Ordering number : ENA0276

SANYO Semiconductors

DATA SHEET

LA6358NMJM — Monolithic Linear IC High-Performance Dual Operational Amplifier

Overview

The LA6358NMJM is a high-performance dual 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 LA6358NMJM can be used in a wide range of industrial applications as a transducer amplifier for all types of transducers, as a DC amplifier circuit, and for other purposes as well.

Functions

- High-performance dual 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
Allowable power dissipation	Pd max	Ta≤25°C	300	mW
Operating temperature	Topr		-40 to +85	°C
Storage temperature	Tstg		-55 to +150	°C

Recommended Operating Conditions at Ta = -40 to +85°C

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

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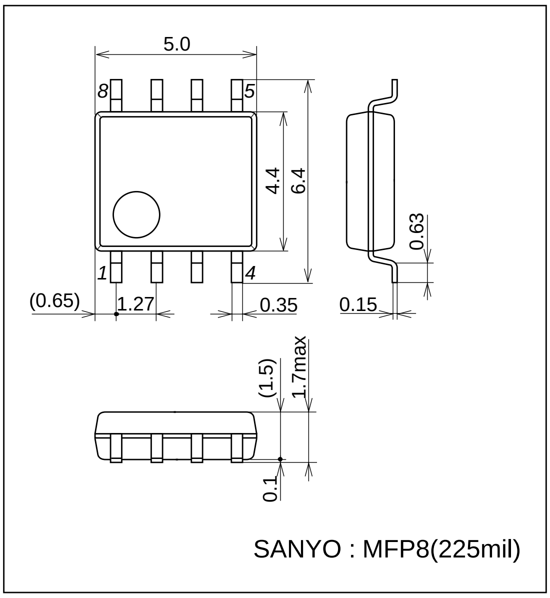
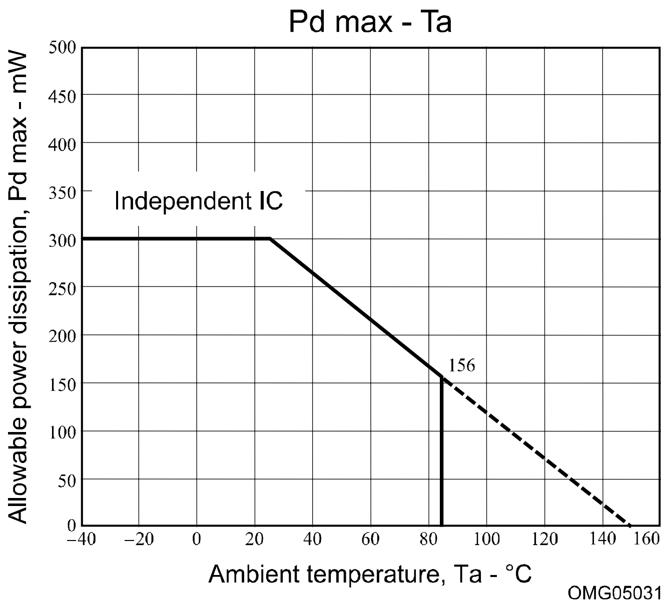
Electrical Characteristics at Ta = 25°C, V_{CC} = 5V

Parameter	Symbol	Conditions	Test circuit	Ratings			Unit
				min	typ	max	
Input offset voltage	V_{IO}		1		±2	±3	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		0.5	1.2	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

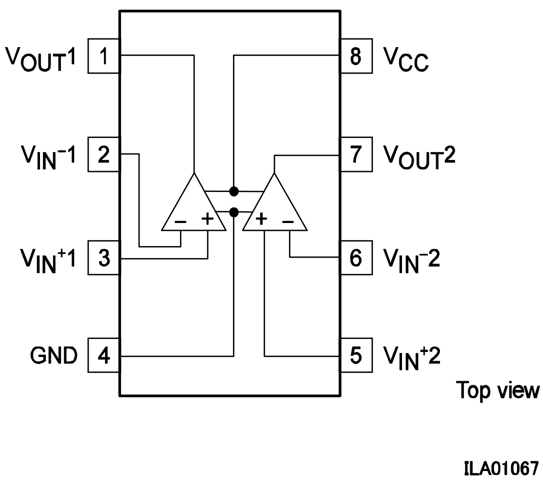
Package Dimensions

unit : mm
3032D

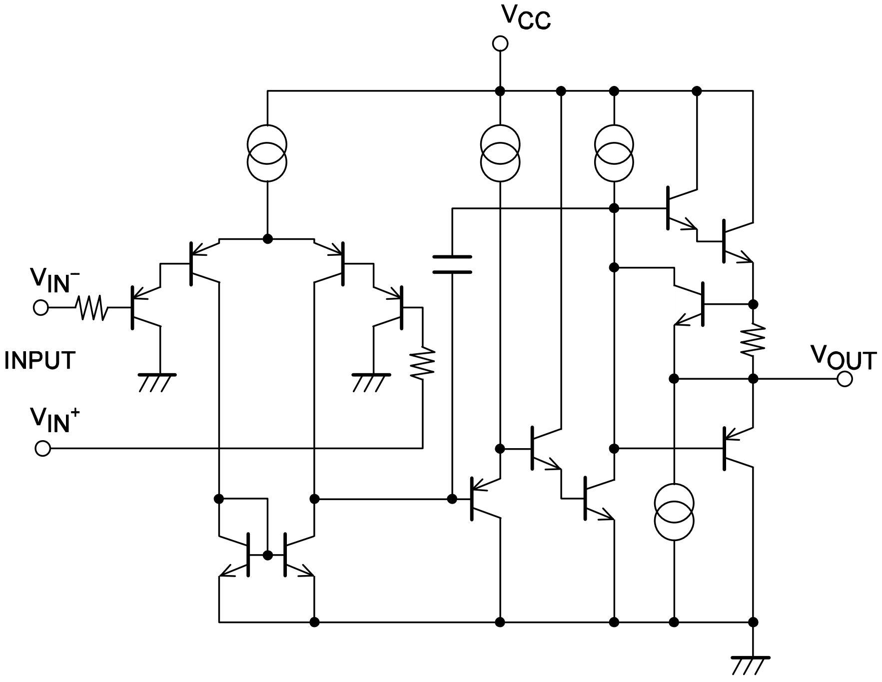




Pin Assignment



Equivalent Circuit



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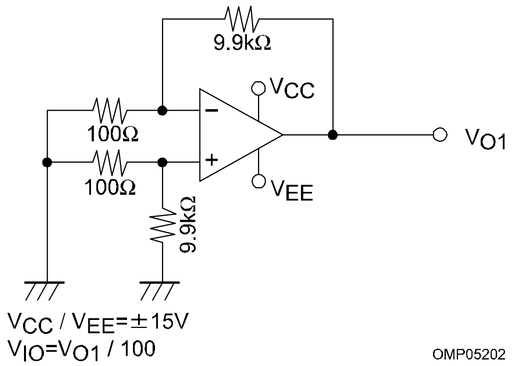
Test Circuits

1. Input offset voltage V_{IO}



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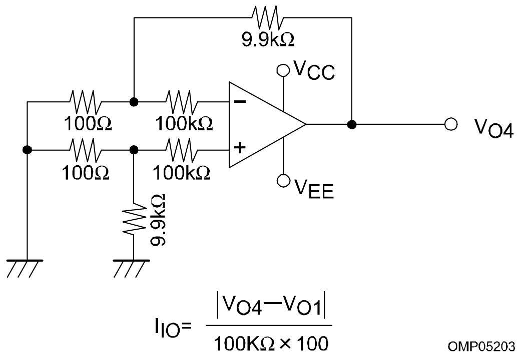
2. Input offset current I_{IO}



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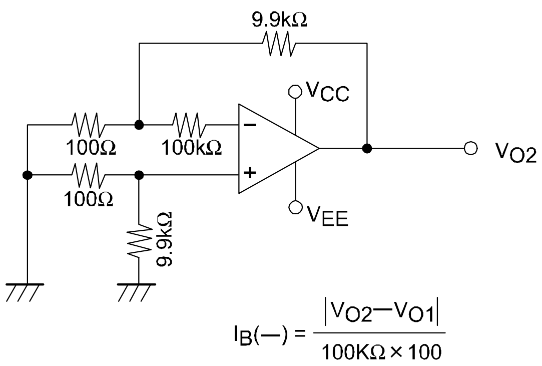
3. Input bias current I_B (–)



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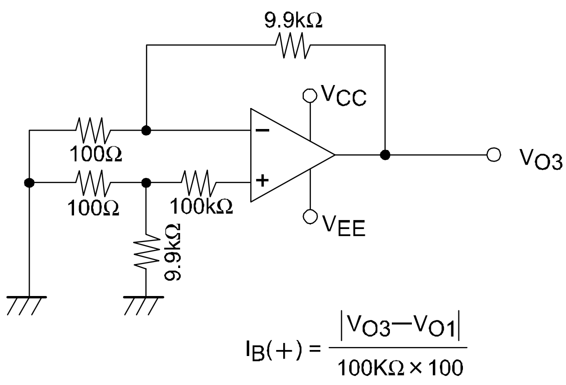
4. Input bias current I_B (+)



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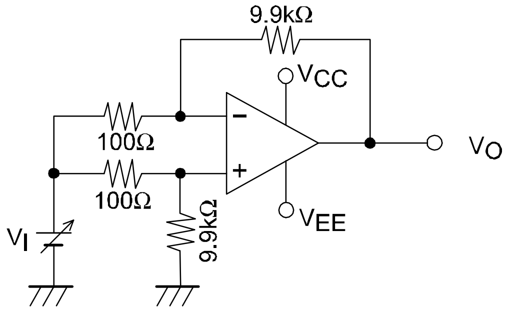
5. Common-mode rejection ratio CMR
Common-mode input voltage range VICN



CMR $V_I = \pm 7.5V$

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

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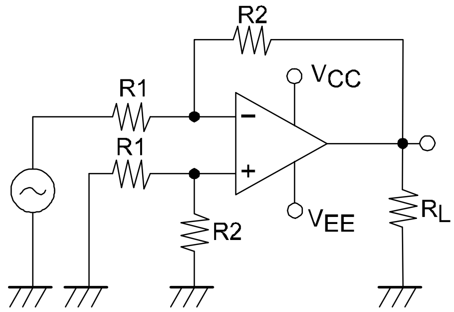
6. Voltage gain VG



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

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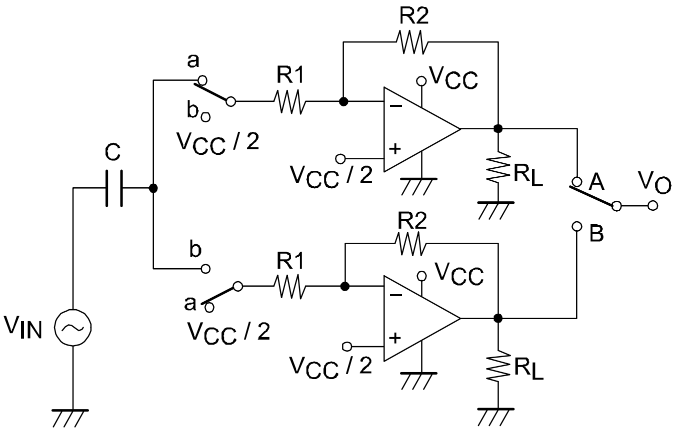
7. Channel separation CH sep



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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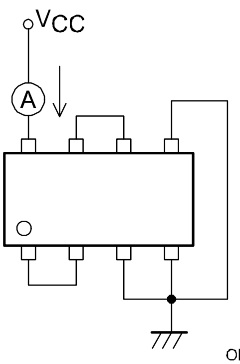
8. Current drain I_{CC}



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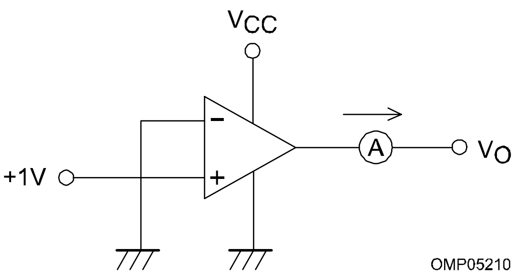
9. Output current I_O source



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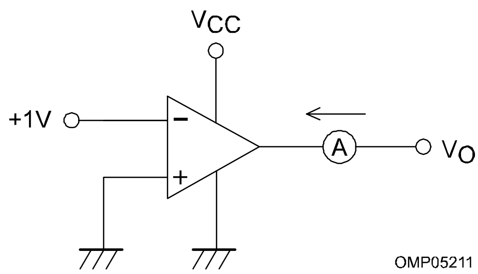
10. Output current I_O sink



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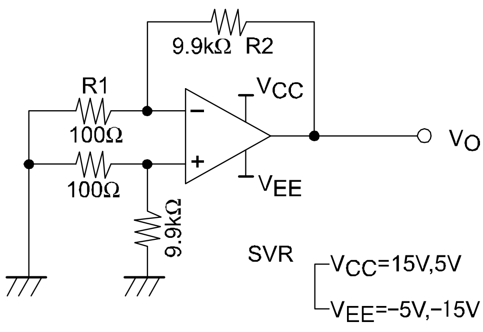
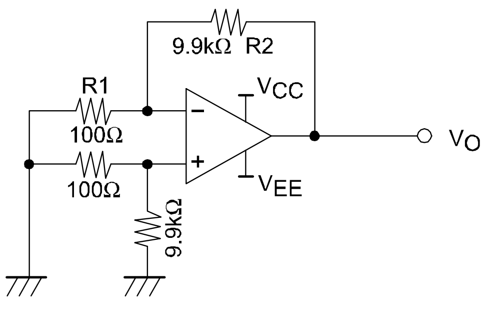
11. Supply voltage rejection ratio SVR (+)



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

12. Supply voltage rejection ratio SVR (-)



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

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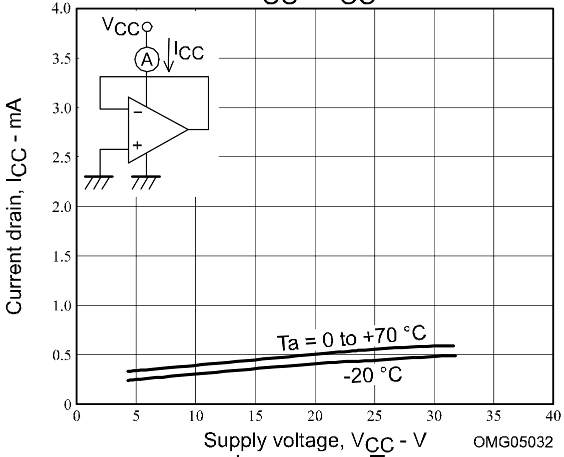
I_{CC} - V_{CC}



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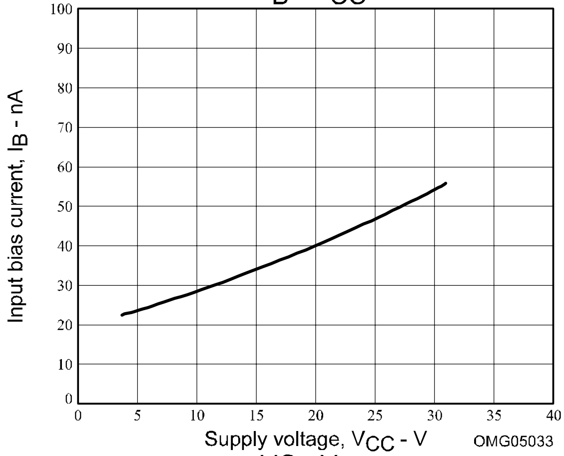
I_B - V_{CC}



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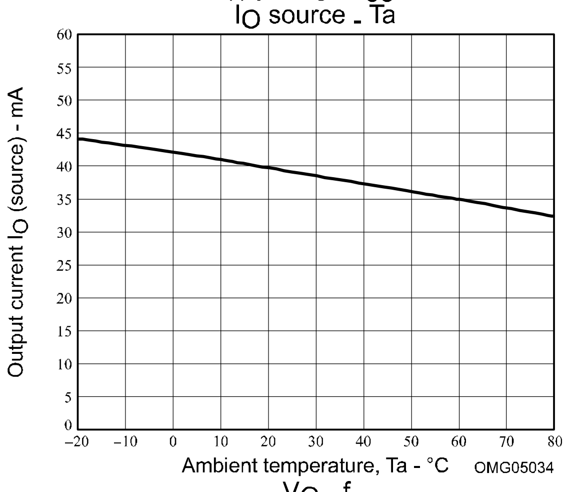
I_O source - Ta



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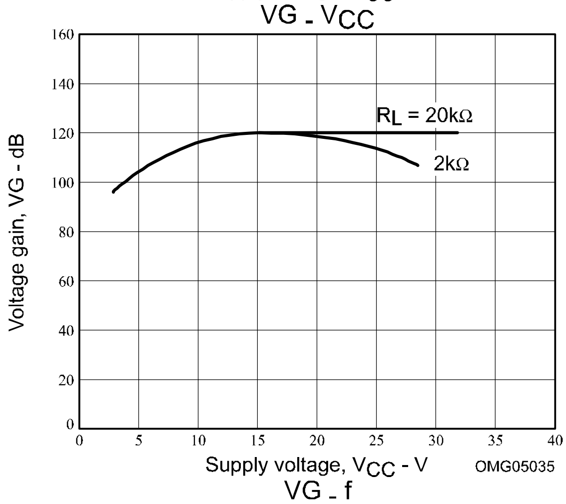
VG - V_{CC}



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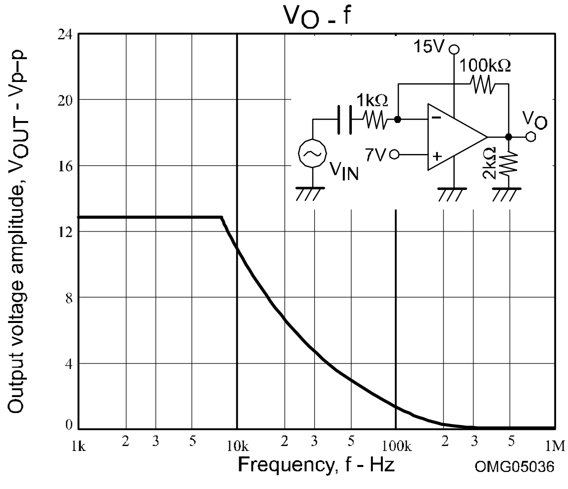
V_O - f



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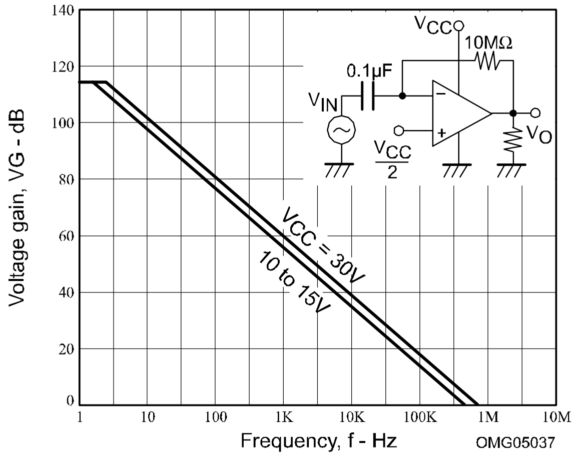
VG - f



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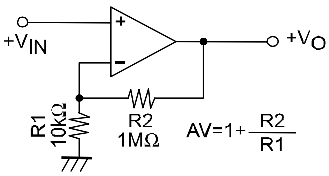
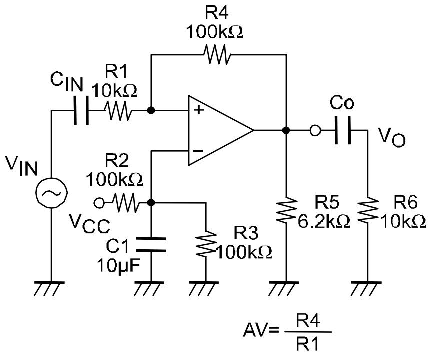
Application Circuit Examples

Noninverting DC amplifier



Inverting AC amplifier



Square wave generator