TELEDYNE
MICROWAVE SOLUTIONS
Everywhereyoulook™

Rev. 5/10

AC540

10 TO 500 MHz
TO-8 CASCADABLE AMPLIFIER

Typical Values	AC540
Low Noise Figure	**1.8 dB**
Medium Gain	**12.5 dB**
Low Power Output	**+4.5 dBm**
High Performance Thin Film	
Standard Size TO-8 Package	

SPECIFICATIONS*

Parameter	Typical	Guaranteed 0 to 50 °C	Guaranteed -55 to +85 °C
Frequency (Min.)	**5-600 MHz**	**10-500 MHz**	**10-500 MHz**
Small Signal Gain (Min.)	12.5 dB	11.5 dB	11.0 dB
Gain Flatness (Max.)	±0.4 dB	±0.5 dB	±0.8 dB
Noise Figure (Max.)	1.8 dB	2.5 dB	3.0 dB
SWR (Max.) Input/Output	<1.6:1	1.8:1	2.0:1
Power Output (Min.) @ 1dB comp.	+4.5 dBm	+3.5 dBm	+3.0 dBm
Reverse Isolation	18.0 dB	—	—
DC Current (Max.)	15.0 mA	18.0 mA	21.0 mA

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

INTERMODULATION PERFORMANCE

Typical @ 25 °C; 100 MHz	AC540
Second Order Harmonic Intercept Point	+30 dBm
Second Order Two Tone Intercept Point	+24 dBm
Third Order Two Tone Intercept Point	+17 dBm

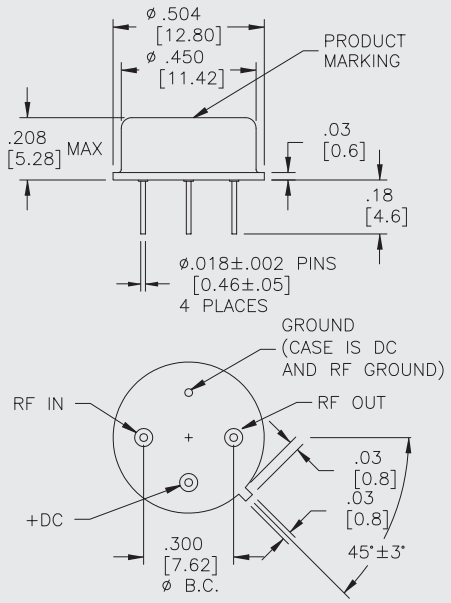
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+17 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)	+47 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+12.8 °C

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

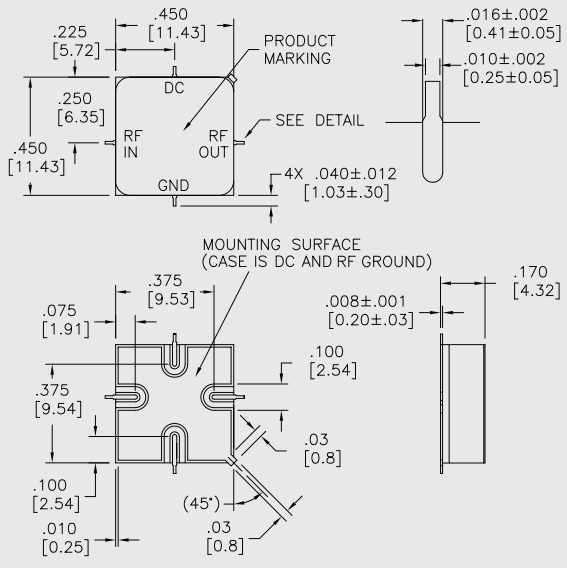
AC540

TO-8 Package for Amplifiers



AS540

SMTO-8 Package for Amplifiers

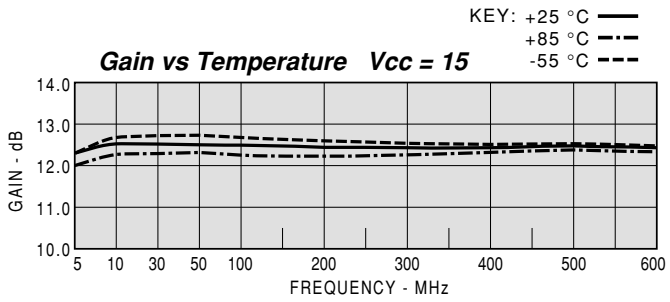


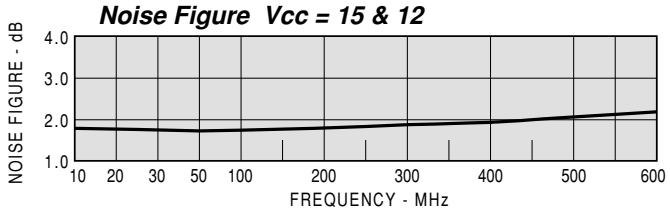
DIMENSIONS ARE IN INCHES [MILLIMETERS]

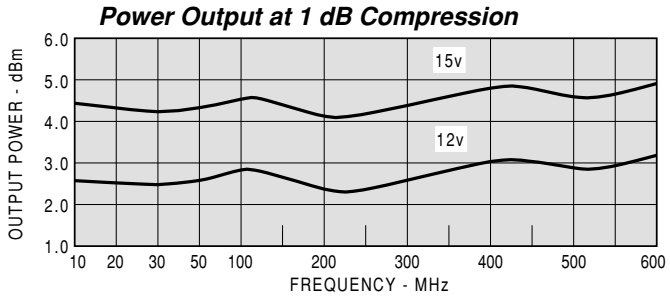
TELEDYNE
MICROWAVE SOLUTIONS
Everywhereyoulook™

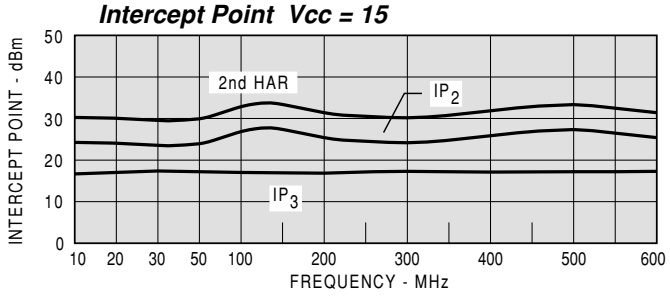
AC540

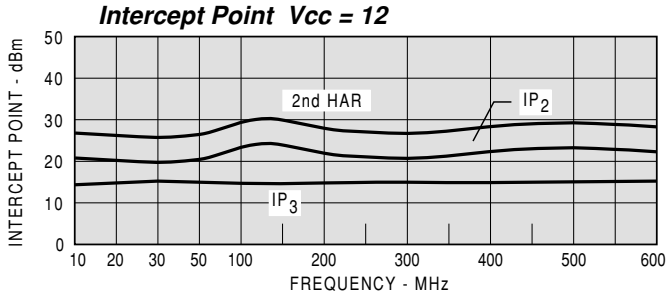
TYPICAL PERFORMANCE











TYPICAL AUTOMATIC TEST DATA

Model: AC540 Vcc=+15V Icc=15.27

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	DELAY NSEC	REV/ISO DB
5	1.39	1.14	12.09	-165		-18.4
10	1.19	1.06	12.31	-174		-18.1
30	1.08	1.03	12.30	177	0.69	-18.0
50	1.07	1.05	12.30	173	0.58	-18.1
100	1.08	1.12	12.25	164	0.49	-18.2
200	1.11	1.24	12.19	148	0.45	-18.2
300	1.12	1.34	12.18	132	0.44	-18.3
400	1.12	1.44	12.19	116	0.45	-18.3
500	1.08	1.48	12.24	99	0.47	-18.3
600	1.07	1.45	12.24	82	0.48	-18.4

LINEAR S-PARAMETERS

Model: AC540 Vcc=+15V Icc=15.27

FREQ.	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.16	-61.9	4.02	-165.1	0.121	-174.2	0.07	-65.3
10	0.09	-60.8	4.13	-173.8	0.125	-177.9	0.03	-61.7
20	0.05	-47.2	4.13	-179.7	0.125	178.7	0.01	-19.5
30	0.04	-33.5	4.12	177.4	0.125	177.0	0.01	28.9
50	0.03	-12.7	4.12	173.0	0.124	174.4	0.03	57.8
100	0.04	8.3	4.1	164.1	0.123	168.0	0.06	63.8
200	0.05	16.1	4.07	148.0	0.122	156.3	0.11	55.3
300	0.06	5.4	4.06	132.2	0.122	144.8	0.15	42.1
400	0.05	-11.2	4.07	116.0	0.122	133.1	0.18	29.2
500	0.04	-46.0	4.09	99.4	0.121	121.4	0.19	17.6
600	0.04	-108.7	4.09	81.9	0.121	109.8	0.18	3.5
650	0.05	-147.6	4.07	73.0	0.123	103.7	0.18	-3.2
700	0.07	-175.6	4.05	63.8	0.121	97.7	0.16	-10.2

Model: AC540 Vcc=+12V Icc=12.46

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	DELAY NSEC	REV/ISO DB
5	1.40	1.15	11.88	-165		-18.5
10	1.21	1.08	12.09	-174		-18.3
20	1.14	1.05	12.10	-180		-18.2
30	1.12	1.06	12.08	177	0.74	-18.2
50	1.11	1.07	12.05	173	0.58	-18.2
100	1.12	1.13	12.03	164	0.49	-18.4
200	1.13	1.24	11.96	148	0.45	-18.4
300	1.14	1.33	11.95	132	0.44	-18.5
400	1.13	1.42	11.98	116	0.45	-18.4
500	1.11	1.45	12.03	99	0.48	-18.4
600	1.11	1.42	12.02	81	0.49	-18.4

LINEAR S-PARAMETERS

Model: AC540 Vcc=+12V M Icc=12.46

FREQ.	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.17	-55.3	3.93	-165.3	0.119	-174.6	0.07	-53.4
10	0.10	-49.3	4.02	-173.9	0.122	-178.1	0.04	-40.8
20	0.06	-34.2	4.03	-179.7	0.123	178.6	0.03	-9.7
30	0.06	-23.0	4.02	177.3	0.123	177.0	0.03	13.8
50	0.05	-11.4	4.01	172.9	0.122	174.5	0.03	35.1
100	0.05	-3.1	3.99	164.1	0.121	168.0	0.06	49.6
200	0.06	0.9	3.96	148.0	0.120	156.4	0.11	47.9
300	0.06	-10.5	3.96	132.1	0.119	144.9	0.14	36.8
400	0.06	-28.9	3.97	115.8	0.120	132.9	0.17	24.9
500	0.05	-65.9	4.00	99.0	0.120	121.4	0.18	13.8
600	0.05	-119.8	3.99	81.4	0.120	109.6	0.17	-0.1
700	0.09	-173.5	3.95	63.2	0.120	97.3	0.15	-14.3