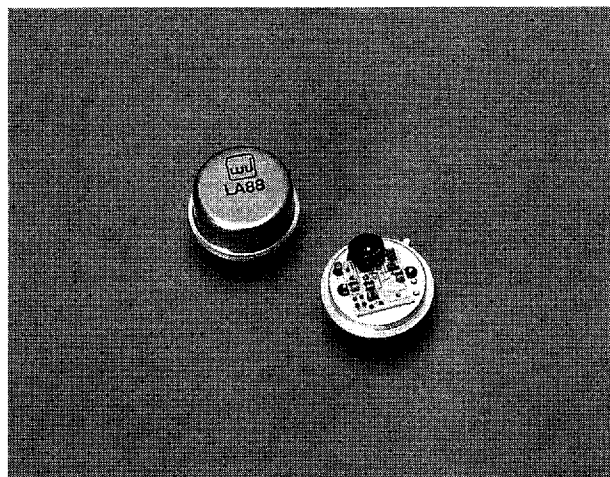


WJ-LA88/SMLA88

10 to 500 MHz TO-8 CASCADABLE LIMITING AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ SYMMETRICAL CLIPPING: GOOD EVEN ORDER SUPPRESSION
- ◆ HIGH OUTPUT LEVEL: +17 dBm (TYP.)
- ◆ HIGH THIRD-ORDER INTERCEPT POINT +28 DBM (TYP.)



Specifications*

Characteristic	Typical	Guaranteed	
		0° to +50°C	-54° to +85°C
Frequency (Min.)	10-600 MHz	10-500 MHz	10-500 MHz
Small Signal Gain (Min.)	16.5 dB	16.0 dB	15.0 dB
Gain Flatness (Max.)	±0.2 dB	±0.5 dB	±0.7 dB
Noise Figure (Max.)	6.0 dB	6.5 dB	7.0 dB
Power Output			
at 1 dB Compression (Min.)	+17.0 dBm	+15.0 dBm	+13.0 dBm
Output Limiting Level (Max.)			
Pin = +20 dBm	+20.5 dBm	+21.0 dBm	+22.5 dBm
VSWR (Max.)			
Input/Output	1.7:1	1.9:1	2.0:1
DC Current (Max.) at +15 Volts	89 mA	91 mA	93 mA

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

Notes:

1. WJ-CLA88 is a standard WJ-LA88 installed in a miniature SMA connector housing and guaranteed over 0°C to 50°C temperature range.

Typical Intermodulation Performance at 25°C

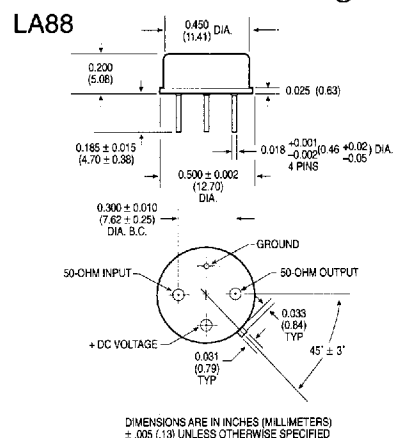
Second Harmonic Intercept Point.....	+42.0 dBm (Typ.)
Second Order Two Tone Intercept Point.....	+37.0 dBm (Typ.)
Third Order Two Tone Intercept Point.....	+28.0 dBm (Typ.)

Absolute Maximum Ratings

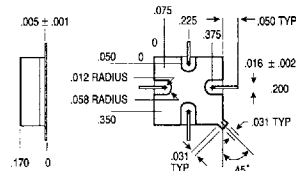
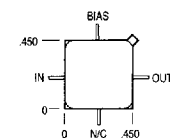
Storage Temperature	-62°C to +125°C
Maximum Case Temperature	125°C
Maximum DC Voltage.....	+17 Volts
Maximum Continuous RF Input Power	+23 dBm
Maximum Short Term RF Input Power (1 Minute Max.).....	400 Milliwatts
Maximum Peak Power	1 watt (3 µsec Max.)
"S" Series Burn-In Temperature (Case)	125°C

Weight approximately 2.0 grams (0.07 oz.)

Outline Drawings



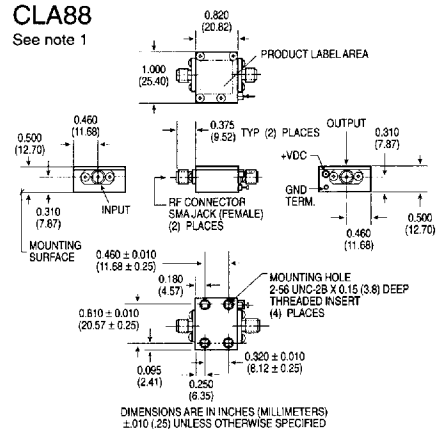
SMLA88



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

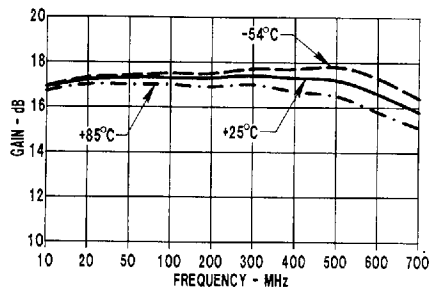
CLA88

See note 1

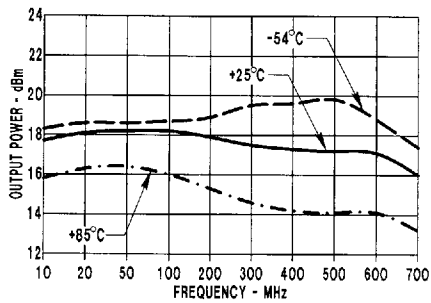


Typical Performance at 25°C

Gain vs. Temperature

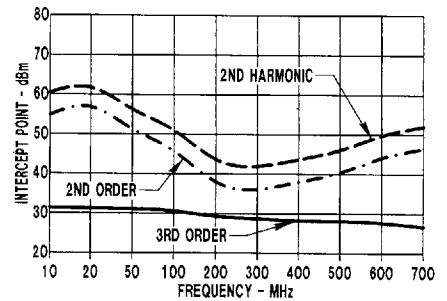


Output Power vs. Temperature*

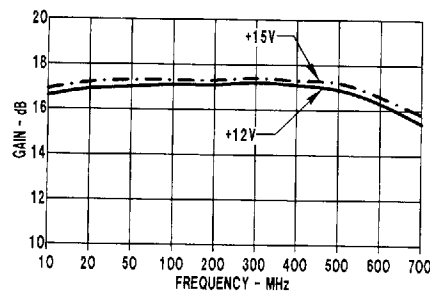


*at 1 dB Gain Compression

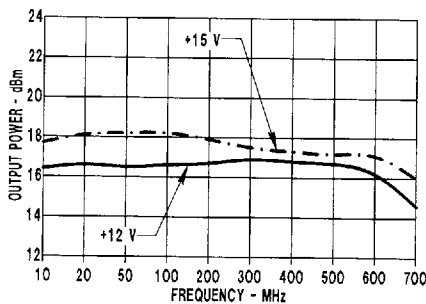
Intercept Point



Gain

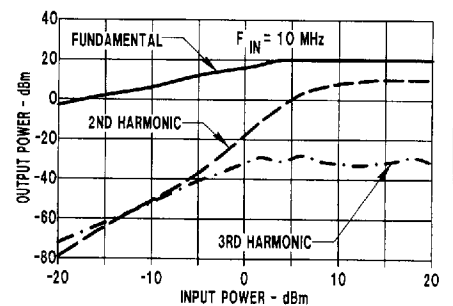


Output Power*

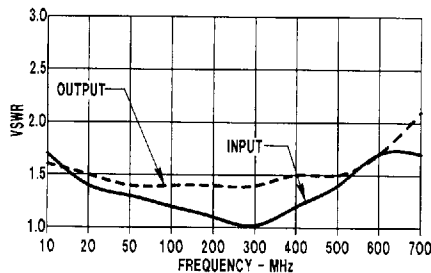


*at 1 dB Gain Compression

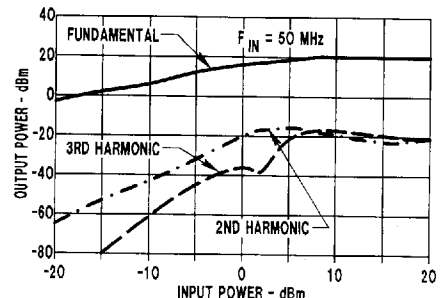
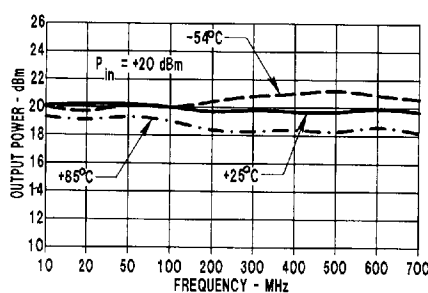
Power Output and Distortion Products



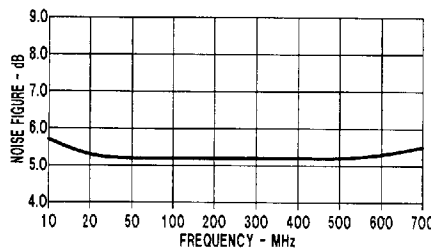
VSWR



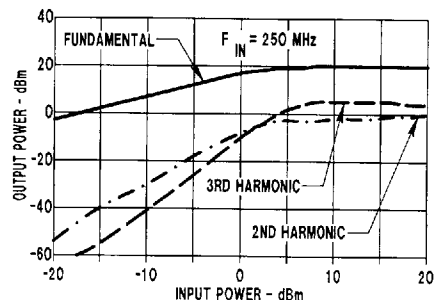
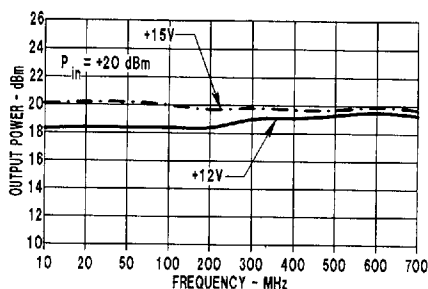
Maximum Limiting vs. Temperature



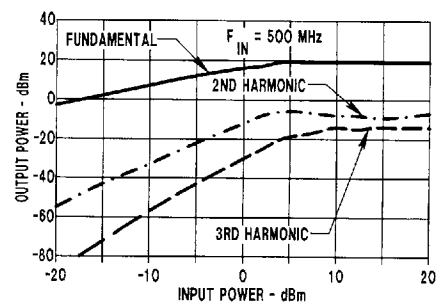
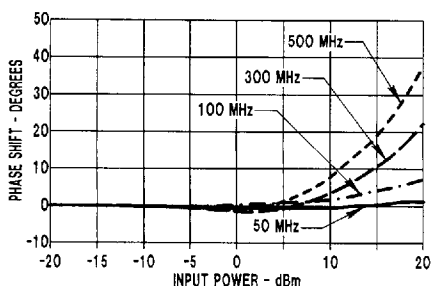
Noise Figure



Maximum Limiting Level



Phase Shift vs. Input Power



Typical Automatic Test Data

V_{CC} = 15.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
2.0	1.6	1.8	15.7
5.0	1.1	1.1	16.4
10.0	1.1	1.0	16.5
50.0	1.1	1.0	16.5
100.0	1.1	1.0	16.5
200.0	1.2	1.0	16.5
300.0	1.3	1.0	16.5
400.0	1.4	1.1	16.6
500.0	1.5	1.3	16.5
600.0	1.6	1.6	16.1
700.0	1.5	2.2	14.9

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
2.0	.245	-86	6.073	-133	.062	54	.273	-107
5.0	.066	-75	6.611	-163	.070	21	.054	-105
10.0	.042	-44	6.666	-173	.071	10	.022	-68
50.0	.030	3	6.718	169	.072	0	.020	-22
100.0	.044	10	6.683	156	.072	-5	.022	-38
200.0	.076	-20	6.675	130	.072	-10	.019	-86
300.0	.113	-51	6.675	104	.073	-16	.022	-167
400.0	.158	-82	6.765	77	.077	-21	.051	132
500.0	.196	-119	6.687	48	.082	-28	.114	83
600.0	.223	-157	6.351	15	.090	-37	.223	39
700.0	.211	157	5.578	-18	.097	-50	.373	-2

V_{CC} = 12.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
2.0	1.6	1.8	15.4
5.0	1.2	1.1	16.1
10.0	1.1	1.1	16.2
50.0	1.1	1.0	16.3
100.0	1.2	1.0	16.2
200.0	1.2	1.1	16.3
300.0	1.3	1.1	16.3
400.0	1.4	1.2	16.4
500.0	1.5	1.4	16.3
600.0	1.6	1.7	15.8
700.0	1.5	2.4	14.5

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
2.0	.234	-81	5.897	-133	.062	54	.273	-105
5.0	.073	-56	6.405	-163	.069	21	.060	-103
10.0	.057	-30	6.465	-173	.070	10	.025	-76
50.0	.052	-3	6.523	170	.071	0	.019	-38
100.0	.071	1	6.474	156	.071	-4	.022	-63
200.0	.099	-24	6.503	130	.072	-10	.026	-126
300.0	.135	-50	6.517	105	.073	-15	.045	173
400.0	.174	-78	6.637	77	.077	-20	.084	125
500.0	.200	-115	6.544	48	.083	-28	.154	79
600.0	.218	-154	6.148	15	.092	-38	.266	36
700.0	.185	161	5.301	-18	.098	-51	.408	-5

Thermal Data: V_{CC} = 15 Vdc

Thermal Resistance θ_{JC} 45°C/W
 Transistor Power Dissipation P_d 0.890 W
 Junction Temperature Rise Above Case T_{JC} ... 40°C