

# AR2569

## 50 TO 2500 MHz TO-8B CASCADABLE AMPLIFIER

Typical Values	AR2569
High Third Order I.P. ....	+40 dBm
High Output Power .....	+28 dBm
High Gain .....	16.8 dB
High Performance Thin Film TO-8B Package	

### SPECIFICATIONS\*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	50-2700 MHz	50-2500 MHz	50-2500 MHz
Small Signal Gain (Min.)	16.8 dB	15.8 dB	15.0 dB
Gain Flatness (Max.)	±0.4 dB	±0.65 dB	±0.75 dB
Noise Figure (Max.) 100-2500 MHz	5.3 <sup>^</sup> dB	6.0 <sup>^</sup> dB	6.5 <sup>^</sup> dB
SWR (Max.) Input/Output	< 1.6:1	1.8:1	2.1:1
Power Output (Min.) @ 1dB comp.	+28.0 dBm	+27.0 dBm	+26.5 dBm
Reverse Isolation	33.0 dB	—	—
DC Current (Max.) <sup>^^</sup>	283.0 mA	298.0 mA	338.0 mA

\* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.  
<sup>^</sup> 0.5 dB higher below 500 MHz.  
<sup>^^</sup> DC current at non-compression state.

### INTERMODULATION PERFORMANCE

Typical @ 25 °C	Vcc = 12.0	Vcc = 15.0
Second Order Harmonic Intercept Point .....	+68 dBm	+62 dBm
Second Order Two Tone Intercept Point .....	+62 dBm	+56 dBm
Third Order Two Tone Intercept Point .....	+38 dBm	+40 dBm

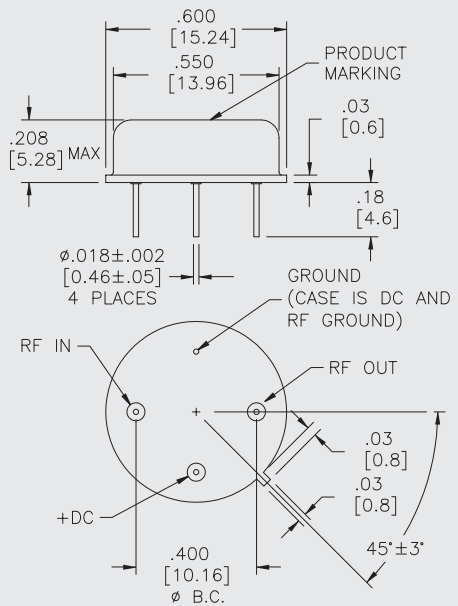
### ABSOLUTE MAXIMUM RATINGS

Storage Temperature .....	-62 to +125 °C
Maximum Case Temperature .....	+115 °C
Maximum DC Voltage .....	+16 Volts
Maximum Continuous RF Input Power .....	+15 dBm
Maximum Short Term Input Power (1 Minute Max.) .....	50 Milliwatts
Maximum Peak Power (3 μsec Max.) .....	0.5 Watt
Burn-in Temperature .....	+85 °C
Thermal Resistance <sup>1</sup> (θjc) .....	+14 °C/Watt
Junction Temperature Rise Above Case (Tjc) .....	+60 °C

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

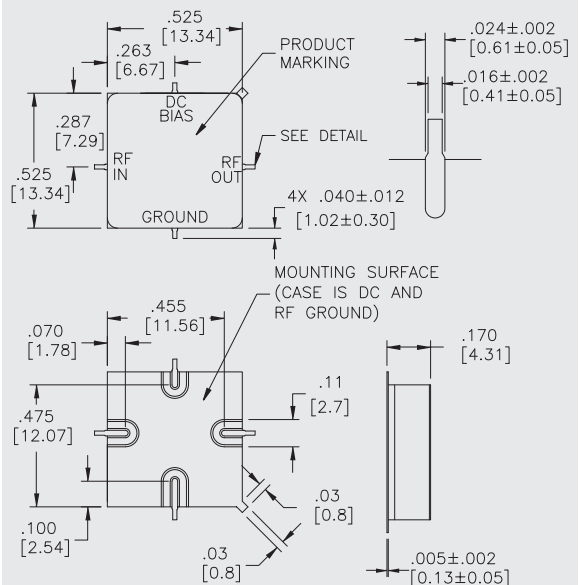
### AR2569

#### TO-8B Package for Amplifiers



### ARS2569

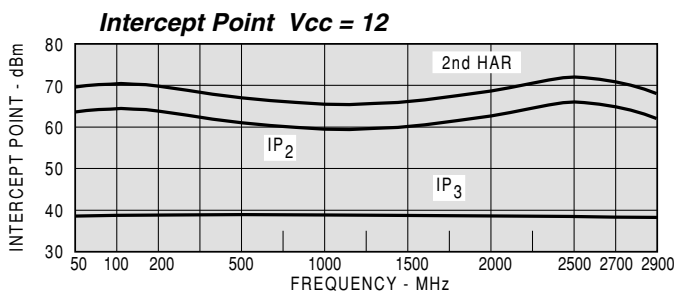
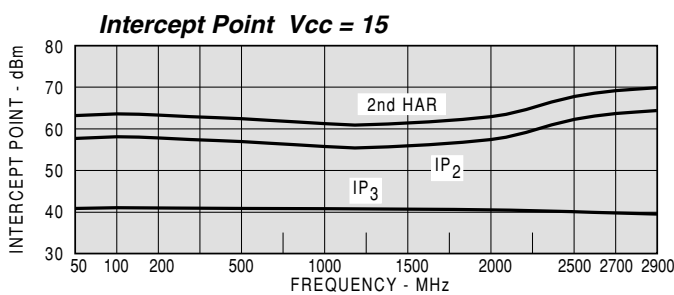
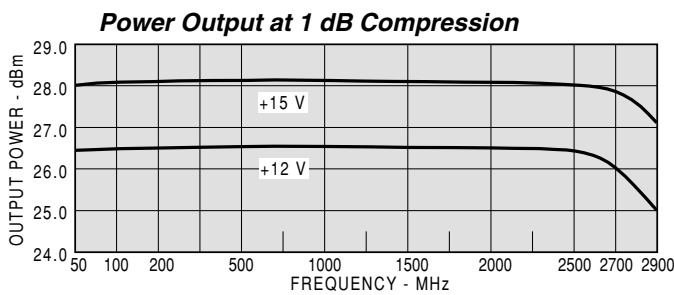
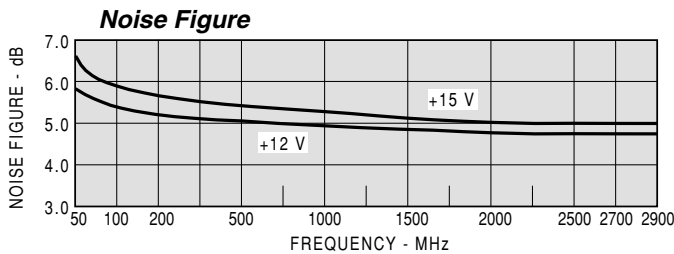
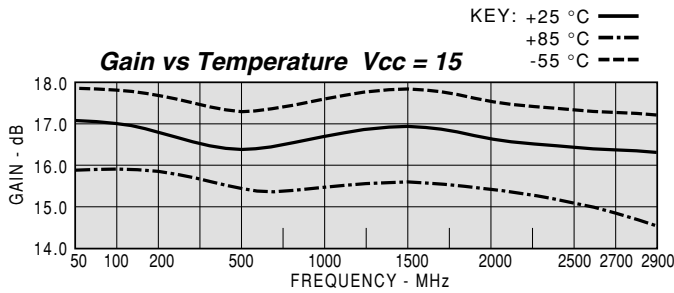
#### SMT0-8B Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

**TYPICAL PERFORMANCE**

**TYPICAL AUTOMATIC TEST DATA**



Model: AR2569		Vcc= +15V				Icc= 277.88	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
50	1.05	1.41	16.70	6		-32.5	
100	1.07	1.45	16.86	-7	0.69	-32.5	
300	1.19	1.52	16.82	-38	0.37	-32.1	
500	1.24	1.57	16.51	-63	0.35	-32.1	
700	1.24	1.58	16.35	-86	0.30	-32.1	
900	1.26	1.56	16.52	-111	0.35	-32.5	
1100	1.25	1.53	16.80	-136	0.38	-32.9	
1300	1.24	1.52	16.99	-162	0.39	-33.6	
1500	1.18	1.50	16.88	172	0.35	-34.1	
1700	1.19	1.46	16.97	145	0.41	-34.7	
1900	1.15	1.43	17.08	118	0.43	-35.2	
2100	1.11	1.45	16.97	93	0.33	-35.4	
2300	1.10	1.47	16.88	64	0.34	-36.0	
2500	1.19	1.44	16.70	36	0.34	-37.1	
2700	1.35	1.42	16.77	8	0.42	-37.5	
2900	1.59	1.40	16.38	-23	0.45	-38.6	

Model: AR2569

Vcc= +15V

Icc= 277.88

LINEAR S-PARAMETERS

FREQ.	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
50	0.02	21.3	6.84	5.7	0.024	5.0	0.17	178.9
100	0.04	24.3	6.96	-6.8	0.024	-1.0	0.18	175.4
300	0.09	27.1	6.94	-37.6	0.025	-13.3	0.21	157.5
500	0.11	3.9	6.69	-63.1	0.025	-25.2	0.22	136.0
700	0.11	-20.1	6.57	-85.9	0.025	-40.2	0.22	115.2
900	0.12	-29.8	6.70	-111.1	0.024	-53.4	0.22	95.0
1100	0.11	-48.1	6.92	-136.1	0.023	-66.9	0.21	75.8
1300	0.11	-59.7	7.07	-161.9	0.021	-80.2	0.21	54.9
1500	0.08	-74.0	6.98	171.9	0.020	-93.8	0.20	33.7
1700	0.09	-91.1	7.05	145.3	0.018	-108.7	0.19	10.0
1900	0.07	-92.9	7.15	118.3	0.017	-124.8	0.18	-20.6
2100	0.05	-103.1	7.06	92.5	0.017	-138.3	0.18	-52.8
2300	0.05	-52.9	6.98	64.1	0.016	-155.3	0.19	-81.2
2500	0.09	-26.4	6.84	35.8	0.014	-165.3	0.18	-110.2
2700	0.15	-40.2	6.90	7.8	0.013	-171.2	0.17	-142.1
2900	0.23	-42.0	6.59	-23.5	0.012	175.1	0.17	176.2

Model: AR2569		Vcc= +12V				Icc= 278.25	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
50	1.04	1.46	16.85	6		-33.2	
100	1.06	1.51	16.99	-7	0.69	-33.3	
300	1.17	1.58	16.97	-37	0.36	-32.7	
500	1.25	1.63	16.68	-62	0.35	-32.5	
700	1.25	1.65	16.54	-85	0.31	-32.6	
900	1.25	1.64	16.73	-110	0.33	-33.0	
1100	1.24	1.63	17.01	-135	0.38	-33.3	
1300	1.25	1.62	17.20	-160	0.38	-33.8	
1500	1.22	1.61	17.10	173	0.35	-34.0	
1700	1.19	1.57	17.22	147	0.40	-34.5	
1900	1.20	1.51	17.33	120	0.43	-34.8	
2100	1.17	1.49	17.18	95	0.32	-34.9	
2300	1.14	1.48	17.19	66	0.36	-35.3	
2500	1.19	1.41	17.09	38	0.34	-36.3	
2700	1.32	1.34	17.09	9	0.41	-35.8	
2900	1.47	1.26	16.69	-23	0.46	-37.1	

Model: AR2569

Vcc= +12V

Icc= 278.25

LINEAR S-PARAMETERS

FREQ.	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
50	0.02	9.6	6.96	5.7	0.022	4.3	0.19	179.6
100	0.03	32.9	7.07	-6.7	0.022	-0.2	0.20	175.9
300	0.08	29.6	7.06	-37.2	0.023	-11.8	0.23	158.9
500	0.11	11.9	6.83	-62.3	0.024	-23.3	0.24	139.0
700	0.11	-5.5	6.72	-85.0	0.023	-36.2	0.24	119.5
900	0.11	-23.8	6.86	-110.0	0.022	-50.0	0.24	101.4
1100	0.11	-36.8	7.09	-134.8	0.022	-62.3	0.24	84.2
1300	0.11	-47.2	7.24	-160.4	0.020	-73.9	0.24	65.8
1500	0.10	-61.4	7.16	173.5	0.020	-86.5	0.23	47.2
1700	0.09	-83.0	7.26	147.2	0.019	-100.1	0.22	26.7
1900	0.09	-79.8	7.35	120.3	0.018	-116.1	0.20	1.1
2100	0.08	-99.7	7.23	94.8	0.018	-130.1	0.20	-28.3
2300	0.07	-72.0	7.24	66.0	0.017	-145.8	0.19	-55.8
2500	0.09	-43.0	7.15	37.8	0.015	-158.0	0.17	-82.0
2700	0.14	-46.7	7.15	9.3	0.016	-166.5	0.14	-113.4
2900	0.19	-39.9	6.83	-22.9	0.014	176.1	0.12	-162.3