

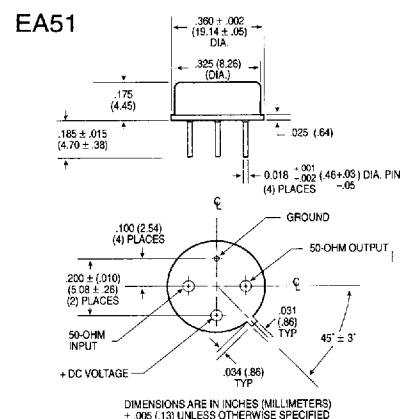
WJ-EA51

5 to 250 MHz TO-5 CASCADABLE AMPLIFIER

- ◆ LOW NOISE: 3.0 dB (TYP.)
- ◆ HIGH GAIN: 17.0 dB (TYP.)
- ◆ LOW OUTPUT VSWR: 1.2:1 (TYP.)
- ◆ HIGH EFFICIENCY: 12.5 mA (TYP.) @ +5 Vdc
- ◆ VERY SMALL SIZE: TO-5 PACKAGE



Outline Drawings



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

Specifications *

Characteristics	Typical	Guaranteed	
		0°C to 50°C	-54°C to +85°C
Frequency (Min.)	1 - 300 MHz	5 - 250 MHz	5 - 250 MHz
Small Signal Gain (Min.)	17 dB	16 dB	15.5 dB
Gain Flatness (Max.)	± .4 dB	± .7 dB	±1.0 dB
Noise Figure (Max.)	3.0 dB	3.5 dB	4.0 dB
Power Output			
at 1 dB Compression (Min.)	-1.8 dBm	-1.0 dBm	-1.0 dBm
VSWR (Max.) Input ¹	1.5:1	2.0:1	2.0:1
VSWR (Max.) Output	1.2:1	1.6:1	1.7:1
DC Current (Max.) at 5 Volts	12.5 mA	14.5 mA	16.5 mA

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

Notes: 1. Input VSWR 2.2:1 max. above 200 MHz.

Typical Intermodulation Performance at 25°C

Second Order Harmonic Intercept Point.....+20 dBm (Typ.)
 Second Order Two Tone Intercept Point.....+14 dBm (Typ.)
 Third Order Two Tone Intercept Point.....+13 dBm (Typ.)

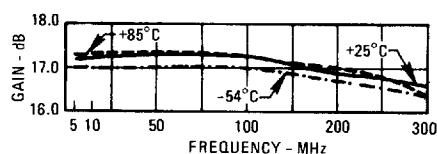
Absolute Maximum Ratings

Storage Temperature-62°C to +125°C
 Maximum Case Temperature125°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 Temperature125°C

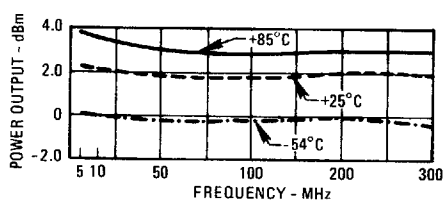
Weight approximately 1.0 grams (0.04 oz.)

Typical Performance at 25°C

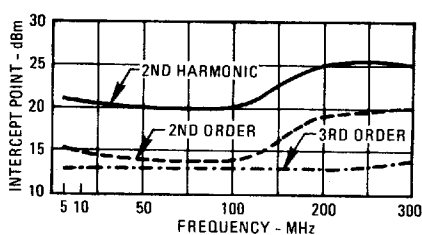
Gain



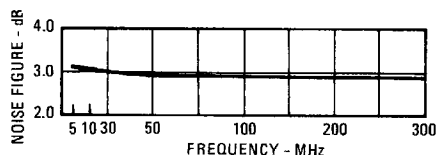
Power Output*



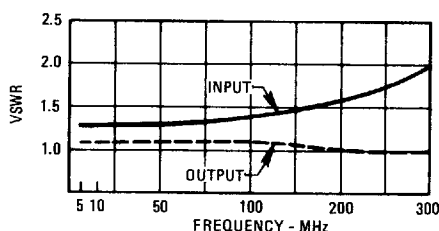
Intercept Point



Noise Figure



VSWR



Typical Automatic Test Data

V_{CC} = 5.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
1.0	1.3	1.2	17.1
2.0	1.3	1.2	17.2
5.0	1.3	1.1	17.3
10.0	1.3	1.1	17.3
50.0	1.3	1.1	17.3
100.0	1.4	1.1	17.1
150.0	1.5	1.1	17.1
200.0	1.7	1.1	17.0
250.0	1.8	1.0	16.8
300.0	2.0	1.0	16.6
350.0	2.3	1.0	16.4
400.0	2.5	1.1	16.1

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	.134	-41	7.194	-162	.058	19	.103	-55
2.0	.119	-15	7.258	-171	.059	10	.076	-31
5.0	.121	-9	7.291	-177	.059	4	.069	-13
10.0	.120	-10	7.293	180	.059	2	.069	-8
50.0	.125	-32	7.288	171	.060	2	.067	-10
100.0	.161	-57	7.203	161	.060	3	.062	-19
150.0	.196	-76	7.120	151	.063	4	.052	-29
200.0	.246	-95	7.045	142	.065	4	.039	-35
250.0	.292	-109	6.902	132	.067	4	.022	-39
300.0	.343	-121	6.727	123	.069	4	.007	17
350.0	.389	-133	6.575	113	.073	2	.022	83
400.0	.432	-144	6.390	104	.076	2	.043	80

Thermal Data: V_{CC} = 5 Vdc

Thermal Resistance θ_{jc} 45°C/W
 Transistor Power Dissipation P_d 0.036 W
 Junction Temperature Rise Above Case T_{jc} ... 2°C