Monolithic Linear IC

LA6324N, 6324NM

High-Performance Quad Operational Amplifier

Overview

The LA6324 consists of four independent, high-performance, internally phase compensated operational amplifiers that are designed to operate from a single power supply over a wide range of voltages. These four operational amplifiers are packaged in a single package. As in case of conventional general-purpose operational amplifiers, operation from dual power supplies is also possible and the power dissipation is low. It can be applied to various uses in commercial and industrial equipment including all types of transducer amplifiers and DC amplifiers.

Features

- No phase compensation required
- Wide operating voltage range: 3.0 V to 30.0 V (single supply) ±1.5 V to ±15.0 V (dual supplies)
- Highly resistant to dielectric breakdown
- Input voltage range includes the neighborhood of GND level and output voltage range V_{OUT} is from 0 to V_{CC} 1.5 V.
- Small current dissipation: $I_{CC} = 0.6 \text{ mA typ/V}_{CC} = +5 \text{ V}, \text{ } R_L = \infty$

Package Dimensions

unit : mm

3003A-DIP14



unit : mm

3034A-MFP14



Specifications

Maximum Ratings at $Ta = 25^{\circ}C$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V _{CC} max		32	V
Differential input voltage	V _{ID}		32	V
Maximum input voltage	V _{IN} max		-0.3 to +32	V
Allowable power dissipation	Pd max	LA6324N	720	mW
		LA6324NM	330	mW
Operating temperature	Topr		-30 to +85	°C
Storage temperature	Tstg		-55 to +125	°C

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Operating Characteristics at Ta = 25°C, V_{CC} = +5 V

Parameter	Symbol	Conditions	Test circuit	min	typ	max	Unit
Input offset voltage	V _{IO}		1		±2	±7	mV
Input offset current	l _{IO}	I _{IN} (+) / I _{IN} (–)	2		±5	±50	nA
Input bias current	Ι _Β	I _{IN} (+) / I _{IN} (–)	3		45	250	nA
Common-mode input voltage range	V _{ICM}		4	0		V _{CC} – 1.5	V
Common-mode rejection ratio	CMR		4	65	80		dB
Voltage gain	VG	V_{CC} = 15 V, $R_L \ge 2 \ k\Omega$	5	25	100		V/mV
Output voltage range	V _{OUT}			0		V _{CC} – 1.5	V
Supply voltage rejection ratio	SVR		6	65	100		dB
Channel separation	CS	f = 1 k to 20 kHz	7		120		dB
Current drain	ICC		8		0.6	2	mA
	ICC	V _{CC} = 30 V	8		1.5	3	mA
Output current (Source)	I _O source	$V_{IN}^{+} = 1 V, V_{IN}^{-} = 0 V$	9	20	40		mA
Output current (Sink)	I _O sink	$V_{IN}^{+} = 0 V, V_{IN}^{-} = 1 V$	10	10	20		mA

Equivalent Circuit

(1 unit)



Pin Assignment

(LA6324N, 6324NM)



Test Circuit

- 1. Input offset voltage VIO 2. Input offset current I_{IO} over R2 R1 o vcc ο^νcc R1 NUL oVF1 NUL o ¥F2 R2 VFF $v_{IO} = \frac{v_{F1}}{1 + R2/R1}$ $I_{IO} = \frac{V_{F2} - V_{F1}}{R \left(1 + R2/R1\right)}$
- 3. Input bias current I_B



4. Common-mode rejection ratio CMR Common-mode input voltage range VICM

5. Voltage gain VG



6. Supply voltage rejection ratio SVR



7. Channel separation CS



OB

8. Current drain I_{CC}

9. Output current ${\rm I}_{\rm O}$ source

10. Output current I_O sink











Sample Application Circuits



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