

μPC451 / 324

Low Power Quad Operational Amplifiers

GENERAL DESCRIPTION

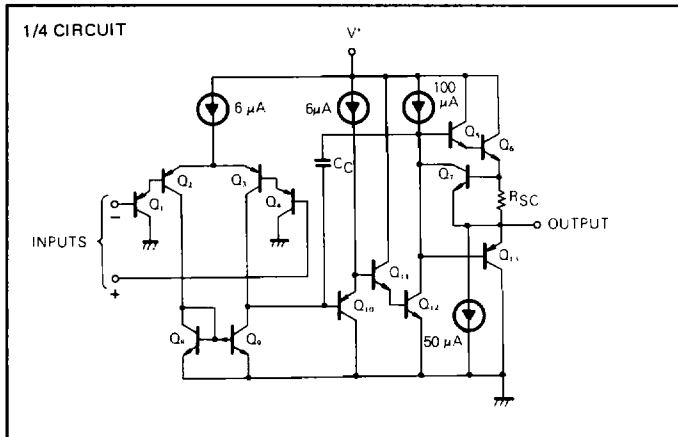
The μPC451/324 are quad operational amplifiers which are designed to operate from a single power supply over a wide range of voltages. Operation from split power supplies is also possible and the power supply current drain is very low. Further advantage, the input common-mode voltage can also swing to ground in the linear mode.

Two kinds of ICs are available according to reliability, the μPC451 for industry, the μPC324 for commercial.

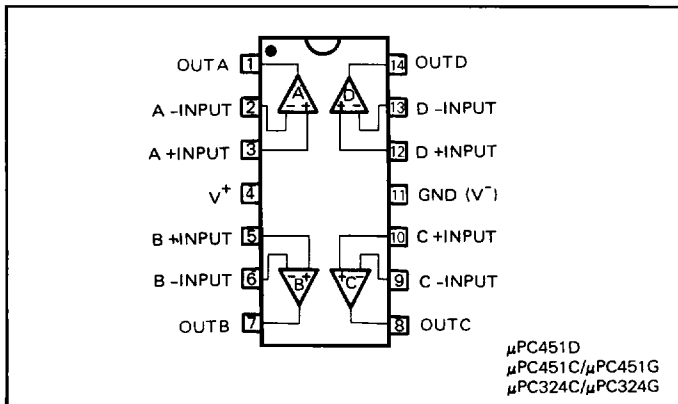
FEATURES

- Internal Frequency Compensation
- Large Output Voltage Swing
0V to $V^+ - 1.5$ V DC
- Input Common-Mode Voltage Range Includes Ground
- Wide Power Supply Range
Single Supply 3 V to 30 V DC
Dual Supplies ± 1.5 V to ± 15 V DC
- LM324 Direct Replacement

EQUIVALENT CIRCUIT



CONNECTION DIAGRAM (Top View)



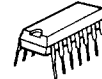
ORDERING INFORMATION

μPC451D



14 pin Ceramic DIP
(Dual In-Line Package)

μPC451C/μPC324C



14 pin Plastic Molded DIP
(Dual In-Line Package)

μPC451G/μPC324G



14 pin Plastic Molded Flat Package
(MINI FLAT IC)

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

PARAMETER		μPC451	μPC324	UNIT
Voltage between V ⁺ and V ⁻		32	32	V
Differential Input Voltage		32	32	V
Input Voltage		-0.3 to +32	-0.3 to +32	V
Power Dissipation*	D Package	900	—	mW
	C Package	570	570	
	G Package	550	550	
Operating Temperature Range	D Package	-20 to +80	—	°C
	C or G Package	-20 to +70	0 to +70	
Storage Temperature Range	D Package	-55 to +150	—	°C
	C or G Package	-55 to +125	-55 to +125	

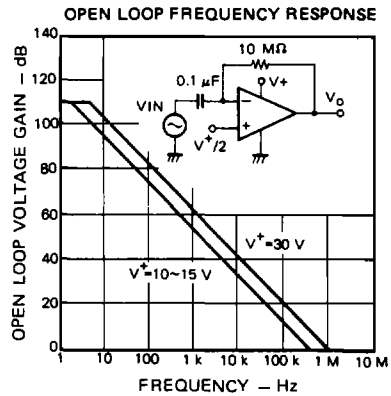
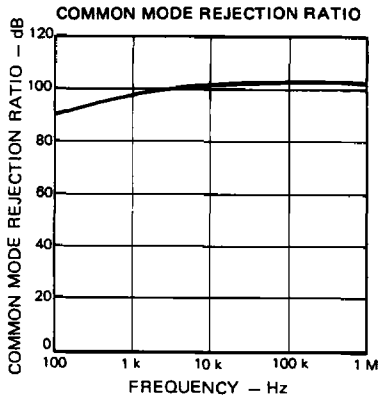
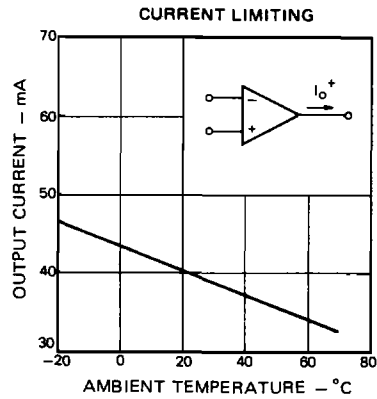
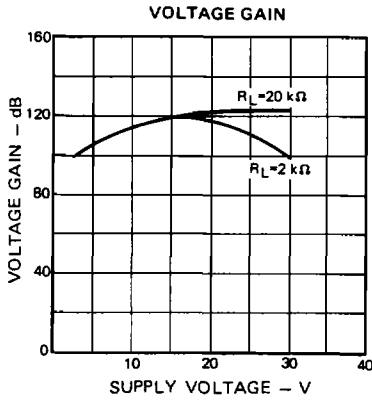
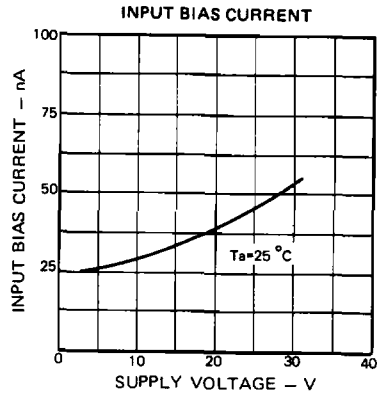
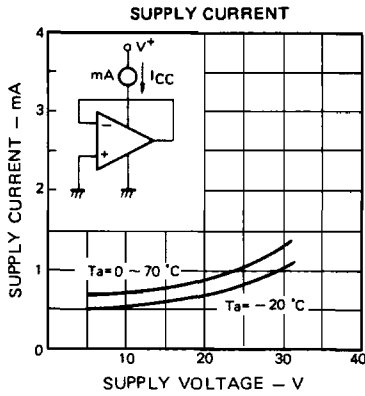
* See thermal information in chapter 11.

ELECTRICAL CHARACTERISTICS (Ta = 25°C, V⁺ = +5 V)

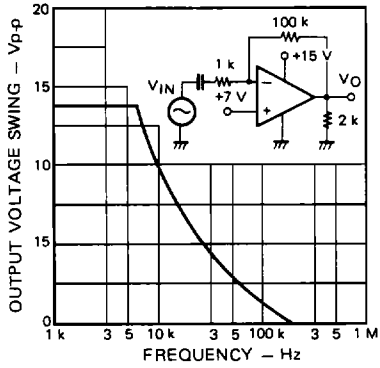
CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Input Offset Voltage		2	7	mV	R _s = 0 Ω
Input Bias Current		45	500	nA	
Input Offset Current		5	50	nA	
Common Mode Input Voltage Range	0		V ⁺ - 1.5	V	
Supply Current		0.8	2	mA	R _L = ∞ on All Op Amps
Large Signal Voltage Gain		100		V/mV	R _L ≥ 2 kΩ
Output Voltage Swing	0		V ⁺ - 1.5	V	R _L = 2 kΩ
Common Mode Rejection Ratio		85		dB	
Supply Voltage Rejection Ratio		100		dB	
Channel Separation		120		dB	f = 1 kHz to 20 kHz
Output Current (Source)	20	40		mA	V _{IN} ⁺ = +1 V, V _{IN} ⁻ = 0 V
Output Current (Sink)	10	20		mA	V _{IN} ⁻ = 1 V, V _{IN} ⁺ = 0 V



TYPICAL PERFORMANCE CHARACTERISTICS ($T_a=25^\circ\text{C}$)



LARGE SIGNAL FREQUENCY RESPONSE



VOLTAGE FOLLOWER LARGE SIGNAL PULSE RESPONSE

