TELEDYNE
MICROWAVE SOLUTIONS
Everywhereyoulook™

Rev. 5/10

AC505
AC555

0.3 TO 500 MHz
TO-8 CASCADABLE AMPLIFIERS

Typical Values	AC505	AC555
Extended Bandwidth	0.1 to 600 MHz	0.1 to 600 MHz
Medium Output Level	+10.0 dBm	+12.5 dBm
Medium Third Order I.P.	+21.0 dBm	+25.0 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.)		0.1-600 MHz	0.3-500 MHz	0.3-500 MHz
Small Signal Gain (Min.)		15.0 dB	14.0 dB	13.5 dB
Gain Flatness (Max.)		< ±0.2 dB	±0.5 dB	±0.7 dB
Noise Figure (Max.)				
	AC505	< 3.3 dB	4.0 dB	4.5 dB
	AC555	< 3.8 dB	4.5 dB	5.0 dB
SWR (Max.)	Input/Output	< 1.5:1	2.0:1	2.0:1
Power Output (Min.) @ 1dB comp.				
	AC505	+10.0 dBm	+8.0 dBm	+7.0 dBm
	AC555	+12.5 dBm	+11.0 dBm	+10.5 dBm
Reverse Isolation		20.0 dB	—	—
DC Current (Max.)	AC505	24.0 mA	27.0 mA	29.0 mA
	AC555	34.0 mA	37.0 mA	39.0 mA

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

INTERMODULATION PERFORMANCE

Typical @ 25 °C	AC505	AC555
Second Order Harmonic Intercept Point	+39 dBm	+45 dBm
Second Order Two Tone Intercept Point	+36 dBm	+39 dBm
Third Order Two Tone Intercept Point	+21 dBm	+25 dBm

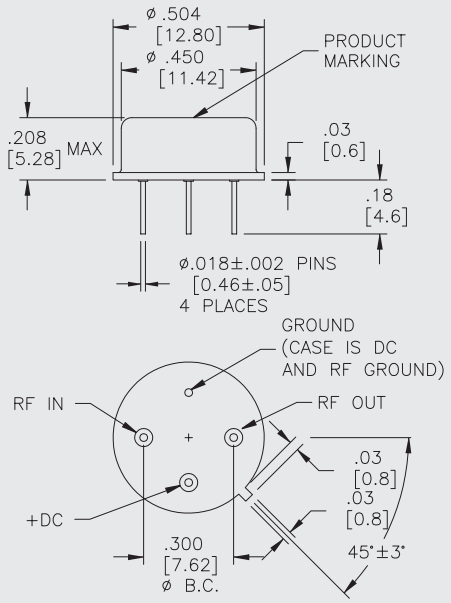
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+18 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 (AC505)	+125 °C
Burn-in Temperature (AC555)	+105 °C
Thermal Resistance[1] (θjc; AC505)	+54 °C/Watt
Thermal Resistance[1] (θjc; AC555)	+61 °C/Watt
Junction Temperature Rise Above Case (Tjc; AC505)	+22.0 °C
Junction Temperature Rise Above Case (Tjc; AC555)	+33.7 °C

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

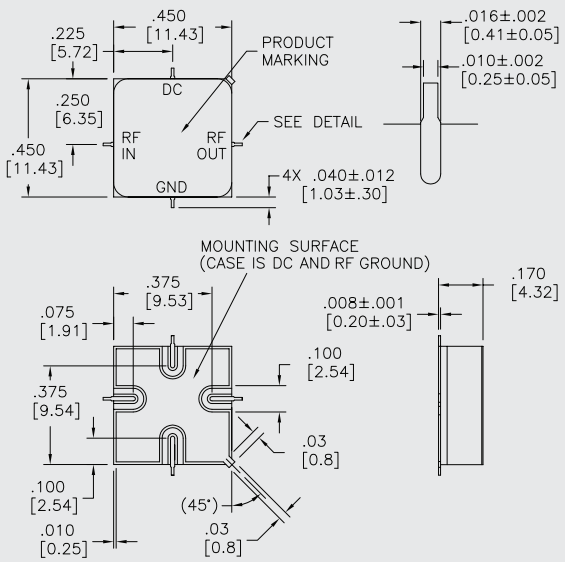
AC505/AC555

TO-8 Package for Amplifiers



AS505/AS555

SMTO-8 Package for Amplifiers



If DC is present on RF input/output, this model requires additional external blocking capacitors.

DIMENSIONS ARE IN INCHES [MILLIMETERS]

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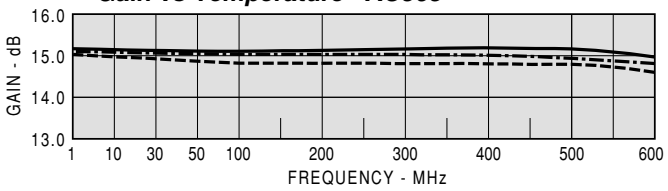
AC505/AC555

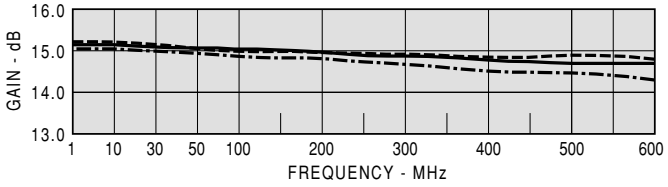
TYPICAL PERFORMANCE

KEY: +25 °C —— +85 °C —·— -55 °C - - -

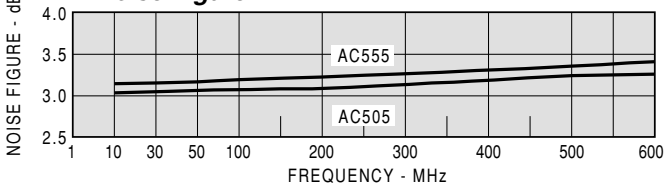
Gain vs Temperature AC505



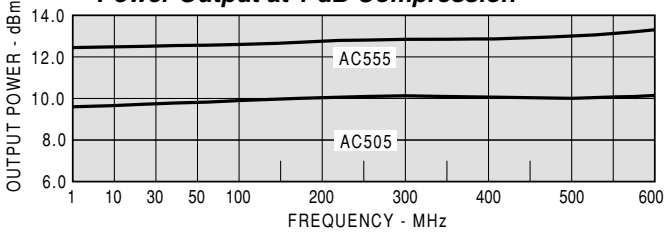
Gain vs Temperature AC555



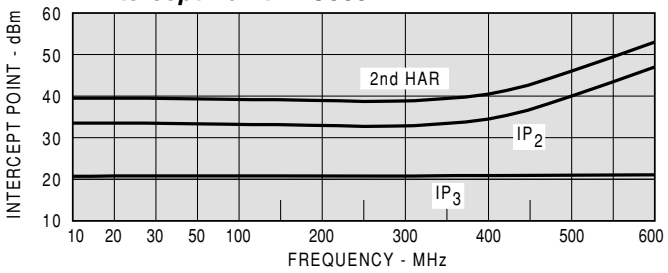
Noise Figure



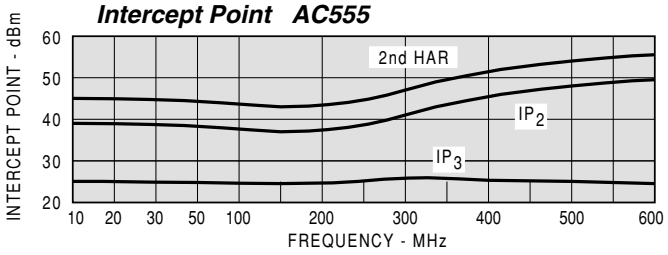
Power Output at 1 dB Compression



Intercept Point AC505



Intercept Point AC555



TYPICAL AUTOMATIC TEST DATA

Model: AC505 Vcc=+15V Icc=24.36

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	DELAY NSEC	REV/ISO DB
0.3	1.24	1.26	15.0		-19.7
5	1.10	1.11	15.0		-19.9
10	1.08	1.08	15.0	1.492	-19.9
50	1.10	1.07	14.9	0.619	-19.9
100	1.13	1.06	14.8	0.620	-20.0
200	1.21	1.07	14.8	0.611	-20.0
300	1.27	1.16	14.8	0.626	-19.9
400	1.29	1.27	14.8	0.636	-19.8
500	1.25	1.44	14.9	0.680	-19.7
600	1.16	1.67	14.9	0.686	-19.5

LINEAR S-PARAMETERS

Model: AC505 Vcc=+15V Icc=24.36

FREQ	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.33	0.11	-66.5	5.65	-171.1	0.104	-7.0	0.12	-103.3
1	0.05	-39.7	5.62	-177.8	0.101	-3.0	0.05	-135.8
10	0.04	-14.1	5.59	177.5	0.101	-1.0	0.04	-176.6
50	0.05	-31.6	5.55	168.5	0.101	-5.0	0.03	-178.6
100	0.06	-59.8	5.53	157.3	0.100	-10.0	0.03	-170.0
200	0.09	-94.3	5.47	135.2	0.100	-20.0	0.03	-126.6
300	0.12	-119.5	5.50	112.6	0.101	-30.0	0.07	-114.5
400	0.13	-143.0	5.52	89.9	0.102	-41.0	0.12	-121.6
500	0.11	-167.5	5.56	65.5	0.104	-52.0	0.18	-135.4
600	0.07	157.8	5.56	40.4	0.106	-63.0	0.25	-153.3
700	0.04	50.9	5.46	13.3	0.109	-76.0	0.33	-173.

Model: AC505 Vcc=+12V Icc=19.63

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	DELAY NSEC	REV/ISO DB
0.3	1.25	1.26	14.8		-19.6
1	1.13	1.09	14.8		-19.7
10	1.12	1.05	14.7	1.519	-19.8
50	1.14	1.04	14.7	0.631	-19.8
100	1.15	1.04	14.6	0.632	-19.8
200	1.25	1.09	14.5	0.615	-19.8
300	1.34	1.20	14.6	0.641	-19.7
400	1.35	1.33	14.5	0.644	-19.6
500	1.29	1.52	14.6	0.675	-19.4
600	1.19	1.78	14.6	0.699	-19.1

Model: AC555 Vcc=+15V Icc=32.93

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	DELAY NSEC	REV/ISO DB
0.3	1.27	1.41	15.3		-20.2
1.0	1.09	1.28	15.2		-20.4
10	1.03	1.27	15.1	1.443	-20.5
50	1.06	1.26	15.1	0.652	-20.5
100	1.12	1.25	15.0	0.564	-20.5
200	1.20	1.23	15.0	0.605	-20.5
300	1.27	1.19	14.9	0.618	-20.4
400	1.28	1.16	14.8	0.600	-20.1
500	1.27	1.20	14.8	0.628	-19.8
600	1.29	1.33	14.7	0.664	-19.4

Model: AC555 Vcc=+12V Icc=26.48

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	DELAY NSEC	REV/ISO DB
0.3	1.26	1.39	15.1		-20.0
1.0	1.07	1.25	15.0		-20.3
10	1.02	1.24	15.0	1.453	-20.3
50	1.04	1.23	14.9	0.661	-20.4
100	1.11	1.23	14.8	0.574	-20.4
200	1.22	1.21	14.8	0.612	-20.3
300	1.30	1.19	14.7	0.621	-20.1
400	1.32	1.19	14.6	0.612	-19.8
500	1.33	1.26	14.6	0.644	-19.5
600	1.35	1.42	14.5	0.661	-19.1