



PA309

CMOS IC

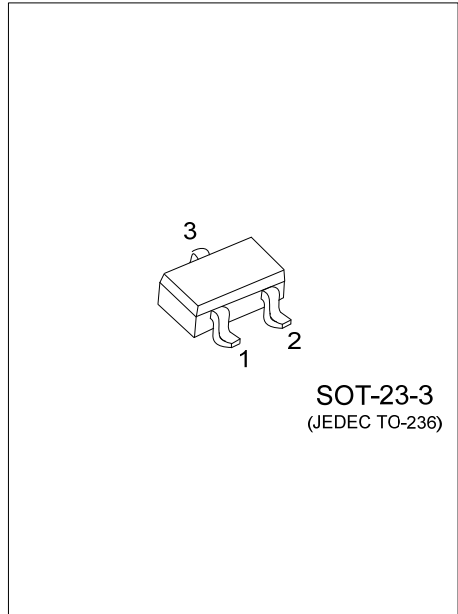
HIGH GAIN AND HIGH IMPEDANCE PRE-AMPLIFIER

DESCRIPTION

The UTC **PA309** is high gain, high impedance pre-amplifiers which are specially suited for use in audio and telephone Electret Condenser Microphones (ECM).

FEATURES

- * High voltage gain
- * High ESD voltage
- * Wide input signal
- * High gain linearity
- * Low input capacitance
- * Built-in capacitor 10pF for RF noise elimination



ORDERING INFORMATION

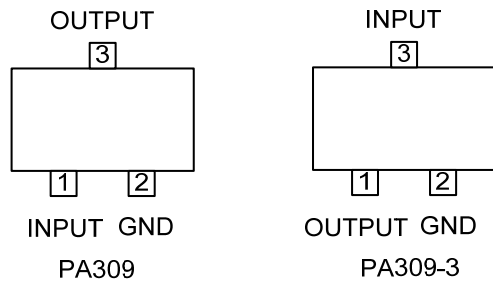
Ordering Number		Package	Packing
Lead Free	Halogen Free		
PA309L-xx-AE2-R	PA309G-xx-AE2-R	SOT-23-3	Tape Reel
PA309L-xx-AE2-x-R	PA309G-xx-AE2-x-R	SOT-23-3	Tape Reel

<p>PA309G-xx-AE2-x-R</p>	<p>(1) R: Tape Reel (2) refer to Pin Assignment (3) AE2: SOT-23-3 (4) xx: Refer to ELECTRICAL CHARACTERISTICS (5) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING

PA309	PA309-3

■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.		PIN NAME	DESCRIPTION
PA309	PA309-3		
1	3	INPUT	INPUT
2	2	GND	GND
3	1	OUTPUT	OUTPUT

■ ABSOLUTE MAXIMUM RATING (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V _{SUPPLY}	10	V
Supply Current	I _{SUPPLY}	10	mA
Input Current	I _{INPUT}	1	mA
Allowable Power Dissipation	P _D	100	mW
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

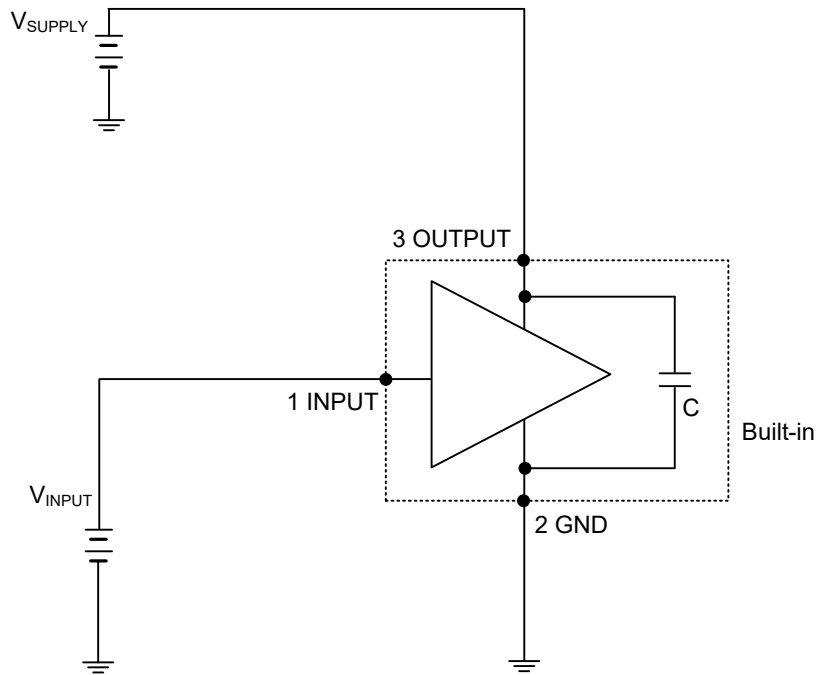
■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V _{SUPPLY}	1.4 ~ 5.5	V
Operating Temperature Range	T _{OPR}	-40 ~ +85	°C

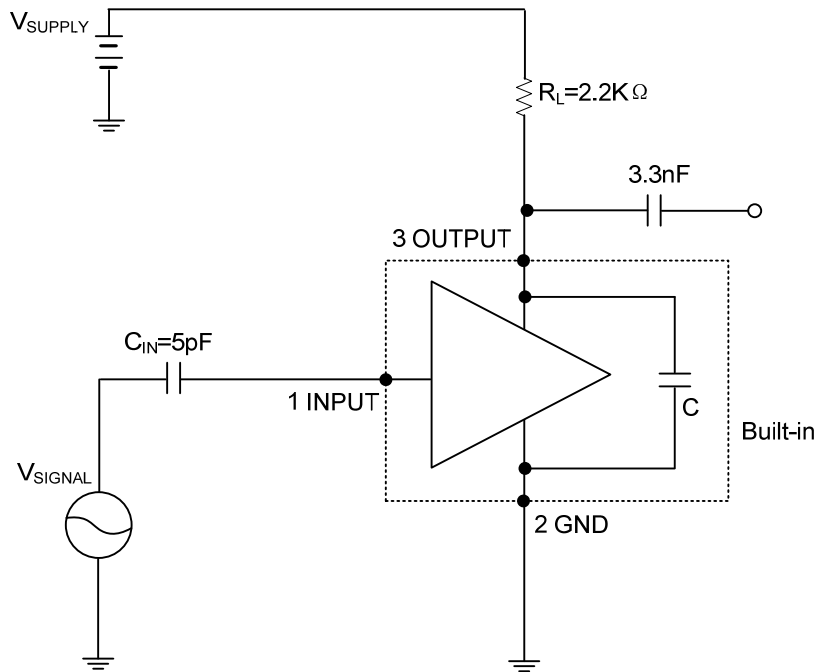
■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
R_L=2.2kΩ, V_{SUPPLY}=3V, V_{SIGNAL}=28mV_{PP}							
Input Capacitance	C _{INPUT}	f=1MHz		2.0		pF	
Gain Reduction with Frequency	ΔG _V	f=1kHz~100Hz			-1.0	dB	
Input Impedance	INPUT	f=1kHz	30			MΩ	
Output Impedance	OUTPUT	f=1kHz			2.2	kΩ	
R_L=2.2kΩ, V_{SIGNAL}=28mV_{PP}							
Supply Current	I _{SUPPLY}	V _{SUPPLY} =2V	PA309-08		180	μA	
		V _{SUPPLY} =3V	PA309-18 PA309-20		300	μA	
Voltage Gain	G _V	V _{SUPPLY} =2V, f=1kHz	PA309-08	6.5	8	9.5	dB
		V _{SUPPLY} =3V, f=1kHz	PA309-18 PA309-20	17 17.4	18 20	21 23.3	
Total Harmonic Distortion	THD	V _{SUPPLY} =2V, f=1kHz	PA309-08		0.29	0.61	%
		V _{SUPPLY} =3V, f=1kHz	PA309-18 PA309-20		0.29	0.82	%
Maximum Input Signal	V _{SIGNAL}	f=1kHz, THD<1%	PA309-08			130	mV _{PP}
			PA309-18 PA309-20			70	mV _{PP}
Output Noise	e _n	A-Weighted		-100		dB	

■ TYPICAL APPLICATION CIRCUIT

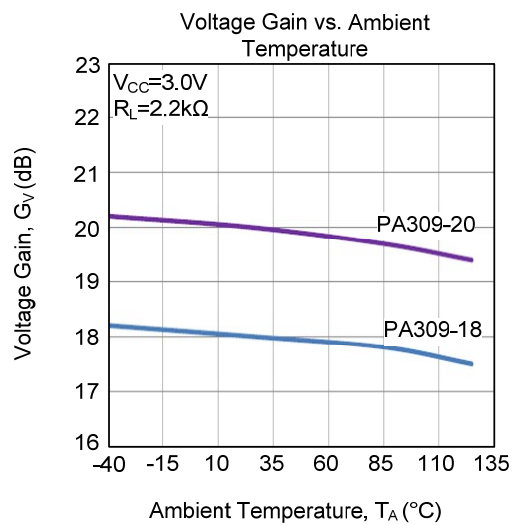
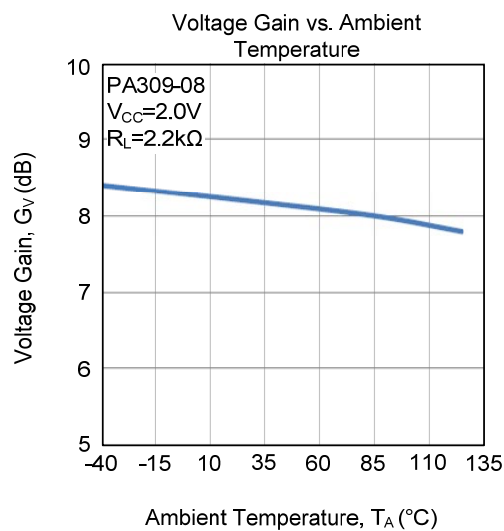
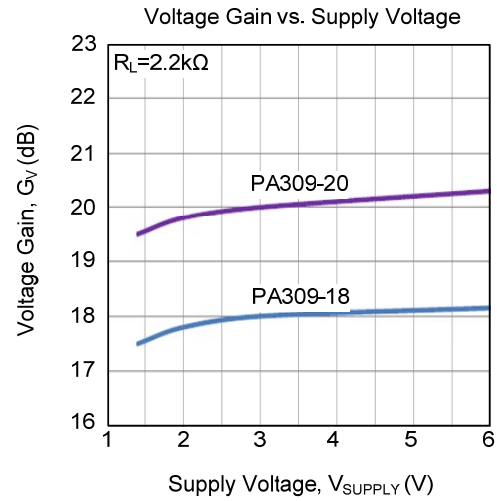
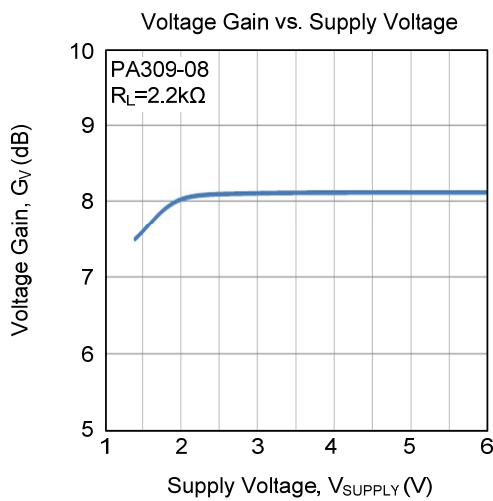
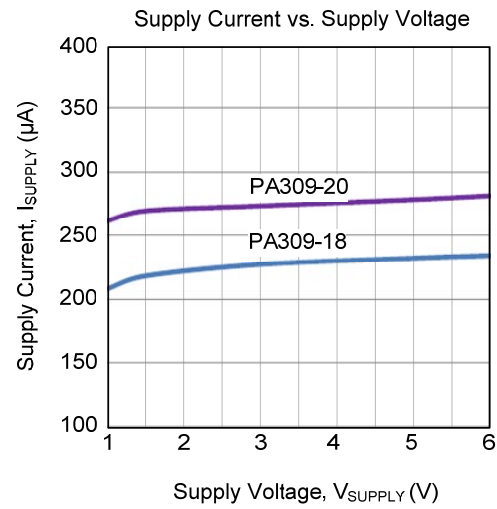
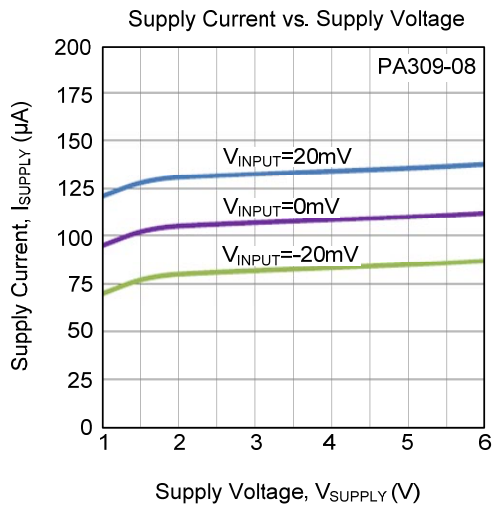


DC Parameters Test Circuit



AC Parameters Test Circuit

■ TYPICAL CHARACTERISTICS



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