

WJ-EA53

5 to 250 MHz TO-5 CASCADABLE AMPLIFIER

- ◆ LOW NOISE: 2.0 dB (TYP.)
- ◆ HIGH GAIN: 22 dB (TYP.)
- ◆ LOW OUTPUT VSWR: 1.2:1 (TYP.)
- ◆ HIGH EFFICIENCY: 15 mA (TYP.) @ +5 Vdc
- ◆ VERY SMALL SIZE: TO-5 PACKAGE.

Specifications*

Characteristics	Typical	Guaranteed	
		0° to -50°C	-54° to +85°C
Frequency (Min.)	1 - 300 MHz	5 - 250 MHz	5 - 250 MHz
Small Signal Gain (Min.)	22.0 dB	20.5 dB	19.5 dB
Gain Flatness (Max.)	±.6 dB	±.9 dB	±1.0 dB
Noise Figure (Max.)	2.0 dB	2.8 dB	3.2 dB
Power Output at 1 dB Compression (Min.)	+4.5 dBm	+2.5 dBm	+2.0 dBm
VSWR (Max.) Input	1.5:1	1.8:1	2.0:1
VSWR (Max.) Output	1.2:1	1.5:1	1.7:1
DC Current (Max.) at 5 Volts	15 mA	18 mA	20 mA

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

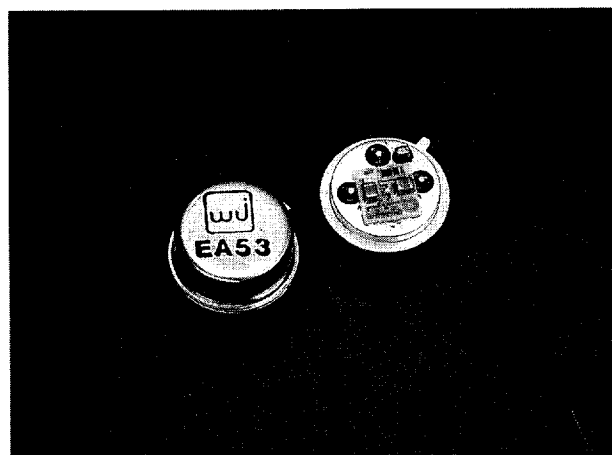
Typical Intermodulation Performance at 25°C

Second Order Harmonic Intercept Point.....+23 dBm (Typ.)
 Second Order Two Tone Intercept Point.....+18 dBm (Typ.)
 Third Order Two Tone Intercept Point.....+16 dBm (Typ.)

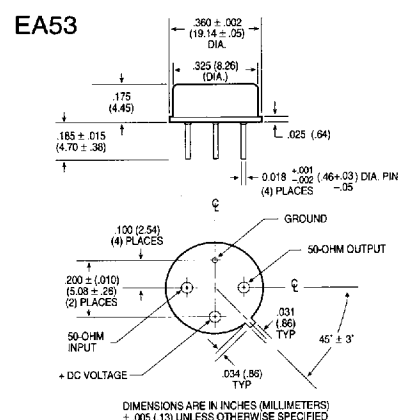
Absolute Maximum Ratings

Storage Temperature-62°C to +125°C
 Maximum Case Temperature 125°C
 Maximum DC Voltage+9 volts
 Maximum Continuous RF Input Power.....+13 dBm
 Maximum Short Term RF Input Power (1 Minute Max.)..... 50 Milliwatts
 Maximum Peak Power0.5 Watt (3 µsec Max.)
 "S" Series Burn-In Temperature (Case)125°C

Weight approximately 1.0 grams (0.04 oz.)



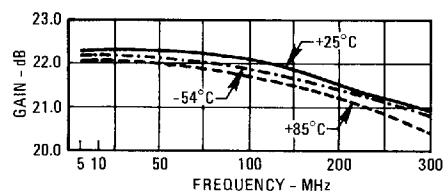
Outline Drawings



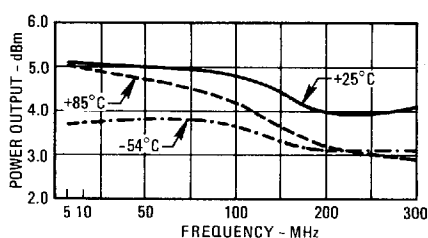
WJ-CA package is not available for TO-5's.

Typical Performance at 25°C

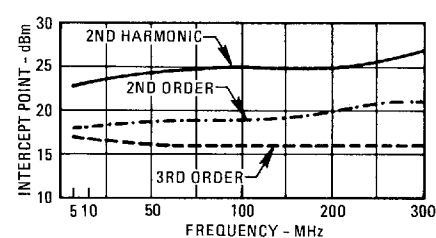
Gain



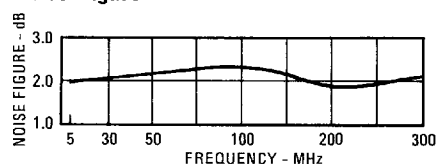
Power Output*



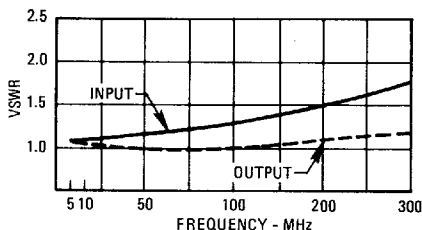
Intercept Point



Noise Figure



VSWR



Typical Automatic Test Data

V_{CC} = 5.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
1.0	1.2	1.2	22.6
2.0	1.1	1.1	22.7
5.0	1.1	1.0	22.8
10.0	1.1	1.0	22.8
50.0	1.1	1.0	22.7
100.0	1.2	1.0	22.4
150.0	1.3	1.0	22.1
200.0	1.5	1.0	21.7
250.0	1.6	1.0	21.2
300.0	1.7	1.1	20.7
350.0	1.8	1.1	20.2
400.0	1.9	1.1	19.7

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	.097	-67	13.565	-160	.036	22	.094	-100
2.0	.055	-52	13.690	-170	.037	11	.041	-96
5.0	.044	-27	13.744	-177	.037	5	.014	-83
10.0	.043	-25	13.742	180	.037	3	.007	-61
50.0	.062	-63	13.610	169	.037	3	.006	27
100.0	.099	-88	13.255	158	.038	5	.007	40
150.0	.147	-106	12.754	148	.039	7	.008	74
200.0	.195	-121	12.205	138	.040	8	.012	83
250.0	.227	-132	11.511	129	.041	9	.019	93
300.0	.265	-142	10.879	120	.042	11	.027	90
350.0	.290	-153	10.240	111	.045	10	.035	87
400.0	.316	-161	9.690	103	.047	11	.041	80

Thermal Data: V_{CC} = 5 Vdc

Thermal Resistance θ_{JC} 45°C/W

Transistor Power Dissipation P_d 0.045 W

Junction Temperature Rise Above Case T_{JC} ...2°C