

# ARS169

## 1 TO 150 MHz SMT0-8B CASCADABLE AMPLIFIER

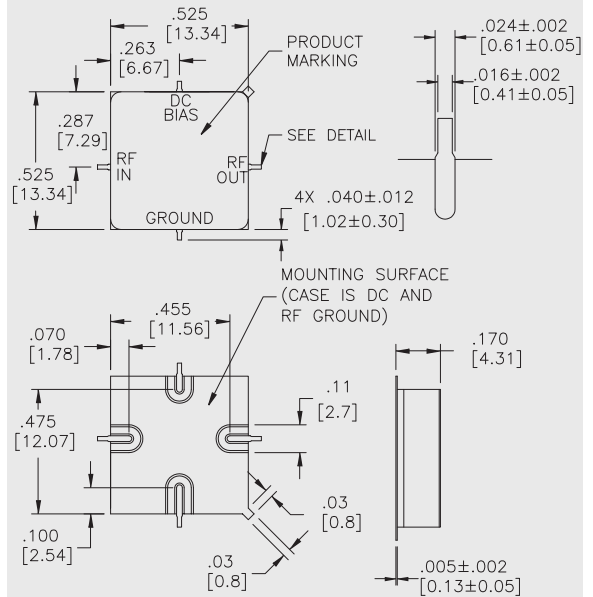
**Typical Values**

<b>High Gain</b> .....	<b>28.3 dB</b>
<b>Low Noise</b> .....	<b>2.8 dB</b>
<b>Medium Output Level</b> .....	<b>+23.0 dBm</b>
<b>High Third Order I.P.</b> .....	<b>+40.0 dBm</b>
<b>High Second Harmonic</b> .....	<b>+68.0 dBm</b>
<b>High Reverse Isolation</b> .....	<b>65.0 dB</b>
<b>High Performance Thin Film SMT0-8B Package</b>	

**ARS169**

### ARS169

**SMT0-8B Package for Amplifiers**



## SPECIFICATIONS\*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	1-200 MHz	1-150 MHz	1-150 MHz
Small Signal Gain (Min.)	28.3 dB	27.0 dB	26.0 dB
Gain Flatness (Max.)	±0.3 dB	±0.5 dB	±0.8 dB
Noise Figure (Max.)	2.3 dB	3.2 dB	3.8 dB
SWR (Max.) Input/Output	<1.4:1	1.7:1	2.0:1
Power Output (Min.) @ 1dB comp.	+23.0 dBm	+22.0 dBm	+21.5 dBm
Reverse Isolation	65.0 dB	—	—
DC Current (Max.)	147 mA	153 mA	156 mA

\* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.

## INTERMODULATION PERFORMANCE

**Typical @ 25 °C; 100 MHz**

<b>Second Order Harmonic Intercept Point</b> .....	<b>+68 dBm</b>
<b>Second Order Two Tone Intercept Point</b> .....	<b>+62 dBm</b>
<b>Third Order Two Tone Intercept Point</b> .....	<b>+40 dBm</b>

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## ABSOLUTE MAXIMUM RATINGS

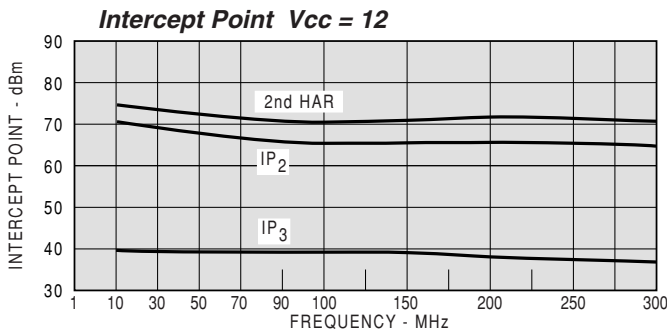
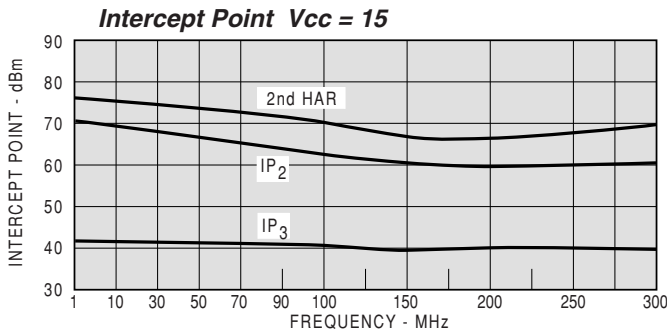
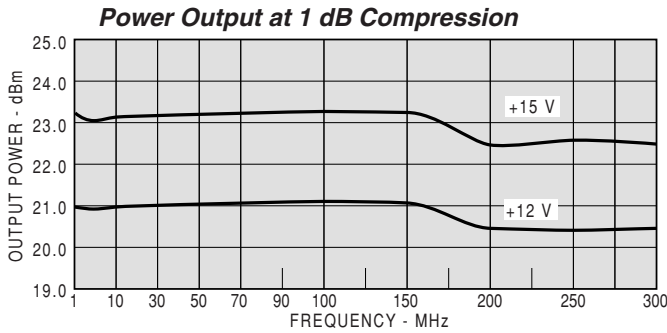
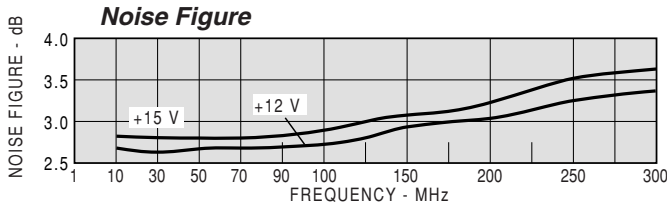
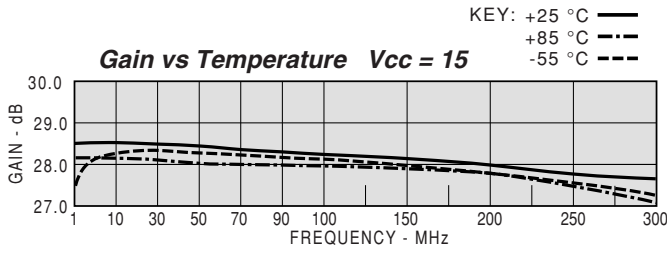
<b>Storage Temperature</b> .....	<b>-62° to 125 °C</b>
<b>Maximum Case Temperature</b> .....	<b>+125 °C</b>
<b>Maximum DC Voltage</b> .....	<b>+17 Volts</b>
<b>Maximum Continuous RF Input Power</b> .....	<b>+3 dBm</b>
<b>Maximum Short Term Input Power (1 Minute Max.)</b> .....	<b>14 Milliwatts</b>
<b>Maximum Peak Power (3 μsec Max.)</b> .....	<b>0.5 Watt</b>
<b>Burn-in Temperature</b> .....	<b>+105 °C</b>
<b>Thermal Resistance<sup>1</sup> (θjc)</b> .....	<b>+16.7 °C/Watt</b>
<b>Junction Temperature Rise Above Case (Tjc)</b> .....	<b>+36.8 °C</b>

<sup>1</sup> Thermal resistance is based on total power dissipation.

DIMENSIONS ARE IN INCHES [MILLIMETERS]

**TYPICAL PERFORMANCE**

**TYPICAL AUTOMATIC TEST DATA**



Model: ARS169 Vcc=+15V Icc=146.94

FREQ MHz	SWR IN	SWR OUT	GAIN DB	PHASE DEG	DELAY NSEC	REV/ISO DB
1	1.53	1.27	28.48	41.00		-52.80
5	1.10	1.44	28.47	7.00		-69.50
10	1.07	1.44	28.49	-1.00		-74.60
30	1.09	1.45	28.46	-15.00	1.70	-63.90
50	1.13	1.46	28.40	-26.00	1.50	-58.60
70	1.18	1.47	28.33	-37.00	1.50	-63.70
90	1.22	1.49	28.28	-48.00	1.50	-68.30
100	1.25	1.50	28.24	-53.00	1.50	-70.90
150	1.37	1.56	28.11	-80.00	1.50	-54.20
200	1.51	1.60	27.97	-107.00	1.50	-57.30
250	1.70	1.63	27.76	-136.00	1.60	-49.20
300	2.06	1.64	27.33	-168.00	1.80	-48.70

Model: ARS169 Vcc=+15V Icc=146.94

LINEAR S-PARAMETERS

FREQ MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1	0.21	-94.30	25.94	41.40	0.00	-148.00	0.12	-146.20
5	0.05	-95.30	25.92	6.70	0.00	-93.20	0.18	-174.90
10	0.03	-98.90	25.98	-0.80	0.00	77.20	0.18	-178.00
30	0.04	-105.40	25.87	-14.80	0.00	-55.70	0.18	-178.90
50	0.06	-111.40	25.70	-26.10	0.00	-92.10	0.19	-176.80
70	0.08	-116.30	25.51	-36.90	0.00	-50.40	0.19	-174.90
90	0.10	-121.90	25.35	-47.60	0.00	-73.90	0.20	-172.80
100	0.11	-125.50	25.24	-52.90	0.00	-167.30	0.20	-171.90
150	0.16	-139.90	24.87	-79.60	0.00	119.30	0.22	-164.50
200	0.20	-151.50	24.45	-107.10	0.00	123.00	0.23	-155.50
250	0.26	-160.80	23.87	-136.10	0.00	96.00	0.24	-148.50
300	0.35	-171.00	22.74	-167.80	0.00	66.70	0.24	-145.00

Model: ARS169 Vcc=+12V Icc=115.44

FREQ MHz	SWR IN	SWR OUT	GAIN DB	PHASE DEG	DELAY NSEC	REV/ISO DB
1	1.45	1.32	27.82	39.00		-55.40
5	1.09	1.43	28.15	6.00		-68.70
10	1.07	1.43	28.17	-1.00		-71.70
30	1.09	1.43	28.15	-15.00	1.70	-59.50
50	1.14	1.45	28.09	-26.00	1.60	-70.80
70	1.19	1.46	28.02	-37.00	1.50	-59.50
90	1.24	1.48	27.97	-48.00	1.50	-64.00
100	1.26	1.50	27.92	-54.00	1.50	-66.40
150	1.39	1.55	27.78	-81.00	1.50	-58.10
200	1.53	1.60	27.60	-109.00	1.60	-53.40
250	1.72	1.62	27.34	-138.00	1.60	-50.80
300	2.08	1.63	26.87	-170.00	1.80	-51.20

Model: ARS169 Vcc=+12V Icc=115.44

LINEAR S-PARAMETERS

FREQ MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1	0.18	-84.00	24.61	39.30	0.00	-142.60	0.14	-143.30
5	0.04	-86.30	25.55	6.20	0.00	-126.20	0.18	-173.30
10	0.03	-88.20	25.62	-1.00	0.00	79.10	0.18	-177.20
30	0.04	-99.60	25.55	-15.10	0.00	-45.10	0.18	-179.30
50	0.06	-107.30	25.38	-26.50	0.00	28.20	0.18	-177.10
60	0.08	-110.80	25.26	-32.00	0.00	-50.90	0.19	-176.20
90	0.11	-121.00	25.02	-48.30	0.00	-127.30	0.20	-172.40
100	0.12	-124.30	24.90	-53.60	0.00	150.90	0.20	-171.30
150	0.16	-139.50	24.48	-80.60	0.00	120.30	0.22	-163.40
200	0.21	-152.00	23.98	-108.50	0.00	111.80	0.23	-153.70
250	0.27	-161.90	23.29	-137.80	0.00	89.10	0.24	-145.40
300	0.35	-172.00	22.06	-169.70	0.00	60.40	0.24	-142.30