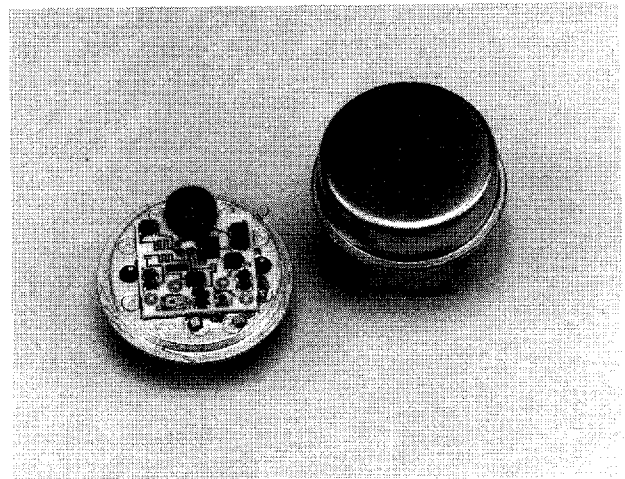


WJ-A89 / SMA89

100 to 800 MHz TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ HIGH REVERSE ISOLATION: > 29 dB (TYP.)
- ◆ LOW INPUT VSWR: 1.4:1 (TYP.)
- ◆ HIGH LEVEL OUTPUT: +17.5 dBm (TYP.)



Specifications*

Characteristics	Typical	Guaranteed	
		0° to 50° C	-54° to +85°C
Frequency (Min.)	50-800 MHz	100-800 MHz	100-800 MHz
Small Signal Gain (Min.)	22.0 dB	21.0 dB	20.5 dB
Gain Flatness (Max.)	±0.5 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.)	+17.5 dBm	+16.5 dBm	+16.0 dBm
VSWR (Max.)			
Input	1.4:1	1.8:1	2.0:1
Output	1.7:1	2.0:1	2.2:1
DC Current (Max.) at 15 V	42 mA	48 mA	50 mA

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

Notes:

Notes:

1. WJ-CA89 is a standard WJ-A89 installed in a miniature SMA connector housing and guaranteed over 0°C to 50°C temperature range.

Typical Intermodulation Performance at 25°C

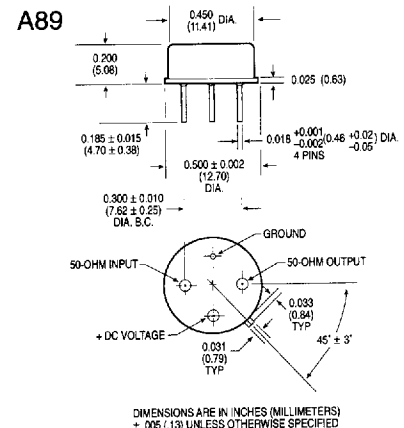
Second Order Harmonic Intercept Point.....	+42 dBm (Typ.)
Second Order Two Tone Intercept Point.....	+35 dBm (Typ.)
Third-Order Two Tone Intercept Point	+30 dBm (Typ.)

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.....	+10 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

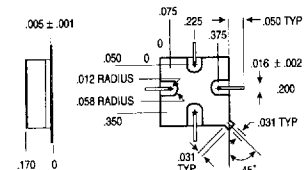
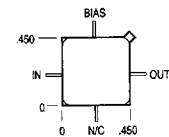
Weight approximately 2.0 grams (0.07 oz.)

Outline Drawings



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

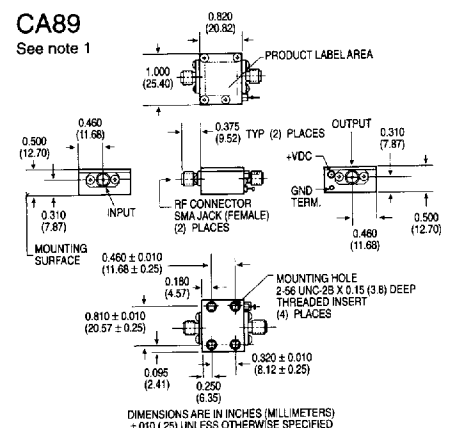
SMA89



DIMENSIONS ARE IN INCHES (MILLIMETERS)
- 0.10 (25) UNLESS OTHERWISE SPECIFIED

CA89

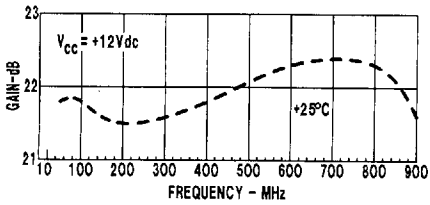
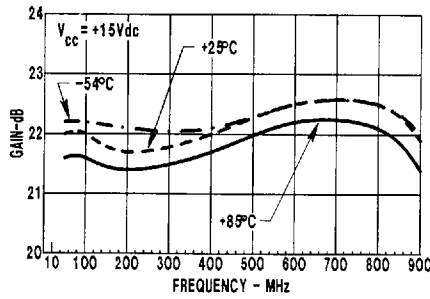
See note 1



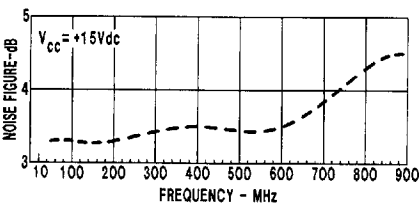
DIMENSIONS ARE IN INCHES (MILLIMETERS)
+ 0.01 (0.25) UNLESS OTHERWISE SPECIFIED

Typical Performance at 25°C

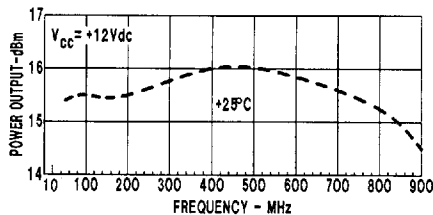
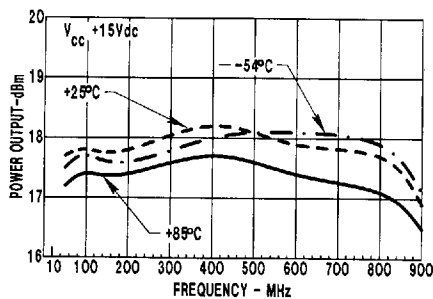
Gain vs. Temperature vs. Frequency



Noise Figure

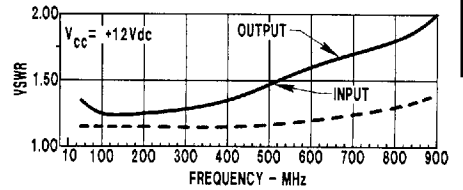
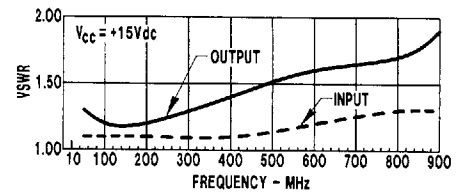


Power Output*

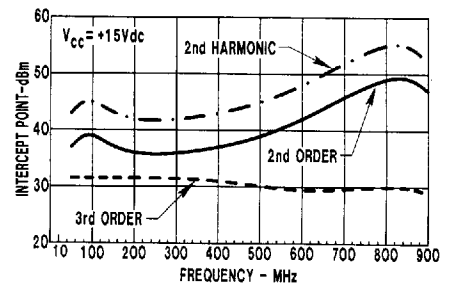


*at 1 dB Gain Compression

Input/Output VSWR



Intercept Point



Thermal Data: $V_{CC} = 15 \text{ Vdc}$

Thermal Resistance θ_{JC} 45°C/W

Transistor Power Dissipation P_d 0.294 W

Junction Temperature Rise Above Case T_{JC} ... 13°C

Typical Automatic Test Data

$V_{CC} = 15.0 \text{ V}$

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
5.0	3.0	2.4	21.5
10.0	1.5	1.8	21.9
50.0	1.1	1.3	22.8
100.0	1.0	1.2	22.8
200.0	1.0	1.2	22.7
300.0	1.0	1.2	22.8
400.0	1.1	1.3	23.3
500.0	1.2	1.6	23.5
600.0	1.2	1.8	23.6
700.0	1.2	1.7	23.5
800.0	1.3	1.6	22.9
900.0	1.4	2.0	21.7
1000.0	1.8	3.0	19.5

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5.0	.501	-59	11.881	-148	.012	100	.410	132
10.0	.213	-74	12.414	-162	.019	21	.280	136
50.0	.045	-135	13.842	172	.025	-1	.132	135
100.0	.024	160	13.787	157	.025	-8	.106	127
200.0	.007	78	13.656	130	.026	-21	.078	83
300.0	.019	-40	13.880	105	.027	-33	.073	-7
400.0	.045	-69	14.549	78	.027	-48	.141	-85
500.0	.082	-110	14.915	49	.027	-66	.228	-135
600.0	.107	-137	15.217	17	.026	-83	.278	178
700.0	.105	-159	14.956	-17	.024	-102	.270	124
800.0	.112	-165	14.044	-54	.023	-125	.238	47
900.0	.168	-168	12.174	-93	.020	-153	.329	-45
1000.0	.275	169	9.480	-132	.016	174	.502	-114

$V_{CC} = 12.0 \text{ V}$

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
5.0	2.9	2.4	21.1
10.0	1.6	1.8	21.6
50.0	1.1	1.3	22.6
100.0	1.0	1.2	22.6
200.0	1.0	1.1	22.5
300.0	1.1	1.1	22.7
400.0	1.2	1.3	23.1
500.0	1.2	1.6	23.3
600.0	1.3	1.8	23.5
700.0	1.3	1.8	23.4
800.0	1.3	1.7	22.8
900.0	1.5	2.1	21.5
1000.0	1.9	3.2	19.2

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5.0	.481	-56	11.349	-147	.011	89	.414	134
10.0	.217	-69	12.058	-162	.020	21	.280	136
50.0	.041	-112	13.502	172	.026	0	.123	133
100.0	.003	-166	13.425	157	.026	-9	.096	127
200.0	.020	-27	13.305	130	.026	-21	.067	84
300.0	.039	-56	13.589	105	.027	-34	.064	-16
400.0	.070	-73	14.232	78	.027	-50	.139	-92
500.0	.107	-105	14.652	49	.026	-66	.226	-141
600.0	.128	-133	14.963	16	.025	-84	.278	172
700.0	.133	-158	14.728	-18	.025	-104	.274	117
800.0	.148	-164	13.773	-55	.023	-128	.256	40
900.0	.206	-172	11.829	-94	.020	-157	.362	-49
1000.0	.312	166	9.140	-134	.015	170	.528	-115