....+30 dBm (Typ.)
Third Order Two Tone Intercept Point.....+23 dBm (Typ.)

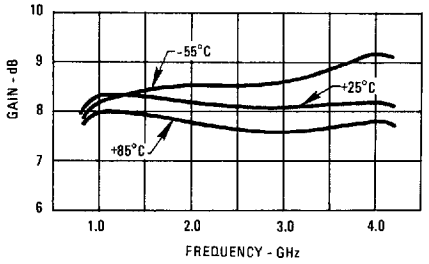
Absolute Maximum Ratings

Storage Temperature.....-62°C to +125°C
Maximum Case Temperature.....125°C
Maximum DC Voltage.....+6 Volts
Maximum Continuous RF Input Power.....+14 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 (Case).....125°C

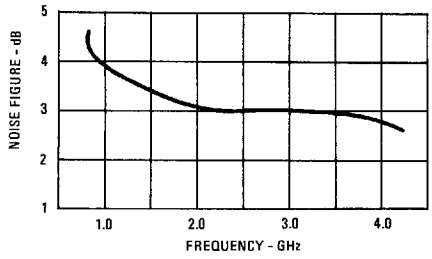
Weight approximately 1.0 grams (0.04 oz.)

Typical Performance at 25°C

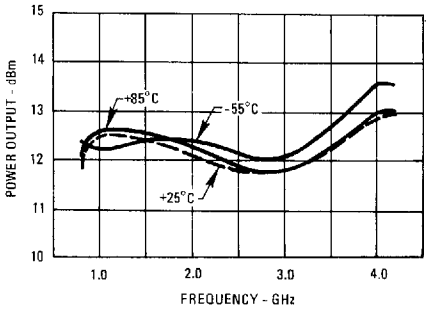
Gain



Noise Figure

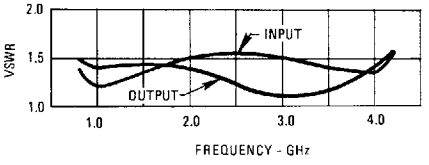


Power Output*

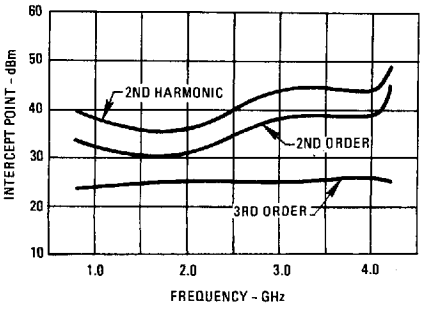


*at 1 dB Gain Compression

VSWR



Intercept Point



Typical Automatic Test Data

V_{CC} = 5.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
800.0	1.4	1.6	8.8
900.0	1.2	1.7	9.0
1000.0	1.1	1.7	8.9
1100.0	1.1	1.7	8.9
1200.0	1.1	1.7	8.9
1300.0	1.2	1.7	8.9
1400.0	1.3	1.6	8.9
1500.0	1.3	1.6	8.9
1600.0	1.3	1.5	8.8
1700.0	1.4	1.4	8.7
1800.0	1.4	1.4	8.7
1900.0	1.4	1.3	8.7
2000.0	1.5	1.3	8.7
2100.0	1.4	1.3	8.7
2200.0	1.4	1.3	8.7
2300.0	1.4	1.2	8.7
2400.0	1.4	1.2	8.7
2500.0	1.3	1.2	8.7
2600.0	1.3	1.2	8.7
2700.0	1.3	1.2	8.7
2800.0	1.3	1.2	8.7
2900.0	1.2	1.2	8.8
3000.0	1.2	1.1	8.8
3100.0	1.2	1.1	8.8
3200.0	1.1	1.1	8.8
3300.0	1.1	1.1	8.8
3400.0	1.0	1.0	8.8
3500.0	1.1	1.1	8.8
3600.0	1.2	1.2	8.7
3700.0	1.3	1.3	8.7
3800.0	1.5	1.4	8.5
3900.0	1.7	1.6	8.3
4000.0	1.9	1.8	8.1
4100.0	2.1	1.9	7.8
4200.0	2.3	2.1	7.6

Linear S-Parameters

Frequency	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
800.0	.158	107	2.766	140	.140	–18	.243	134
900.0	.077	72	2.803	111	.139	–43	.264	103
1000.0	.042	19	2.772	86	.138	–66	.268	79
1100.0	.046	–45	2.773	62	.136	–87	.268	59
1200.0	.065	–81	2.787	41	.133	–105	.262	41
1300.0	.090	–96	2.783	20	.131	–123	.246	24
1400.0	.115	–120	2.782	0	.128	–140	.230	8
1500.0	.130	–136	2.774	–20	.128	–157	.216	–6
1600.0	.147	–149	2.762	–39	.125	–173	.198	–21
1700.0	.160	–167	2.734	–58	.124	172	.179	–34
1800.0	.177	180	2.734	–76	.122	157	.163	–50
1900.0	.182	162	2.722	–94	.121	141	.144	–60
2000.0	.190	150	2.710	–112	.119	127	.131	–74
2100.0	.183	137	2.710	–130	.118	112	.122	–92
2200.0	.175	127	2.714	–148	.118	97	.117	–110
2300.0	.167	114	2.714	–165	.119	83	.107	–130
2400.0	.150	102	2.715	178	.116	68	.099	–147
2500.0	.148	88	2.732	160	.115	54	.093	–166
2600.0	.137	78	2.722	143	.115	39	.093	180
2700.0	.132	68	2.738	126	.115	25	.091	159
2800.0	.116	57	2.733	108	.113	10	.091	140
2900.0	.109	47	2.745	91	.113	–4	.082	122
3000.0	.097	33	2.741	73	.114	–18	.068	105
3100.0	.083	19	2.756	56	.113	–32	.058	89
3200.0	.056	–1	2.752	38	.113	–48	.045	70
3300.0	.031	–34	2.762	20	.113	–63	.028	33
3400.0	.022	–119	2.765	2	.113	–78	.024	–54
3500.0	.052	–167	2.762	–16	.110	–93	.054	–109
3600.0	.091	169	2.732	–34	.113	–108	.091	–134
3700.0	.138	153	2.712	–52	.110	–122	.132	–154
3800.0	.192	139	2.668	–70	.109	–138	.174	–167
3900.0	.246	123	2.609	–89	.106	–153	.225	178
4000.0	.301	110	2.545	–107	.106	–169	.274	163
4100.0	.350	96	2.458	–125	.102	177	.318	149
4200.0	.394	84	2.388	–142	.101	163	.355	135

Thermal Data: V_{CC} = 5 Vdc

Thermal Resistance θ_{jc} ..... 97.8°C/W
Transistor Power Dissipation P_d ..... 0.171 W
Junction Temperature Rise Above Case T_{jc} ... 17°C