

AC575 AC514

5 TO 500 MHz TO-8 CASCADABLE AMPLIFIERS

Typical Values	AC575	AC514
High Gain	21.0 dB	21.0 dB
Low Noise Figure	2.6 dB	2.9 dB
Medium Output Power	+10.0 dBm	+13.0 dBm
Medium Third Order I.P.	+21.0 dBm	+24.0 dBm
High Performance Thin Film Standard Size TO-8		

SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	2-600 MHz	5-500 MHz	5-500 MHz
Small Signal Gain (Min.)	21.0 dB	20.0 dB	19.5 dB
Gain Flatness (Max.)	< ±0.2 dB	±0.5 dB	±0.8 dB
Noise Figure (Max.)	AC575 < 2.6 dB AC514 < 2.9 dB	3.0 dB 3.5 dB	3.5 dB 4.0 dB
SWR (Max.)	Input/Output < 1.3:1	1.7:1	2.0:1
Power Output (Min.) @ 1dB comp.	AC575 +10.0 dBm AC514 +13.0 dBm	+8.5 dBm +11.5 dBm	+8.0 dBm +11.0 dBm
DC Current (Max.)	AC575 24.0 mA AC514 32.0 mA	26.0 mA 35.0 mA	28.0 mA 37.0 mA

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

INTERMODULATION PERFORMANCE

Typical @ 25 °C	AC575	AC514
Second Order Harmonic Intercept Point	+35 dBm	+42 dBm
Second Order Two Tone Intercept Point	+31 dBm	+37 dBm
Third Order Two Tone Intercept Point	+21 dBm	+24 dBm

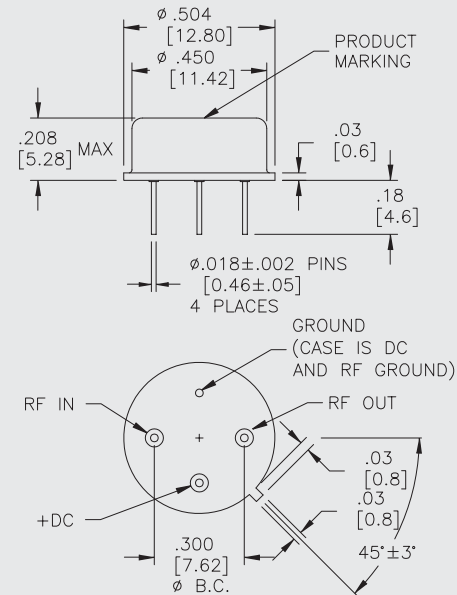
ABSOLUTE MAXIMUM RATINGS

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 (AC575)	+125 °C
Burn-in Temperature (AC514)	+105 °C
Thermal Resistance ¹ (θ _{jc} ; AC575)	+58 °C/Watt
Thermal Resistance ¹ (θ _{jc} ; AC514)	+62 °C/Watt
Junction Temperature Rise Above Case (T _{jc} ; AC575)	+22.8 °C
Junction Temperature Rise Above Case (T _{jc} ; AC514)	+32.4 °C

¹ Thermal resistance is based on total power dissipation.

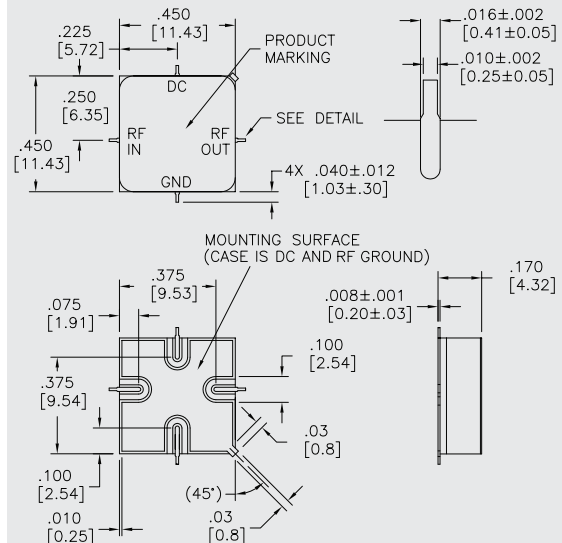
AC575/AC514

TO-8 Package for Amplifiers



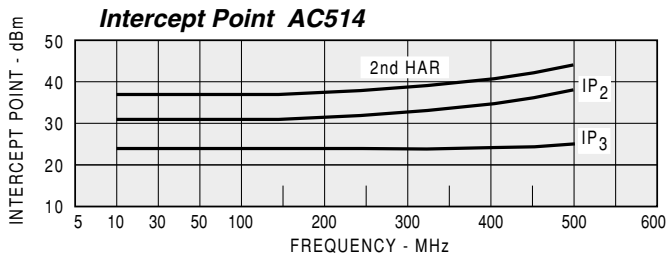
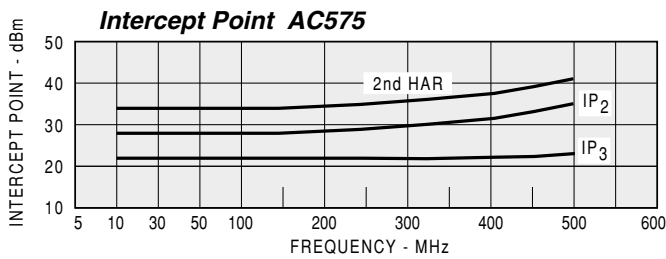
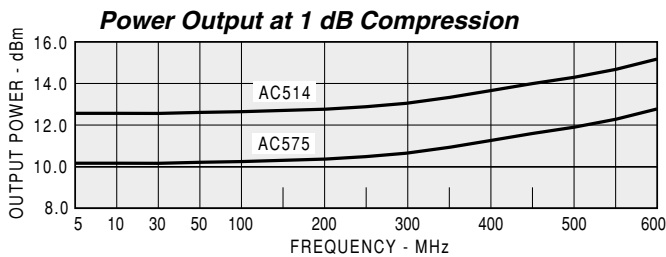
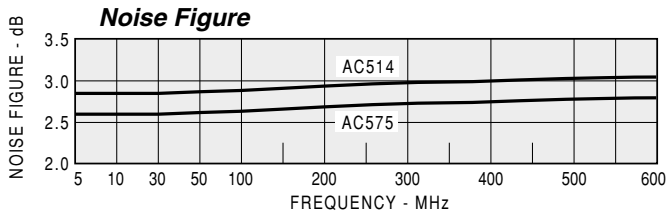
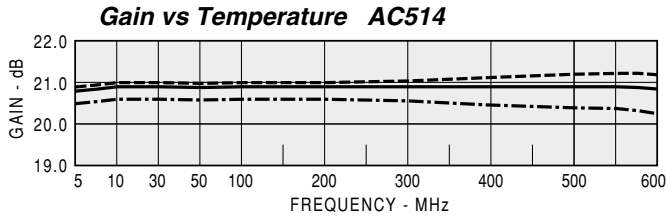
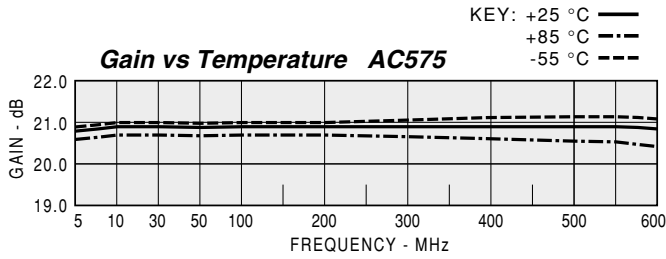
AS575/AS514

SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE



TYPICAL AUTOMATIC TEST DATA

Model: AC575			Vcc=+15V		GROUP DELAY	Icc=24.84
FREQ	SWR	SWR	GAIN		REV/ISO	
MHZ	IN	OUT	DB	NSEC	DB	
1	1.20	1.39	21.1		-25.8	
3	1.08	1.21	21.1		-25.6	
5	1.04	1.19	21.1	4.274	-25.5	
20	1.04	1.17	21.1	1.184	-25.6	
50	1.03	1.17	21.1	0.603	-25.4	
100	1.06	1.16	20.9	0.631	-25.7	
200	1.04	1.18	21.0	0.557	-25.4	
300	1.09	1.22	20.9	0.572	-25.3	
400	1.17	1.30	21.0	0.586	-25.3	
500	1.29	1.43	21.0	0.647	-25.0	
600	1.47	1.64	21.0	0.713	-24.6	

Model: AC575			LINEAR S-PARAMETERS				Vcc=+15V		Icc=24.84	
FREQ	S11		S21		S12		S22			
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG		
1	0.09	-129.4	11.31	-159.9	0.051	24.0	0.16	-129.8		
3	0.04	-156.8	11.37	-174.2	0.052	8.0	0.09	-158.9		
5	0.02	-161.9	11.36	-177.2	0.053	5.0	0.09	-168.7		
20	0.02	-176.5	11.32	-176.4	0.053	-0.0	0.08	-176.3		
50	0.01	158.1	11.30	169.8	0.054	-3.0	0.08	167.9		
100	0.03	-173.9	11.15	158.7	0.052	-7.0	0.08	159.6		
200	0.02	-156.8	11.28	138.4	0.054	-11.0	0.08	143.5		
300	0.04	-142.7	11.13	117.9	0.054	-17.0	0.10	130.4		
400	0.08	-145.8	11.23	96.8	0.054	-25.0	0.13	119.2		
500	0.13	-167.6	11.24	73.3	0.056	-31.0	0.18	105.6		
600	0.19	174.9	11.26	47.9	0.059	-38.0	0.24	88.8		
700	0.29	157.6	10.67	21.4	0.060	-48.0	0.32	68.0		

Model: AC575			Vcc=+12V		GROUP DELAY	Icc=19.87
FREQ	SWR	SWR	GAIN	PHASE	REV/ISO	
MHZ	IN	OUT	DB	DEG	DB	
1	1.14	1.32	20.6		-25.4	
3	1.02	1.14	20.7		-25.2	
5	1.03	1.12	20.7		-25.2	4.099
20	1.06	1.11	20.7		-25.2	1.174
50	1.03	1.10	20.7		-25.2	0.609
100	1.03	1.10	20.5		-25.2	0.615
200	1.08	1.13	20.7		-25.1	0.558
300	1.13	1.19	20.6		-25.0	0.568
400	1.21	1.29	20.7		-24.8	0.591
500	1.35	1.46	20.8		-24.4	0.652
600	1.54	1.72	20.7		-24.2	0.717

Model: AC514			Vcc=+15V		GROUP DELAY	Icc=33.80
FREQ	SWR	SWR	GAIN	PHASE	REV/ISO	
MHZ	IN	OUT	DB	DEG	DB	
1	1.12	1.18	20.9		-25.7	
3	1.12	1.16	20.8		-25.8	
5	1.12	1.15	20.8		-25.7	1.186
20	1.09	1.15	20.7		-25.7	0.737
50	1.09	1.14	20.7		-25.7	0.570
100	1.12	1.14	20.6		-25.7	0.594
200	1.12	1.15	20.8		-25.6	0.561
300	1.18	1.15	20.7		-25.7	0.576
400	1.29	1.20	20.8		-25.6	0.602
500	1.42	1.32	20.7		-25.4	0.678
600	1.61	1.55	20.7		-25.0	0.754

Model: AC514			Vcc=+12V		GROUP DELAY	Icc=27.02
FREQ	SWR	SWR	GAIN	PHASE	REV/ISO	
MHZ	IN	OUT	DB	DEG	DB	
1	1.05	1.13	20.6		-25.6	
3	1.08	1.11	20.5		-25.6	
5	1.06	1.11	20.5		-25.4	1.387
20	1.04	1.10	20.5		-25.4	0.716
50	1.05	1.10	20.5		-25.4	0.553
100	1.08	1.10	20.4		-25.6	0.603
200	1.08	1.11	20.5		-25.4	0.551
300	1.19	1.15	20.4		-25.4	0.576
400	1.30	1.24	20.6		-25.3	0.608
500	1.49	1.40	20.6		-25.0	0.686
600	1.70	1.68	20.4		-24.6	0.756