

# 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	3.0 dB	3.5 dB	
	AC514	< 2.9 dB	4.0 dB	
SWR (Max.)	Input/Output	1.7:1	2.0:1	
Power Output (Min.) @ 1dB comp.	AC575	+8.5 dBm	+8.0 dBm	
	AC514	+13.0 dBm	+11.0 dBm	
DC Current (Max.)	AC575	26.0 mA	28.0 mA	
	AC514	32.0 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

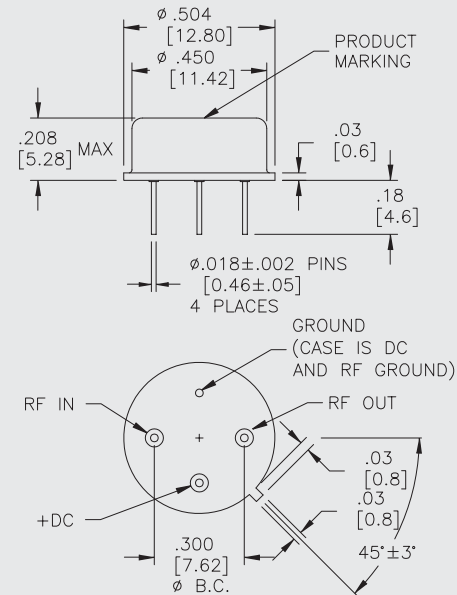
### ABSOLUTE MAXIMUM RATINGS

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 <sup>1</sup> (θ <sub>jc</sub> ; AC575)	+58 °C/Watt
Thermal Resistance <sup>1</sup> (θ <sub>jc</sub> ; AC514)	+62 °C/Watt
Junction Temperature Rise Above Case (T <sub>jc</sub> ; AC575)	+22.8 °C
Junction Temperature Rise Above Case (T <sub>jc</sub> ; AC514)	+32.4 °C

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

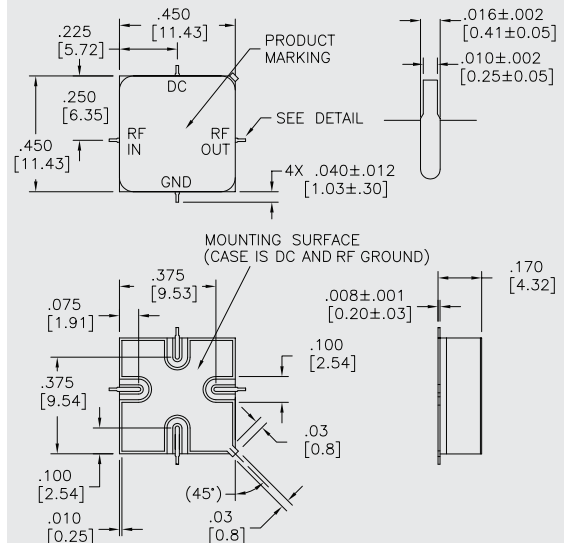
### AC575/AC514

#### TO-8 Package for Amplifiers



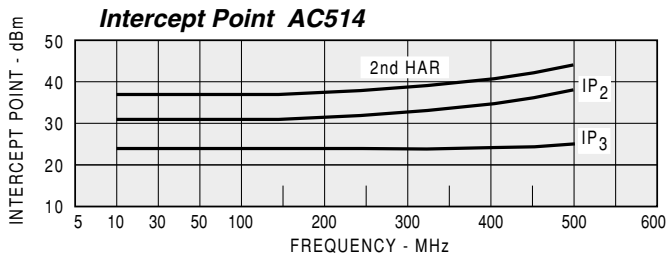
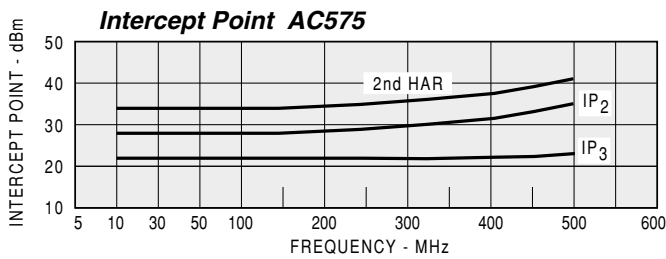
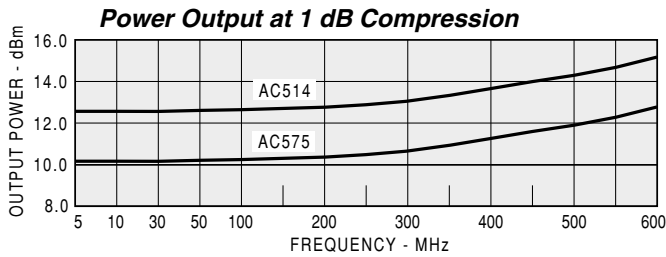
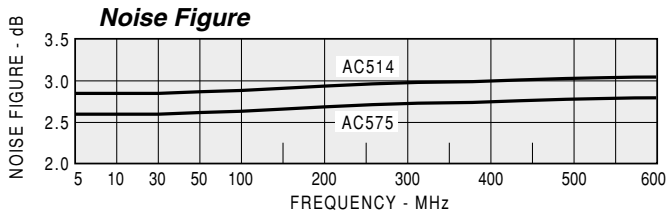
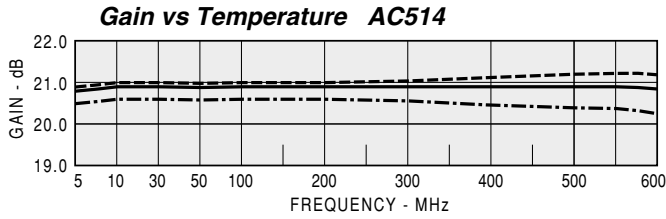
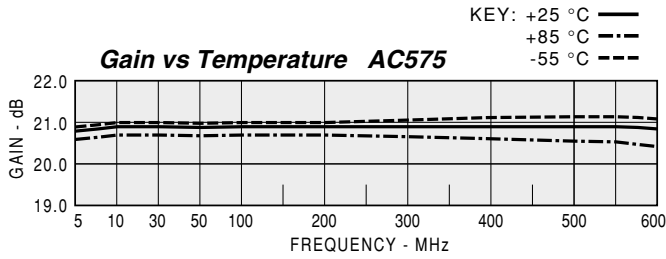
### AS575/AS514

#### 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	NSEC	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		4.099	-25.2
20	1.06	1.11	20.7		1.174	-25.2
50	1.03	1.10	20.7		0.609	-25.2
100	1.03	1.10	20.5		0.615	-25.2
200	1.08	1.13	20.7		0.558	-25.1
300	1.13	1.19	20.6		0.568	-25.0
400	1.21	1.29	20.7		0.591	-24.8
500	1.35	1.46	20.8		0.652	-24.4
600	1.54	1.72	20.7		0.717	-24.2

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

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