

AR3569

100 TO 3500 MHz TO-8B CASCADABLE AMPLIFIER

Typical Values	AR3569
Ultra Broad Bandwidth	0.1-3.5 GHz
High Output Power	+27.5 dBm
Medium Gain	17.5 dB
High Third Order I.P.	+36 dBm
High Performance Thin Film TO-8B Package	

SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	0.05-3.7 GHz	0.1-3.5 GHz	0.1-3.5 GHz
Small Signal Gain (Min.)	17.5 dB	16.5 dB	15.5 dB
Gain Flatness (Max.)	±0.6 dB	±0.7 dB	±0.8 dB
Noise Figure (Max.) 500-3500 MHz	< 5.2 dB	6.0 dB	6.5 dB
SWR (Max.) Input/Output	1.5:1	1.8:1	1.9:1
Power Output (Min.) @ 1dB comp. 100-3200 MHz 3200-3500 MHz	+27.5 dBm +26.0 dBm	+26.5 dBm +25.5 dBm	+26.0 dBm +25.0 dBm
Reverse Isolation	36.0 dB	—	—
DC Current (Max.)	275 mA	290 mA	310 mA

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

INTERMODULATION PERFORMANCE

Typical @ 25 °C; 2000 MHz	AR3569
Second Order Harmonic Intercept Point	+50 dBm
Second Order Two Tone Intercept Point	+44 dBm
Third Order Two Tone Intercept Point	+36 dBm

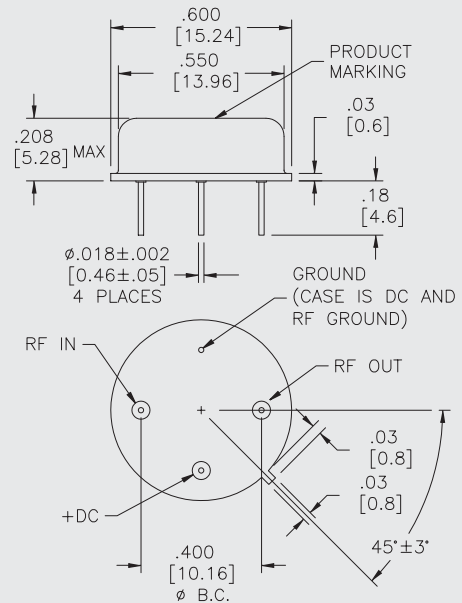
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+110 °C
Maximum DC Voltage	+17 Volts
Maximum Continuous RF Input Power	+17 dBm
Maximum Short Term Input Power (1 Minute Max.)	100 Milliwatts
Maximum Peak Power (3 μsec Max.)	0.5 Watt
Burn-in Temperature	+85 °C
Thermal Resistance ¹ (θjc)	+15 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+63.9 °C

¹ Thermal resistance is based on total power dissipation.

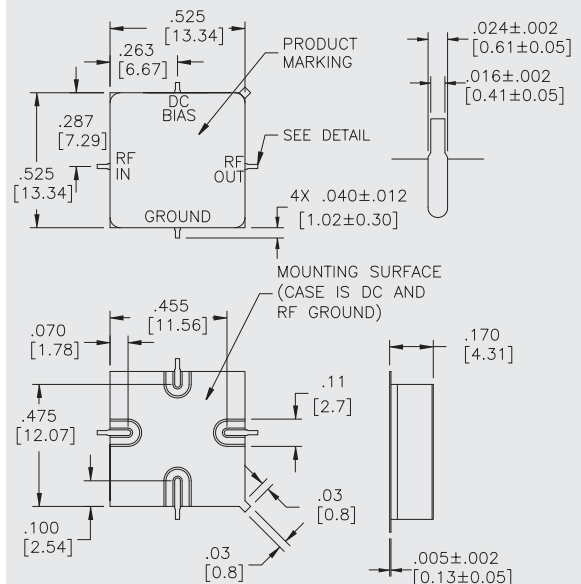
AR3569

TO-8B Package for Amplifiers



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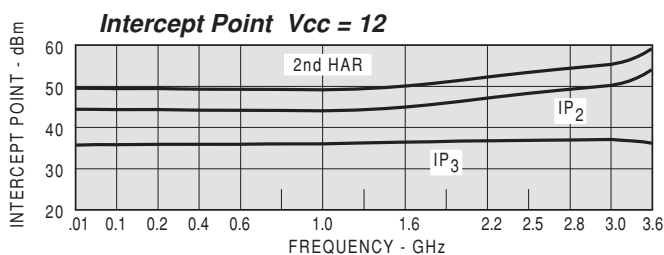
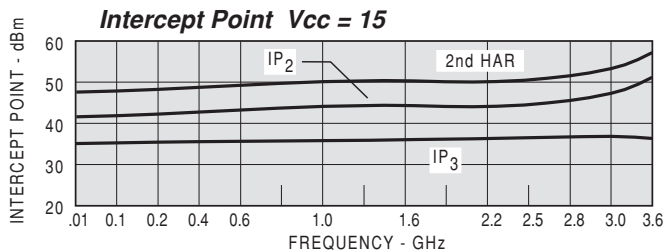
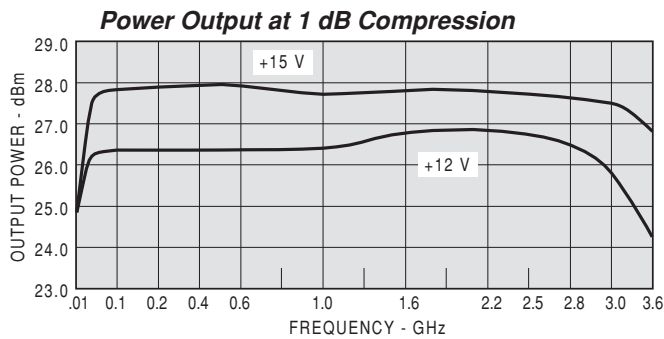
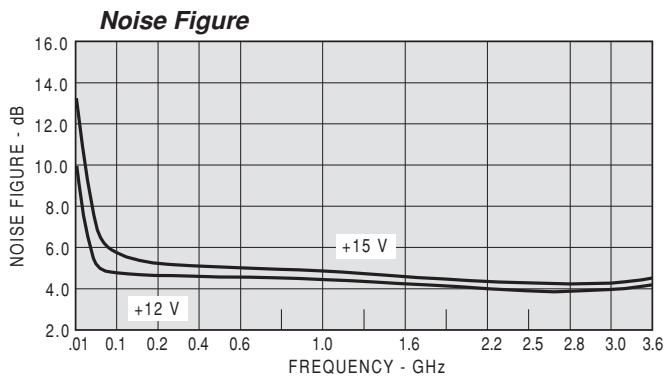
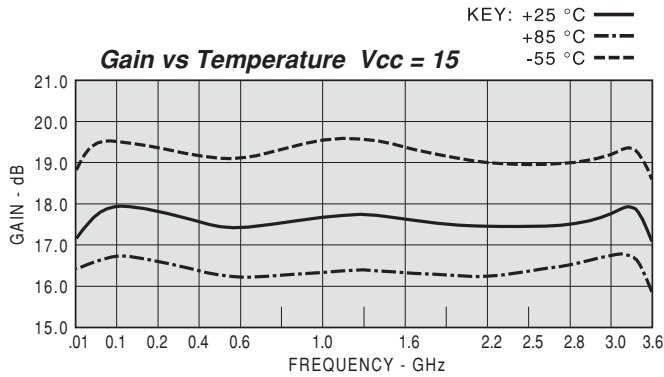
SMT0-8B Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



Model: AR3569			Vcc=+15V				Icc=277.00	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO	DB	DB
MHZ	IN	OUT	DB	DEG	NSEC			
50	1.17	1.23	17.52	4				-32.9
100	1.18	1.21	17.50	-8	0.68			-32.5
250	1.23	1.16	17.31	-30	0.37			-32.1
500	1.37	1.21	17.47	-61	0.35			-32.4
750	1.50	1.33	17.83	-94	0.38			-32.7
1000	1.57	1.44	18.05	-129	0.38			-33.6
1250	1.60	1.51	18.06	-163	0.38			-34.1
1500	1.57	1.56	17.81	162	0.39			-34.9
1750	1.55	1.59	17.52	129	0.36			-35.6
2000	1.51	1.59	17.35	97	0.35			-35.8
2250	1.46	1.57	17.26	64	0.37			-36.2
2500	1.39	1.54	17.23	32	0.37			-35.9
2750	1.31	1.47	17.46	0	0.37			-36.4
3000	1.19	1.36	17.94	-35	0.43			-34.9
3250	1.08	1.23	18.22	-74	0.49			-33.5
3500	1.28	1.23	17.92	-116	0.51			-33.1
3600	1.46	1.31	17.54	-133	0.45			-32.7

Model: AR3569

Vcc=+15V

Icc=277.00

LINEAR S-PARAMETERS

FREQ.	S11		S21		S12		S22	
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
50	0.08	-5.1	7.52	4.3	0.023	8.0	0.10	149.4
100	0.08	5.6	7.50	-7.9	0.024	0.9	0.09	152.1
250	0.10	20.6	7.33	-30.3	0.025	-9.7	0.08	145.8
500	0.16	19.8	7.48	-61.4	0.024	-25.1	0.09	150.7
750	0.20	5.5	7.79	-94.5	0.023	-41.4	0.14	128.8
1000	0.22	-11.4	7.99	-128.7	0.021	-55.9	0.18	101.5
1250	0.23	-27.0	8.00	-163.3	0.020	-71.2	0.20	72.7
1500	0.22	-41.5	7.77	161.7	0.018	-85.1	0.22	43.9
1750	0.22	-52.9	7.52	128.9	0.017	-105.1	0.23	13.7
2000	0.20	-65.1	7.37	96.7	0.016	-116.9	0.23	-15.9
2250	0.19	-77.3	7.30	64.0	0.016	-131.3	0.22	-45.3
2500	0.16	-83.6	7.27	32.0	0.016	-140.3	0.21	-71.9
2750	0.13	-89.6	7.47	0.1	0.015	-155.1	0.19	-99.5
3000	0.09	-90.6	7.89	-34.6	0.018	-165.8	0.15	-129.5
3250	0.04	-38.3	8.14	-73.9	0.021	-173.6	0.10	-176.2
3500	0.12	23.7	7.87	-116.2	0.022	-171.5	0.10	107.4
3600	0.19	23.8	7.53	-132.8	0.023	-166.8	0.14	80.1

Model: AR3569

Vcc=+12V

Icc=276.49

FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO	DB	DB
MHZ	IN	OUT	DB	DEG	NSEC			
50	1.17	1.32	17.94	5				-33.9
100	1.18	1.30	17.96	-7	0.68			-33.3
250	1.23	1.25	17.79	-30	0.37			-32.8
500	1.37	1.32	17.98	-60	0.35			-33.1
750	1.48	1.47	18.33	-93	0.37			-33.7
1000	1.56	1.60	18.54	-127	0.37			-33.7
1250	1.60	1.69	18.56	-162	0.37			-34.2
1500	1.59	1.74	18.33	163	0.40			-34.5
1750	1.58	1.75	18.01	131	0.37			-35.0
2000	1.56	1.72	17.82	99	0.36			-34.8
2250	1.53	1.68	17.75	66	0.39			-35.2
2500	1.46	1.62	17.66	34	0.38			-34.6
2750	1.36	1.53	17.73	3	0.35			-33.8
3000	1.23	1.43	18.11	-30	0.39			-33.4
3250	1.09	1.28	18.44	-69	0.44			-31.3
3500	1.22	1.11	18.21	-111	0.46			-31.2
3600	1.38	1.02	17.96	-128	0.49			-30.4

Model: AR3569

Vcc=+12V

Icc=276.49

LINEAR S-PARAMETERS

FREQ.	S11		S21		S12		S22	
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
50	0.08	-5.4	7.89	4.9	0.020	6.8	0.14	159.9
100	0.08	5.2	7.90	-7.4	0.022	1.8	0.13	161.0
250	0.10	21.6	7.75	-29.7	0.023	-6.7	0.11	157.3
500	0.15	21.3	7.93	-60.5	0.022	-22.2	0.14	158.3
750	0.19	7.7	8.25	-93.3	0.021	-36.1	0.19	138.4
1000	0.22	-8.7	8.46	-127.1	0.021	-50.0	0.23	113.3
1250	0.23	-23.3	8.47	-161.6	0.020	-62.2	0.26	87.3
1500	0.23	-37.0	8.25	163.5	0.019	-76.9	0.27	60.8
1750	0.23	-48.6	7.95	130.8	0.018	-91.4	0.27	33.2
2000	0.22	-61.5	7.78	98.8	0.018	-105.5	0.26	6.1
2250	0.21	-74.6	7.72	66.4	0.017	-117.9	0.25	-20.2
2500	0.19	-82.6	7.64	34.5	0.019	-130.9	0.24	-43.8
2750	0.15	-89.9	7.70	3.2	0.020	-142.9	0.21	-64.9
3000	0.10	-94.2	8.05	-30.3	0.021	-158.9	0.18	-82.7
3250	0.04	-67.9	8.36	-68.6	0.027	-171.8	0.12	-98.1
3500	0.10	20.5	8.13	-110.9	0.028	-174.0	0.05	-113.6
3600	0.16	22.4	7.90	-128.4	0.030	-167.2	0.01	-112.5