

# AC658

## 10 TO 600 MHz TO-8 CASCADABLE AMPLIFIER

Typical Values	AC658
Low Noise .....	2.5 dB
High Gain .....	31.0 dB
Medium Output Level .....	+15.0 dBm
High Performance Thin Film Standard Size TO-8 Package	

### SPECIFICATIONS\*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	10-700 MHz	10-600 MHz	10-600 MHz
Small Signal Gain (Min.)	31.0 dB	30.0 dB	29.0 dB
Gain Flatness (Max.)	±0.4 dB	±0.7 dB	±0.8 dB
Noise Figure (Max.)	2.5 dB	3.1 dB	3.6 dB
SWR (Max.) Input/Output	<1.2:1	1.5:1	1.7:1
Power Output (Min.) @ 1dB comp.			
10-150 MHz	+16.5 dBm	+15.5 dBm	+15.0 dBm
150-600 MHz	+15.0 dBm	+14.0 dBm	+13.5 dBm
Reverse Isolation	39.0 dB	—	—
DC Current (Max.)	120 mA	125 mA	130 mA

\* Measured in a 50-ohm system at +5 Vdc unless otherwise specified.

### INTERMODULATION PERFORMANCE

Typical @ 25 °C; 300 MHz	AC658
Second Order Harmonic Intercept Point .....	+44 dBm
Second Order Two Tone Intercept Point .....	+38 dBm
Third Order Two Tone Intercept Point .....	+32 dBm

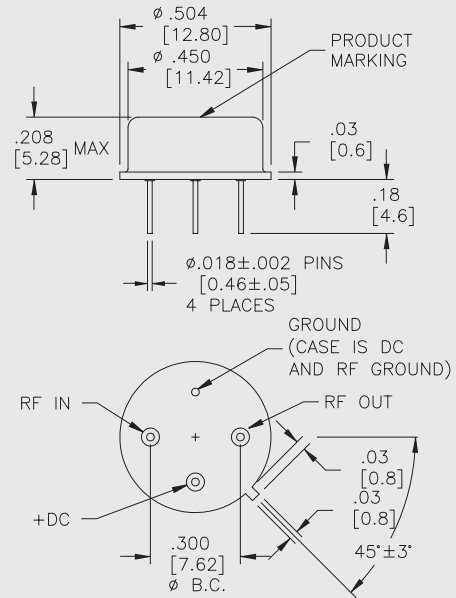
### ABSOLUTE MAXIMUM RATINGS

Storage Temperature .....	-62 to 125 °C
Maximum Case Temperature .....	+125 °C
Maximum DC Voltage .....	+6 Volts
Maximum Continuous RF Input Power .....	+8 dBm
Maximum Short Term Input Power (1 Minute Max.) .....	50 Milliwatts
Maximum Peak Power (3 μsec Max.) .....	0.5 Watt
Burn-in Temperature .....	+110 °C
Thermal Resistance <sup>1</sup> (θjc) .....	26.1 °C/Watt
Junction Temperature Rise Above Case (Tjc) .....	15.7 °C

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

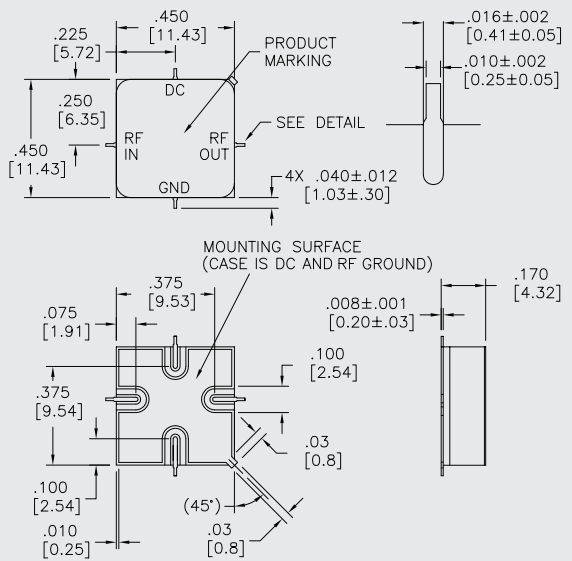
### AC658

#### TO-8 Package for Amplifiers



### AS658

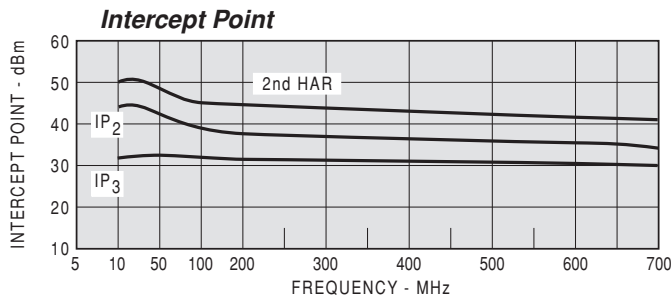
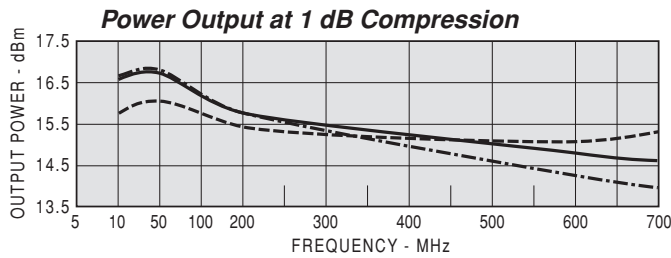
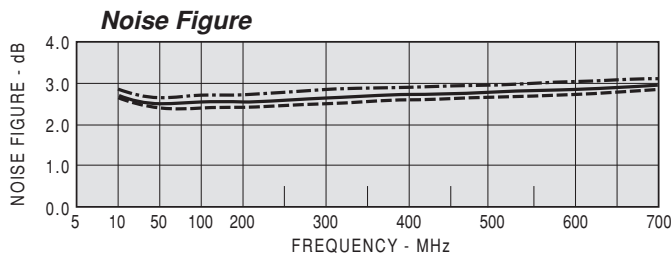
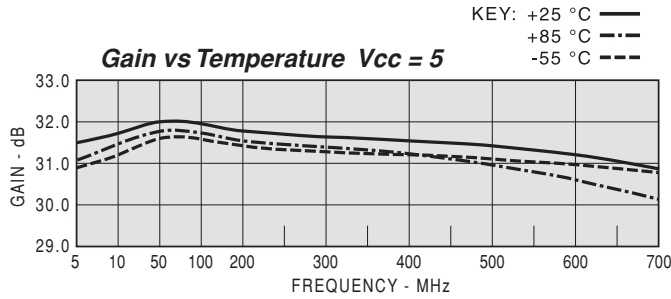
#### SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

**TYPICAL PERFORMANCE**

**TYPICAL AUTOMATIC TEST DATA**



Model: AC658 Vcc=+5V Icc=119.61

FREQ	SWR	SWR	GAIN	PHASE	GROUP DELAY	REV/ISO
MHZ	IN	OUT	DB	DEG	NSEC	DB
5	1.25	1.18	31.51	43.00	13.00	-40.90
10	1.14	1.20	31.72	20.00	13.00	-40.00
30	1.15	1.20	31.96	-1.00	2.90	-40.60
50	1.15	1.20	32.00	-11.00	1.30	-39.50
100	1.15	1.21	31.95	-28.00	0.98	-39.90
200	1.17	1.23	31.77	-59.00	0.86	-39.50
300	1.19	1.27	31.61	-89.00	0.83	-40.20
400	1.20	1.30	31.52	-119.00	0.83	-39.50
500	1.22	1.28	31.42	-150.00	0.86	-38.90
600	1.27	1.19	31.27	178.00	0.89	-38.50
700	1.36	1.07	31.00	144.00	0.94	-39.20

Model: AC658 Vcc=+5V Icc=119.61

LINEAR S-PARAMETERS

FREQ.	S11		S21		S12		S22	
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.11	-80.30	37.61	42.90	0.01	40.50	0.08	-125.20
10	0.07	-39.60	38.55	19.60	0.01	20.80	0.09	-173.20
30	0.07	-13.20	39.63	-1.20	0.01	7.40	0.09	-173.20
50	0.07	-11.70	39.81	-10.50	0.01	1.90	0.09	175.30
100	0.07	-14.10	39.60	-28.20	0.01	-3.90	0.09	157.50
200	0.08	-26.20	38.77	-59.20	0.01	-9.90	0.10	131.00
300	0.09	-45.50	38.07	-89.00	0.01	-20.20	0.12	107.00
400	0.09	-72.20	37.66	-118.90	0.01	-18.70	0.13	81.50
500	0.10	-102.80	37.23	-149.90	0.01	-27.90	0.12	54.20
600	0.12	-138.60	36.60	178.00	0.01	-39.00	0.09	23.30
700	0.15	-174.40	35.49	144.20	0.01	-44.60	0.03	-77.30