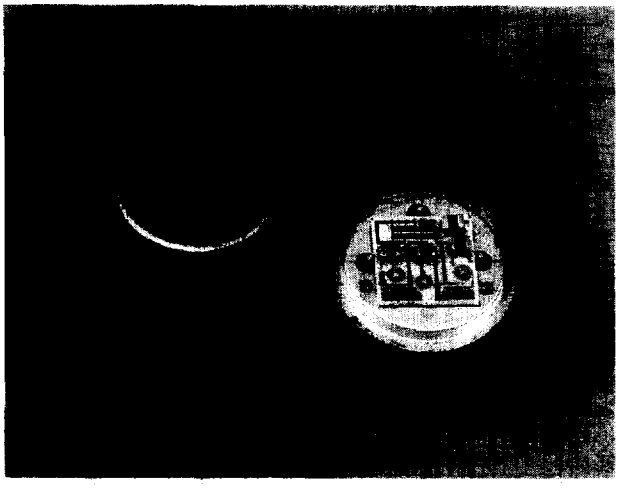
A54 / SMA54

5 to 400 MHz
TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ HIGH GAIN - TWO STAGES: 27.5 dB (TYP.)
- ◆ MEDIUM OUTPUT LEVEL: +8 dBm (TYP.)
- ◆ LOW VSWR: < 1.4:1 (TYP.)



Specifications*

Characteristics	Typical	Guaranteed 0° to 50°C	Guaranteed -54° to +85°C
Frequency (Min.)	3-500 MHz	5-400 MHz	5-400 MHz
Small Signal Gain (Min.)	27.5 dB	26.0 dB	24.0 dB
Gain Flatness (Max.)	< ±0.3 dB	±0.8 dB	±1.0 dB
Noise Figure (Max.)	4.5 dB	5.5 dB	6.0 dB
Power Output at 1 dB Compression (Min.)	+8.0 dBm	+6.5 dBm	+5.5 dBm
VSWR (Max.) Input/Output	< 1.4:1	2.0:1	2.0:1
DC Current (Max.) at 15 Volts	34 mA	37 mA	39 mA

*Measured in a 50-ohm system at +15 Vdc Nominal.
Notes:
1. WJ-CA54 is a standard WJ-A54 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.....+39.5 dBm (Typ.)
Second Order Two Tone Intercept Point .....+32.5 dBm (Typ.)
Third Order Two Tone Intercept Point.....+19 dBm (Typ.)

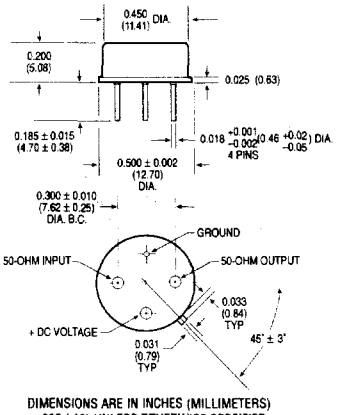
Absolute Maximum Ratings

Storage Temperature .....-62°C to +125°C
Maximum Case Temperature .....125°C
Maximum DC Voltage.....+17 Volts
Maximum Continuous RF Input Power.....+12 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 2.0 grams(0.07oz.)

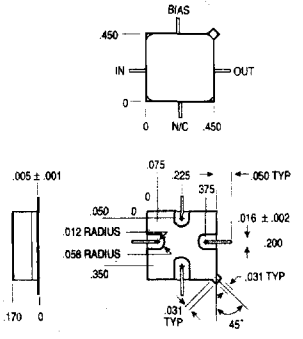
Outline Drawings

A54



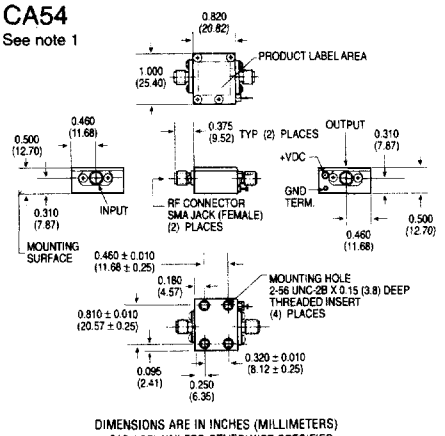
DIMENSIONS ARE IN INCHES (MILLIMETERS)
±.005 (.13) UNLESS OTHERWISE SPECIFIED

SMA54



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

CA54
See note 1



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

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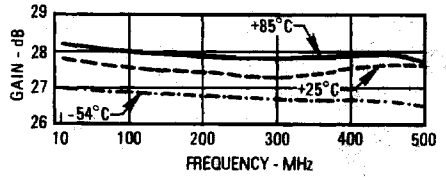
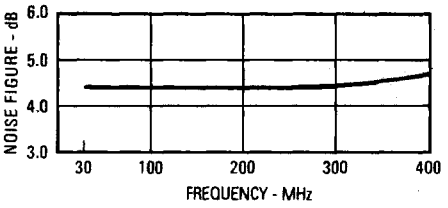
Typical Performance at 25°C

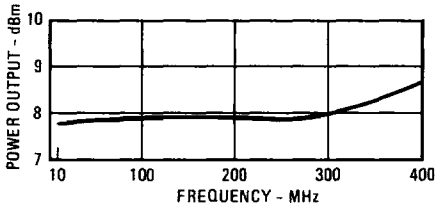
Gain



Noise Figure

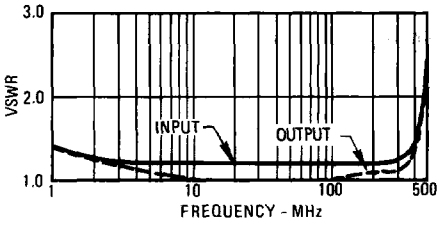


Power Output*



* at 1 dB Gain Compression

VSWR



Typical Automatic Test Data

V_{CC} = 15.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
1.0	1.3	1.4	28.3
2.0	1.2	1.3	28.4
5.0	1.2	1.2	28.5
10.0	1.2	1.2	28.5
50.0	1.2	1.2	28.5
100.0	1.1	1.2	28.5
200.0	1.1	1.1	28.4
300.0	1.1	1.2	28.2
400.0	1.2	1.3	28.4
500.0	1.7	2.2	28.9

Linear S-Parameters

Frequency	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	.137	-50	25.903	24	.005	23	.183	-50
2.0	.105	-33	26.332	12	.005	14	.122	-36
5.0	.088	-15	26.497	3	.006	6	.098	-18
10.0	.083	-11	26.517	-2	.006	2	.094	-12
50.0	.074	-14	26.603	-21	.006	4	.088	-15
100.0	.069	-15	26.493	-42	.006	12	.081	-24
200.0	.051	-40	26.201	-86	.008	10	.069	-43
300.0	.031	-82	25.616	-129	.009	7	.074	-80
400.0	.071	-158	26.165	-173	.012	2	.144	-137
500.0	.268	153	27.910	137	.017	-18	.366	167

Thermal Data: V_{CC} = 15 Vdc

Thermal Resistance θ_{jc} .....130°C/W
Transistor Power Dissipation P_d .....0.084 W
Junction Temperature Rise Above Case T_{jc} .....11°C

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