

AC543 AC544

10 TO 500 MHz TO-8 CASCADABLE AMPLIFIERS

Typical Values	AC543	AC544
Low Noise Figure	2.5 dB	2.7 dB
Medium Output Level	+10.0 dBm	+13.5 dBm
High Third Order I.P.	+26.0 dBm	+29.0 dBm
High Efficiency		
High Performance Thin Film		
Standard Size TO-8 Package		

SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	10-600 MHz	10-500 MHz	10-500 MHz
Small Signal Gain (Min.)			
AC543	11.3 dB	10.5 dB	10.0 dB
AC544	11.5 dB	10.5 dB	10.0 dB
Gain Flatness (Max.)	< ±0.25 dB	±0.4 dB	±0.6 dB
Noise Figure (Max.)			
AC543	2.5 dB	3.0 dB	3.5 dB
AC544	2.7 dB	3.3 dB	3.8 dB
SWR (Max.)	Input/Output	1.8:1	2.0:1
Power Output (Min.) @ 1dB comp.			
AC543	+10.0 dBm	+9.0 dBm	+8.5 dBm
AC544	+13.5 dBm	+12.5 dBm	+12.0 dBm
Reverse Isolation		—	—
AC543	19.0 dB	—	—
AC544	18.0 dB	—	—
DC Current (Max.)			
AC543	24.0 mA	27.0 mA	30.0 mA
AC544	35.0 mA	38.0 mA	40.0 mA

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

INTERMODULATION PERFORMANCE

Typical @ 25 °C	AC543	AC544
Second Order Harmonic Intercept Point	+44 dBm	+48 dBm
Second Order Two Tone Intercept Point	+38 dBm	+42 dBm
Third Order Two Tone Intercept Point	+26 dBm	+29 dBm

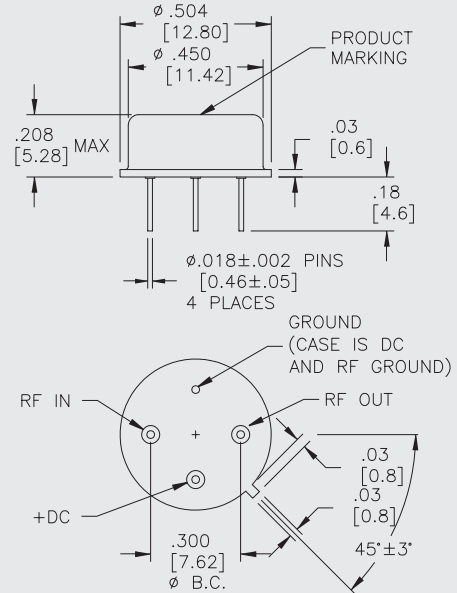
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+19 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	+105 °C
Thermal Resistance ¹ (θjc; AC543)	+55 °C/Watt
Thermal Resistance ¹ (θjc; AC544)	+66 °C/Watt
Junction Temperature Rise Above Case (Tjc; AC543)	+22.1 °C
Junction Temperature Rise Above Case (Tjc; AC544)	+37.8 °C

¹ Thermal resistance is based on total power dissipation.

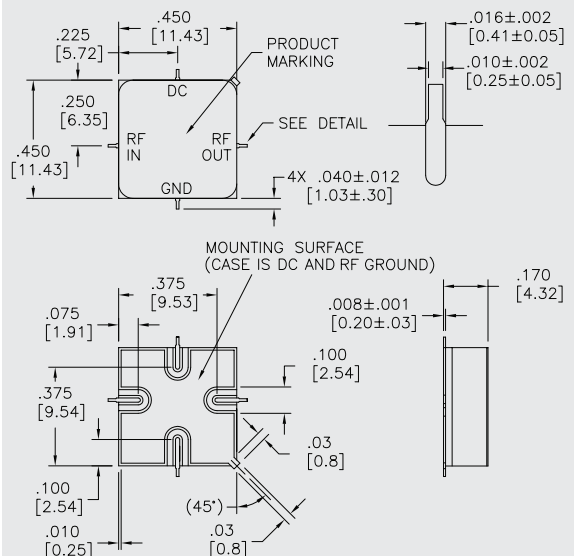
AC543/AC544

TO-8 Package for Amplifiers



AS543/AS544

SMT0-8 Package for Amplifiers

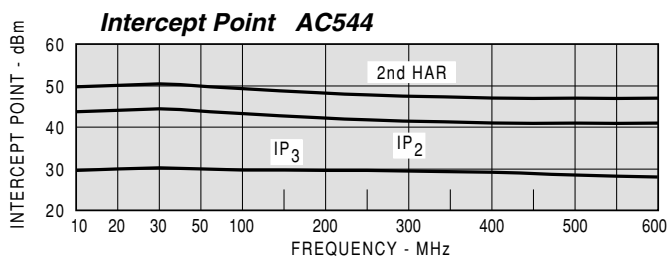
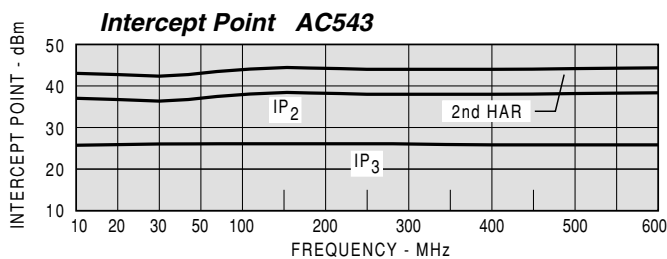
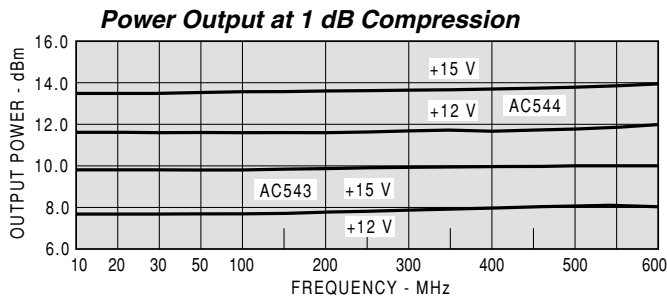
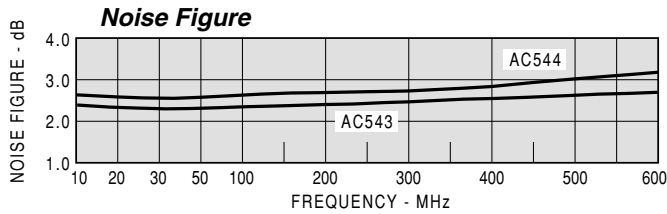
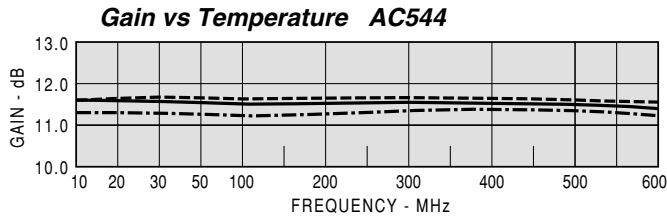
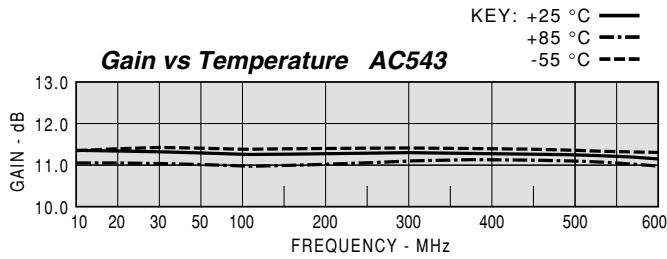


If DC is present on RF input/output, this model requires additional external blocking capacitors.

DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



Model: AC543				Vcc=+15V		Icc=23.55	
FREQ	SWR	SWR	GAIN	DELAY	REV/ISO	DB	DB
MHZ	IN	OUT	DB	NSEC			
5	1.03	1.14	11.2				-19.1
10	1.03	1.09	11.2				-19.2
20	1.03	1.07	11.2	0.907			-19.3
50	1.04	1.07	11.2	0.515			-19.3
100	1.04	1.11	11.2	0.440			-19.4
200	1.06	1.19	11.1	0.425			-19.4
300	1.05	1.26	11.2	0.426			-19.3
400	1.02	1.30	11.3	0.438			-19.1
500	1.06	1.30	11.3	0.457			-19.0
600	1.18	1.27	11.4	0.471			-18.8

Model: AC543

Vcc=+15V

Icc=23.55

FREQ.		S11		S21		S12		S22	
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	
5	0.02	-44.1	3.62	-174.8	0.111	175.0	0.06	125.4	
10	0.01	-10.8	3.64	-178.6	0.109	176.0	0.04	130.1	
20	0.02	-1.2	3.64	178.2	0.109	176.0	0.03	133.2	
50	0.02	11.9	3.63	172.6	0.108	172.0	0.04	122.9	
100	0.02	27.6	3.61	164.7	0.108	165.0	0.05	103.5	
200	0.03	31.6	3.60	149.4	0.108	152.0	0.08	79.9	
300	0.03	29.3	3.62	134.0	0.109	138.0	0.11	64.6	
400	0.01	50.6	3.65	118.3	0.110	125.0	0.13	52.6	
500	0.03	155.5	3.69	101.9	0.113	112.0	0.13	43.0	
600	0.08	154.9	3.70	84.8	0.115	98.0	0.12	38.5	
700	0.16	143.9	3.66	67.0	0.118	84.0	0.10	46.4	

Model: AC543

Vcc=+12V

Icc=18.89

Model: AC543				Vcc=+12V		Icc=18.89	
FREQ	SWR	SWR	GAIN	DELAY	REV/ISO	DB	DB
MHZ	IN	OUT	DB	NSEC			
5	1.05	1.13	11.0				-19.2
10	1.05	1.08	11.1				-19.3
20	1.06	1.06	11.1	0.931			-19.4
50	1.06	1.06	11.1	0.509			-19.4
100	1.06	1.10	11.0	0.445			-19.5
200	1.07	1.17	11.0	0.423			-19.5
300	1.06	1.24	11.0	0.426			-19.4
400	1.02	1.27	11.1	0.438			-19.2
500	1.06	1.27	11.2	0.454			-19.1
600	1.19	1.24	11.2	0.476			-18.9

Model: AC544

Vcc=+15V

Icc=35.32

Model: AC544				Vcc=+15V		Icc=35.32	
FREQ	SWR	SWR	GAIN	DELAY	REV/ISO	DB	DB
MHZ	IN	OUT	DB	NSEC			
5	1.23	1.14	11.4				-18.2
10	1.24	1.14	11.5				-18.2
20	1.25	1.14	11.5	0.847			-18.2
50	1.25	1.15	11.5	0.509			-18.3
100	1.24	1.18	11.4	0.425			-18.3
200	1.21	1.25	11.5	0.412			-18.3
300	1.17	1.32	11.5	0.417			-18.2
400	1.13	1.37	11.7	0.423			-18.2
500	1.13	1.39	11.8	0.452			-18.1
600	1.24	1.35	11.9	0.479			-18.1

Model: AC544

Vcc=+12V

Icc=28.41

Model: AC544				Vcc=+12V		Icc=28.41	
FREQ	SWR	SWR	GAIN	DELAY	REV/ISO	DB	DB
MHZ	IN	OUT	DB	NSEC			
5	1.24	1.15	11.3				-18.2
10	1.26	1.15	11.4				-18.2
20	1.26	1.15	11.4	0.823			-18.3
50	1.26	1.16	11.4	0.518			-18.3
100	1.26	1.18	11.4	0.425			-18.3
200	1.23	1.25	11.4	0.411			-18.3
300	1.18	1.31	11.5	0.418			-18.3
400	1.14	1.36	11.6	0.423			-18.3
500	1.14	1.36	11.7	0.450			-18.2
600	1.24	1.32	11.8	0.478			-18.2