TELEDYNE
MICROWAVE SOLUTIONS
Everywhereyoulook™

Rev. 5/10

ARH356

10 TO 300 MHz TO-8BH CASCADABLE AMPLIFIER

Typical Values	ARH356
Low Noise Figure	<2.5 dB
High Third Order I.P.	+32 dBm
Medium Gain	15.5 dB
Medium Output Level	+15.0 dBm

High Performance Thin Film
Tall TO-8BH Amplifier Package

SPECIFICATIONS*

Parameter	Typical	Guaranteed 0 to 50 °C	Guaranteed -55 to +85 °C
Frequency (Min.)	10-300 MHz†	10-300 MHz†	10-300 MHz†
Small Signal Gain (Min.)			
ARH356	15.5^ dB	15.0^ dB	14.5^ dB
ARS356†	15.5 dB	15.0 dB	14.0†† dB
Gain Flatness (Max.)	±0.2 dB	±0.3 dB	±0.4 dB
Noise Figure (Max.)	<2.5 dB	3.0 dB	3.5 dB
SWR (Max.) Input/Output			
ARH356	<1.7:1	1.9:1	2.0:1
ARS356†	<1.7:1	1.9:1	2.1:1^^
Power Output (Min.)			
@ 1dB comp. 10-150 MHz	+15.0 dBm	+14.5 dBm	+14.0 dBm
150-200 MHz	+14.5 dBm	+14.0 dBm	+13.5 dBm
200-300 MHz	+13.5 dBm	+13.0 dBm	+12.5 dBm
Reverse Isolation	23.0 dB	—	—
DC Current (Max.)	30.0 mA	34.0 mA	38.0 mA

* Measured in a 50-ohm system at +5 Vdc unless otherwise specified.
† ARS356 frequency is 40-300 MHz. ^ 1.0 dB lower below 30 MHz.
††0.5 dB lower below 60 MHz. ^^ 0.3 higher below 60 MHz.

INTERMODULATION PERFORMANCE

Typical @ 25 °C; 100 MHz	ARH356
Second Order Harmonic Intercept Point	+46 dBm
Second Order Two Tone Intercept Point	+40 dBm
Third Order Two Tone Intercept Point	+32 dBm

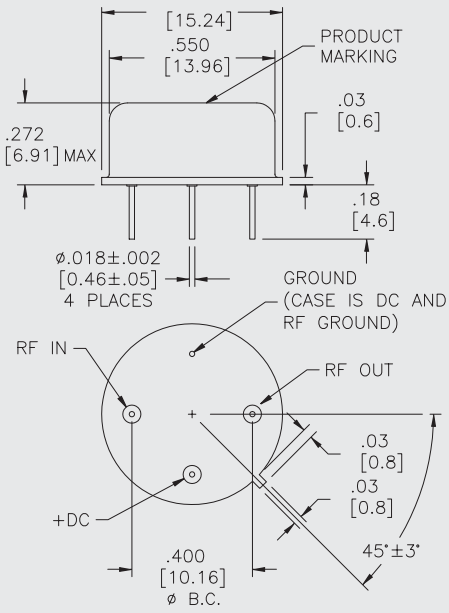
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+10 Volts
Maximum Continuous RF Input Power	+13 dBm
Maximum Short Term Input Power (1 Minute Max.)	50 Milliwatts
Maximum Peak Power (3 µsec Max.)	0.5 Watt
Burn-in Temperature	+125 °C
Thermal Resistance[1] (θjc)	+59 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+10.4 °C

[1] Thermal resistance is based on total power dissipation.

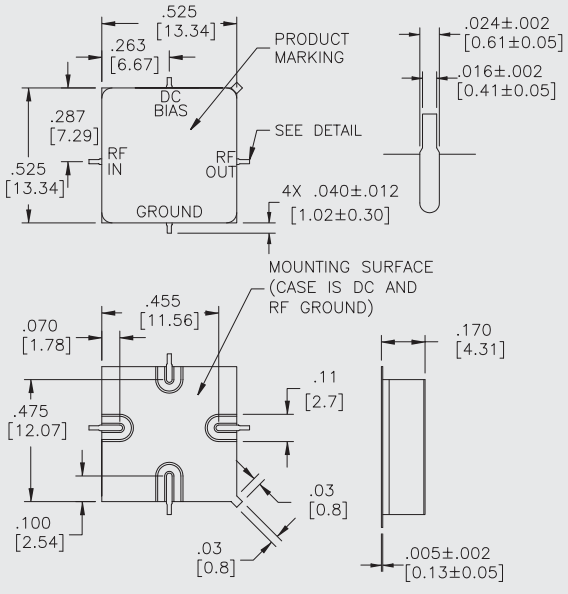
ARH356

TO-8BH Package for Amplifiers



ARS356

SMTO-8B Package for Amplifiers

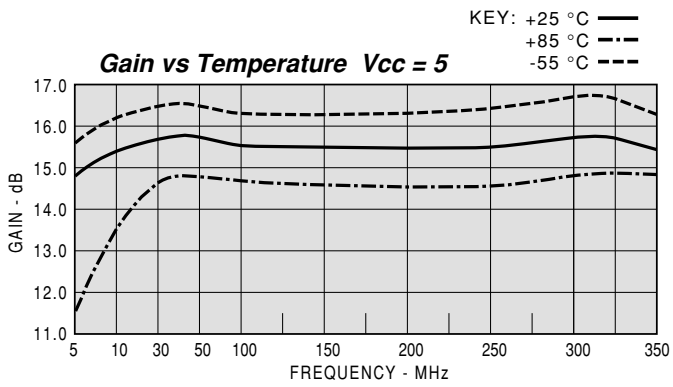


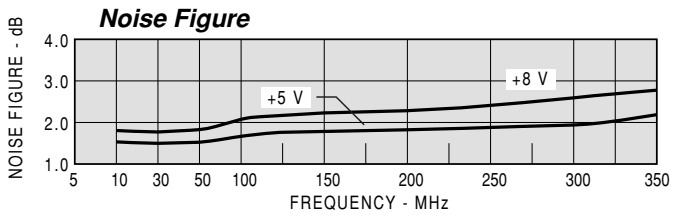
DIMENSIONS ARE IN INCHES [MILLIMETERS]

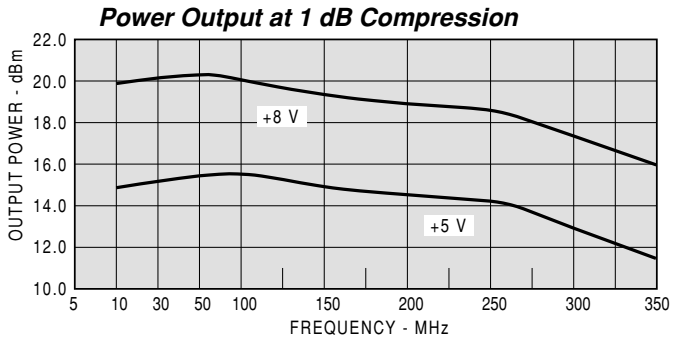
TELEDYNE
MICROWAVE SOLUTIONS
Everywhereyoulook™

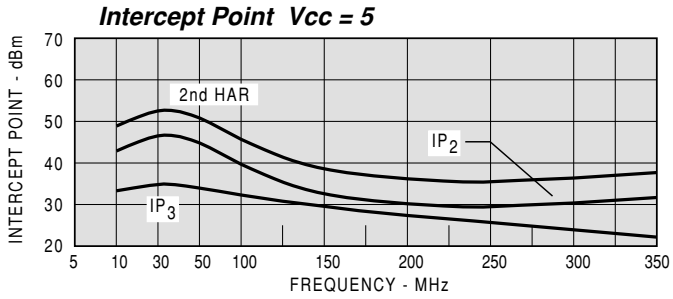
ARH356

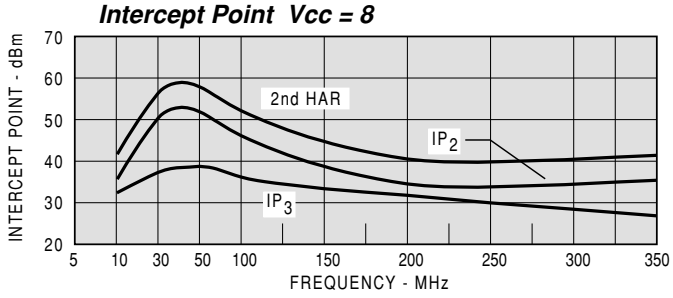
TYPICAL PERFORMANCE











TYPICAL AUTOMATIC TEST DATA

Model: ARH356 Vcc=+5V Icc=31.26

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	DELAY NSEC	REV/ISO DB
5	1.67	1.91	14.81	33		-22.8
10	1.43	1.56	15.46	13		-22.5
30	1.33	1.39	15.76	-11		-22.2
50	1.38	1.44	15.79	-26	1.9	-22.3
100	1.56	1.62	15.63	-57	1.7	-22.9
150	1.69	1.74	15.50	-86	1.6	-23.7
200	1.68	1.72	15.56	-116	1.7	-24.7
250	1.59	1.58	15.78	-148	1.8	-25.9
300	1.47	1.44	15.96	176	2.0	-27.2
350	1.55	1.56	15.68	134	2.3	-29.4

LINEAR S-PARAMETERS

Model: ARH356 Vcc=+5V Icc=31.26

FREQ	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.25	147.3	5.50	32.5	0.072	32.8	0.31	141.5
10	0.18	133.3	5.93	12.9	0.075	13.0	0.22	130.7
30	0.14	106.4	6.14	-10.9	0.077	-10.3	0.16	109.4
50	0.16	85.8	6.16	-25.6	0.077	-25.1	0.18	91.6
100	0.22	48.6	6.05	-56.9	0.071	-55.1	0.24	56.4
150	0.26	19.8	5.96	-86.2	0.065	-83.6	0.27	28.0
200	0.25	-7.1	6.00	-116.1	0.058	-112.6	0.26	0.2
250	0.23	-36.6	6.15	-148.2	0.051	-144.6	0.22	-32.0
300	0.19	-79.6	6.28	175.6	0.044	-179.0	0.18	-79.9
350	0.21	-147.8	6.08	133.9	0.034	135.9	0.22	-147.1
400	0.37	148.7	5.14	88.0	0.021	92.7	0.39	159.2
450	0.55	103.0	3.60	44.4	0.010	50.8	0.58	120.5

Model: ARH356 Vcc=+8V Icc=58.24

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	DELAY NSEC	REV/ISO DB
5	3.48	5.11	11.50	62		-25.5
10	2.38	3.00	14.18	33		-23.7
30	1.66	1.85	15.51	-3		-22.6
50	1.59	1.76	15.65	-20	2.2	-22.5
100	1.68	1.88	15.53	-53	1.8	-23.1
150	1.74	2.00	15.42	-82	1.6	-24.0
200	1.70	1.96	15.51	-111	1.6	-25.0
250	1.57	1.78	15.77	-141	1.7	-26.0
300	1.42	1.55	16.08	-176	1.9	-27.3
350	1.51	1.48	16.06	144	2.2	-29.3

LINEAR S-PARAMETERS

Model: ARH356 Vcc=+8V Icc=58.24

FREQ.	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.55	163.0	3.76	61.7	0.053	61.2	0.67	158.6
10	0.41	138.0	5.12	33.0	0.065	32.7	0.50	136.5
30	0.25	108.3	5.96	-2.7	0.074	-2.2	0.30	111.3
50	0.23	90.5	6.06	-19.9	0.075	-19.6	0.27	95.4
100	0.25	54.0	5.98	-52.7	0.070	-51.7	0.31	61.9
150	0.27	23.6	5.90	-81.7	0.063	-80.5	0.33	33.6
200	0.26	-4.8	5.96	-110.7	0.056	-108.9	0.33	7.9
250	0.22	-36.2	6.15	-141.4	0.050	-139.7	0.28	-20.0
300	0.17	-81.7	6.37	-176.1	0.043	-175.1	0.21	-56.7
350	0.20	-152.0	6.36	143.8	0.034	144.5	0.19	-119.0
400	0.37	148.8	5.62	98.5	0.023	99.5	0.32	175.5
450	0.57	105.1	4.10	53.6	0.011	54.1	0.52	130.7