Ordering number : ENA0290

SANYO Semiconductors
DATA SHEET

Monolithic Linear IC

LA6324NJM — High-Performance Quad Operational Amplifier

Overview

The LA6324NJM is a high-performance quad operational amplifier that can operate from a single voltage power supply. It features a built-in phase correction circuit. It can also operate from a dual power supply with both positive and negative levels and features low power consumption. The LA6324NJM is a wide operating temperature range (Topr = -40 to 85°C) allows the device to be used for a wide variety of applications in consumer products as well as industrial equipment, including automotive applications (excluding critical safety components).

Functions

- High-performance quad operational amplifier

Specifications

Maximum Ratings at Ta = 25°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
Output short time *1	$VO_{sh}T$		Infinity	sec
Allowable power dissipation	Pd max	Ta≤25°C *2	330	mW
Operating temperature	Topr		-40 to +85	°C
Storage temperature	Tstg		-55 to +150	°C

*1: 15V or less, only by one arbitrary channel. Moreover,the LA6324NJM must be used under the conditions that its maximum power dissipation(Pd max) is not exceeded and the following derating factor is observed.

*2: At Ta>25°C,a derating factor of -2.64mW/°C.

Recommended Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Supply voltage	V_{CC}		3		24	V

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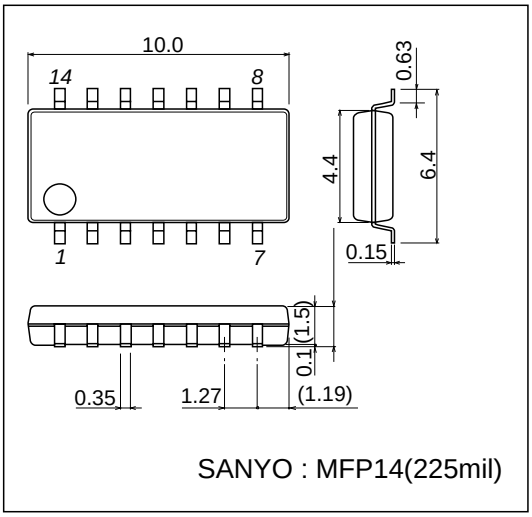
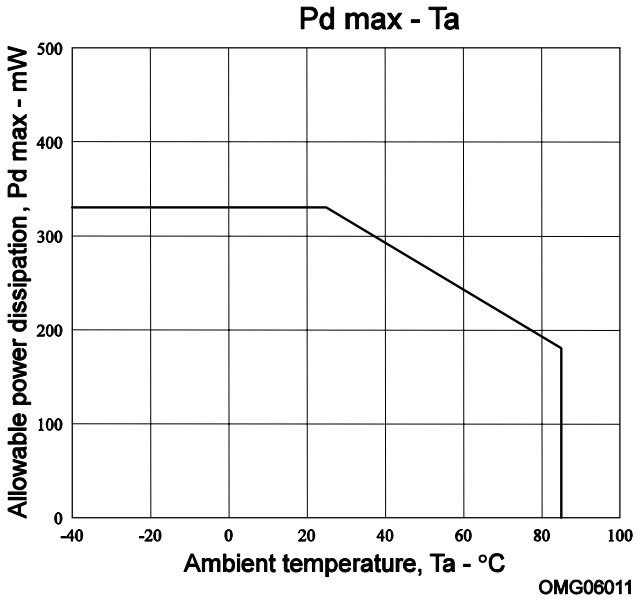
Electrical Characteristics at Ta = 25°C, V_{CC} = 5V

Parameter	Symbol	Conditions	Test Circuit	Ratings			Unit
				min	typ	max	
Input offset voltage	V_{IO}		1		±2	±7	mV
Input offset current	I_{IO}	$I_{IN}(+)/I_{IN}(-)$	2		±5	±50	nA
Input bias current	I_B	$I_{IN}(+)/I_{IN}(-)$	3,4		45	250	nA
Common-mode input voltage range	VICM		5	0		V_{CC}-1.5	V
Common-mode rejection ratio	CMR	V_{CC} = 30V	5	65	80		dB
Large-amplitude voltage gain	VG	V_{CC} = 15V, R_L≥2kΩ	6	25	100		V/mV
Output voltage range	V_{OUT}			0		V_{CC}-1.5	V
Supply voltage rejection ratio	SVR		11	65	100		dB
Channel separation	CS	f = 1k to 20kHz	7		120		dB
Current drain	I_{CC}		8		0.6	2	mA
		V_{CC} = 30V			1.5	3	mA
Output current (source)	$I_{O\ source}$	V_{IN}+ = 1V, V_{IN}- = 0V	9	20	40		mA
Output current (sink)	$I_{O\ sink}$	V_{IN}+ = 0V, V_{IN}- = 1V	10	10	20		mA

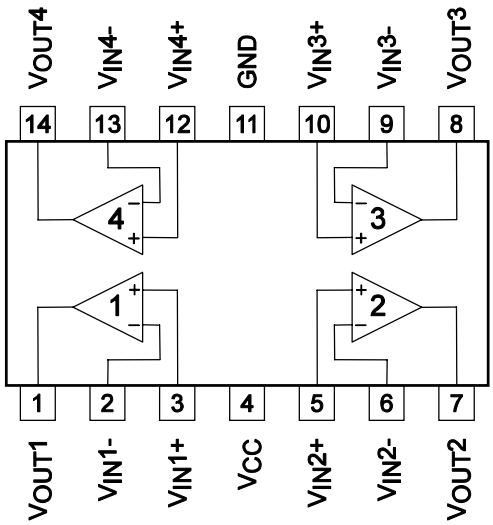
Package Dimensions

unit : mm
3034B

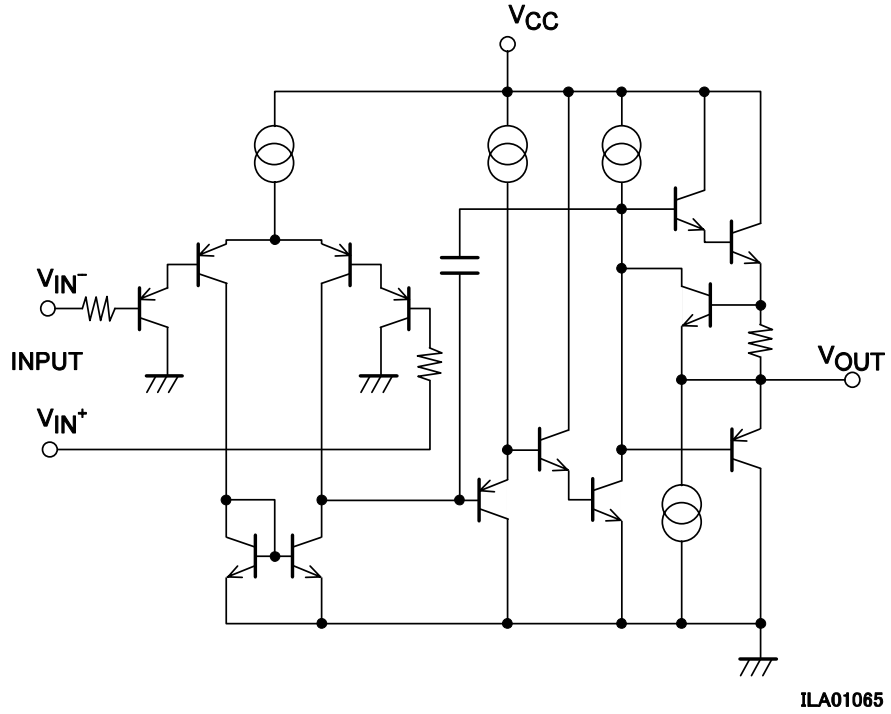




Pin Assignment

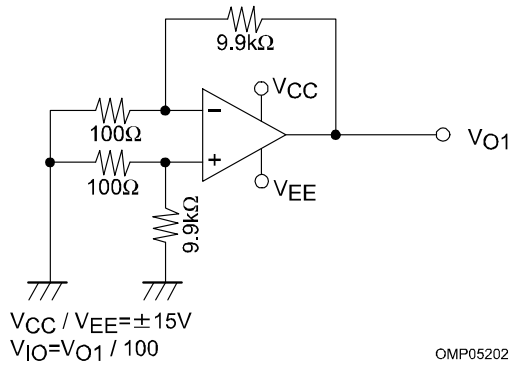


Equivalent Circuit

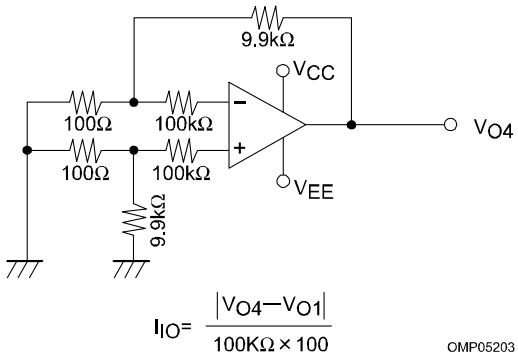


Test Circuits

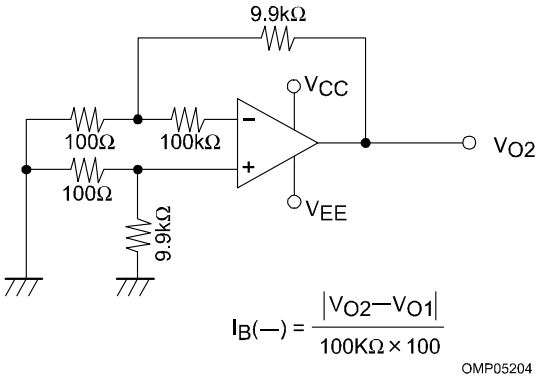
1. Input offset voltage V_{IO}



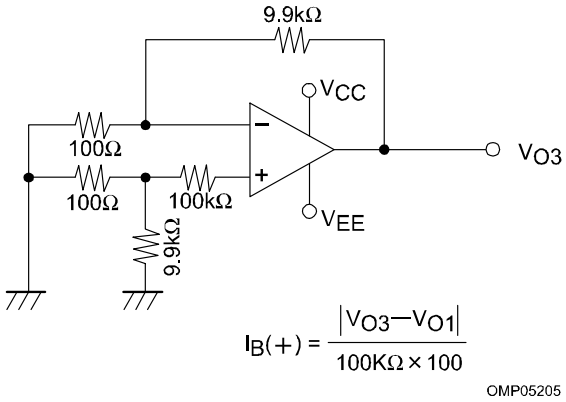
2. Input offset current I_{IO}



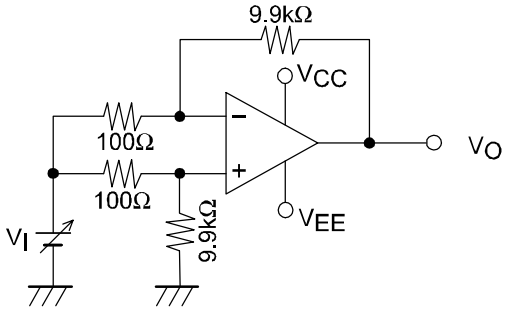
3. Input bias current I_B (–)



4. Input bias current I_B (+)



5. Common-mode rejection ratio CMR
Common-mode input voltage range VICN



CMR V_I=±7.5V

$$CMR = 20\log \frac{15 \times 100}{|\Delta V_O|}$$

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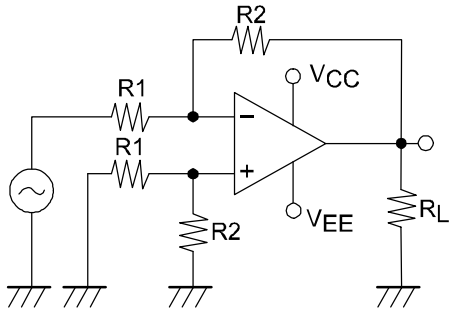
6. Voltage gain VG



$$VG = \frac{R2}{R1}$$

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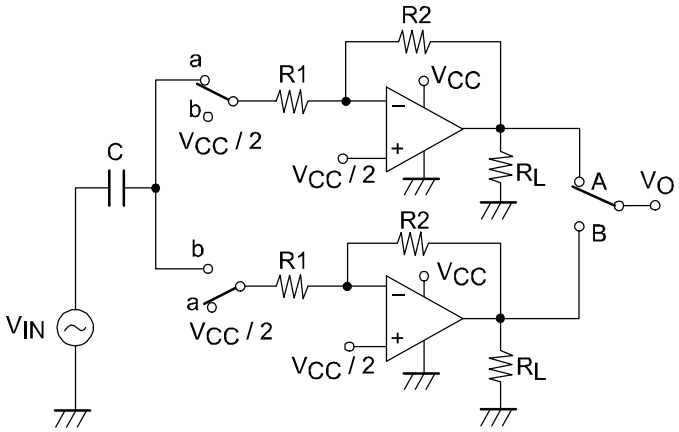
7. Channel separation CH sep



When the switch is in the "a" position

$$CS(A \rightarrow B) = 20 \log \frac{R2\ V_{OA}}{R1\ V_{OB}}$$

When the switch is in the "b" position

$$CS(B \rightarrow A) = 20 \log \frac{R2\ V_{OB}}{R1\ V_{OA}}$$

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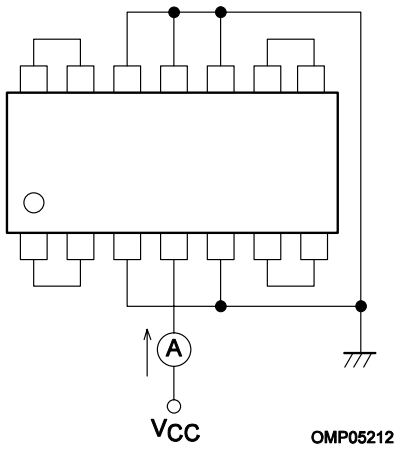
8. Current drain I_{CC}



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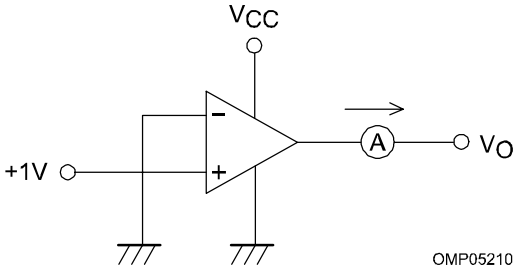
9. Output current I_O source



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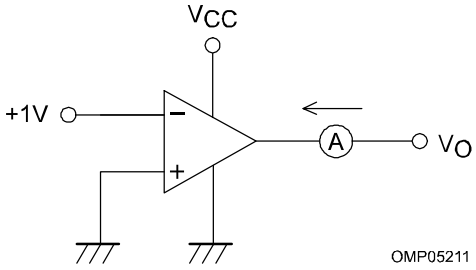
10. Output current I_O sink



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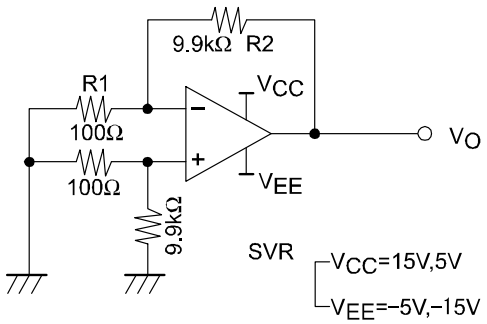
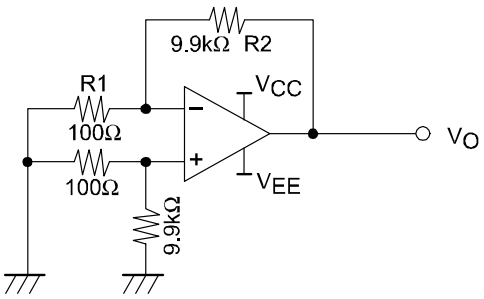
11. Supply voltage rejection ratio SVR (+)



$$SVR(+)=20\log\left|\frac{\Delta V_{CC}\times 100}{\Delta V_O}\right|$$

12. Supply voltage rejection ratio SVR (-)



$$SVR(-)=20\log\left|\frac{\Delta V_{EE}\times 100}{\Delta V_O}\right|$$

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