



SANYO Semiconductors

DATA SHEET

LA6358N,6358NS, LA6358NM,6358NT

Monolithic Linear IC

High-Performance Dual Operational Amplifiers

Overview

The LA6358 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 LA6358NT 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

- Eliminates need for phase compensation
- Wide range of operating supply voltage: 3.0V to 30.0V (single power supply)
: ± 1.5 to ± 15.0 V (dual power supply)
- Input voltage swingable down to nearly ground level and output voltage range V_{OUT} of 0 to $V_{CC}-1.5$ V
- Low current dissipation : $I_{CC} = 0.5$ mA typ/ $V_{CC} = +5$ V, $R_L = \infty$

Specifications

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

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	$T_a \leq 25^\circ\text{C}$ LA6358N, 6358NS	570	mW
		$T_a \leq 25^\circ\text{C}$ LA6358NM	300	mW
		$T_a \leq 25^\circ\text{C}$ LA6358NT	170	mW
Operating temperature	Topr		-30 to +85	$^\circ\text{C}$
Storage temperature	Tstg		-55 to +125	$^\circ\text{C}$

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Electrical Characteristics at Ta = 25°C, VCC = 5.0V, Otherwise unless specified.

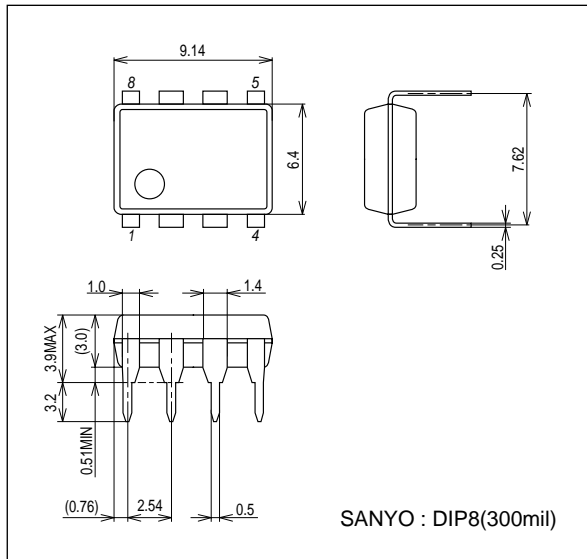
Parameter	Symbol	Conditions	Test Circuit	Ratings			Unit
				min	typ	max	
Input offset voltage	V _{IO}		1		±2	±7	mV
Input offset current	I _{IO}	I _{IN} (+)/I _{IN} (-)	2		±5	±50	nA
Input bias current	I _B	I _{IN} (+)/I _{IN} (-)	3		45	250	nA
Common-mode input voltage range	V _{ICM}		4	0		V _{CC} -1.5	V
Common-mode rejection ratio	CMR		4	65	80		dB
Large-amplitude voltage gain	V _G	V _{CC} = 15V, R _L ≥ 2kΩ	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		f = 1kHz 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 (typ)

3001D

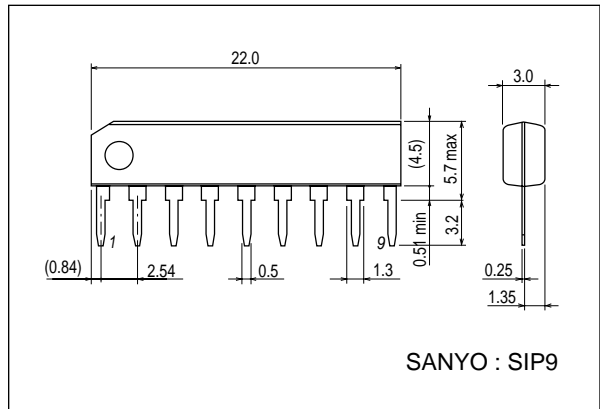
[LA6358N]



unit : mm (typ)

3017D

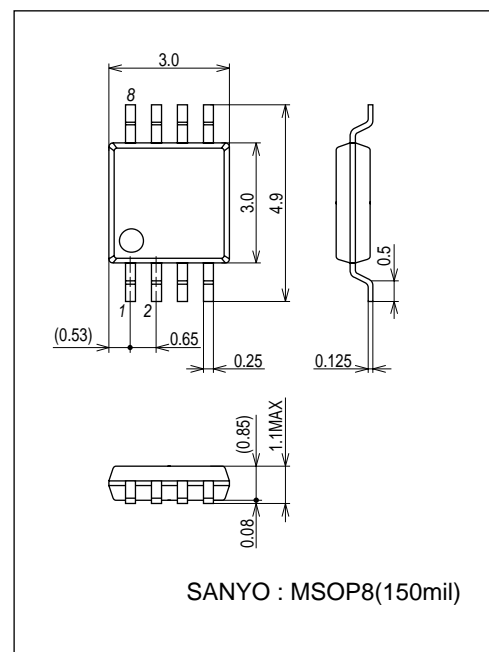
[LA6358NS]



unit:mm (typ)

3245B

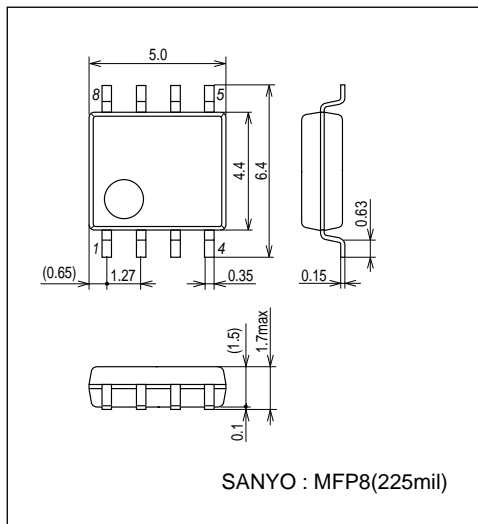
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unit:mm (typ)

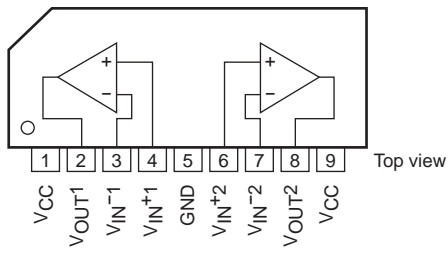
3032D

[LA6358NM]

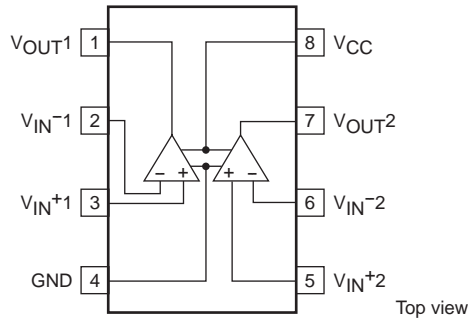


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Pin Assignment

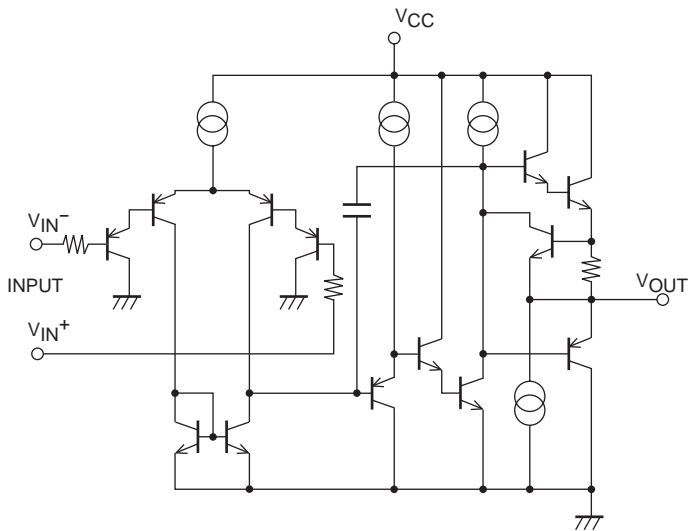


[LA6358NS]



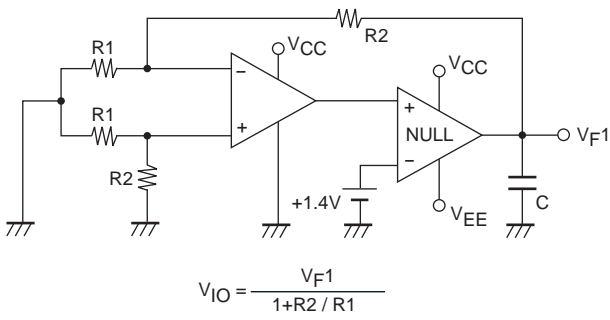
[LA6358N, 6358NM, 6358NT]

Equivalent Circuit

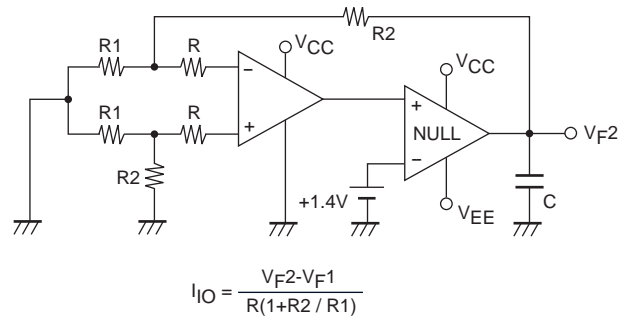


Test Circuits

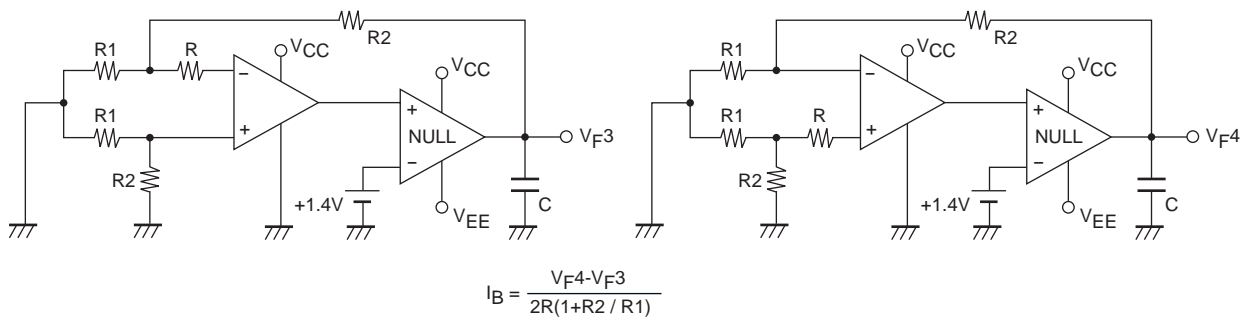
1. V_{IO}



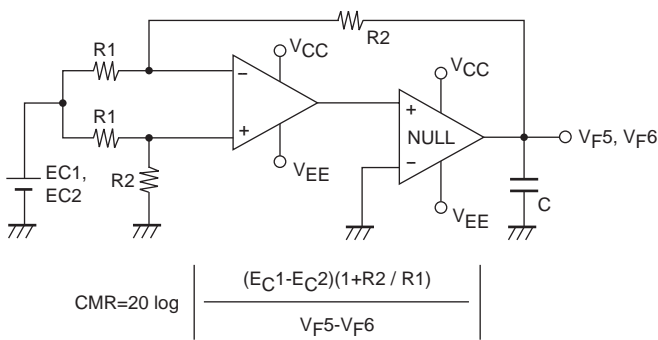
2. I_{IO}



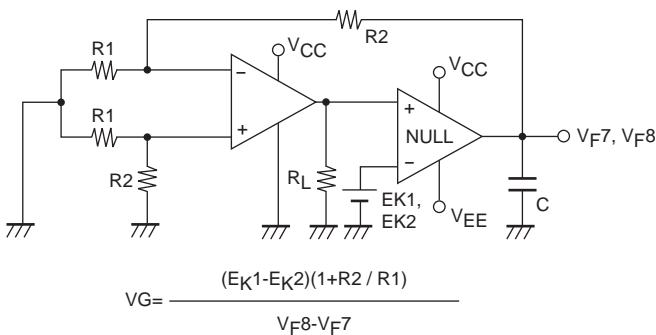
3. I_B



4. CMR, V_{ICM}

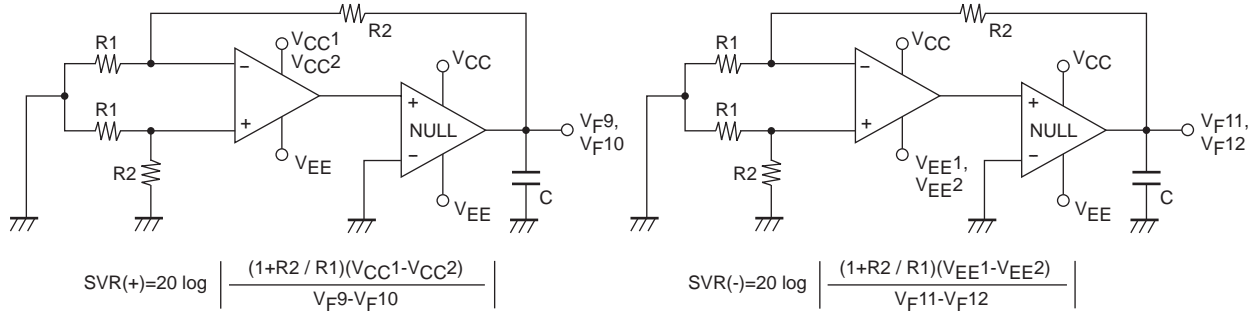


5. V_G

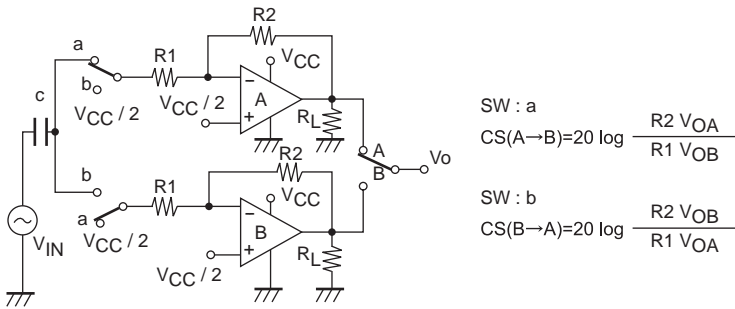


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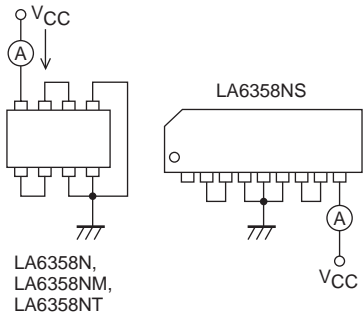
6. SVR



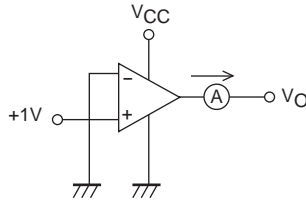
7. CS



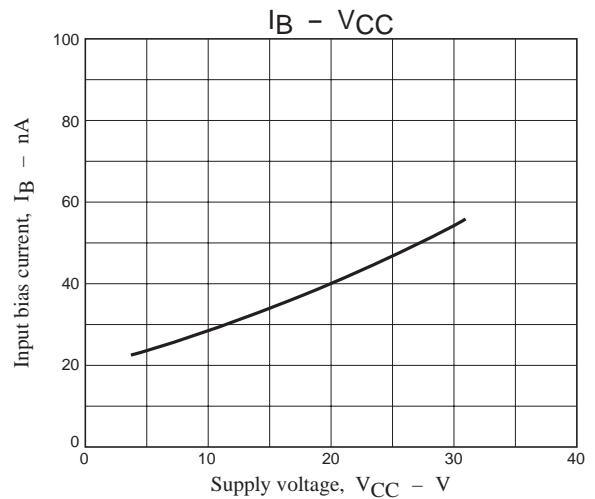
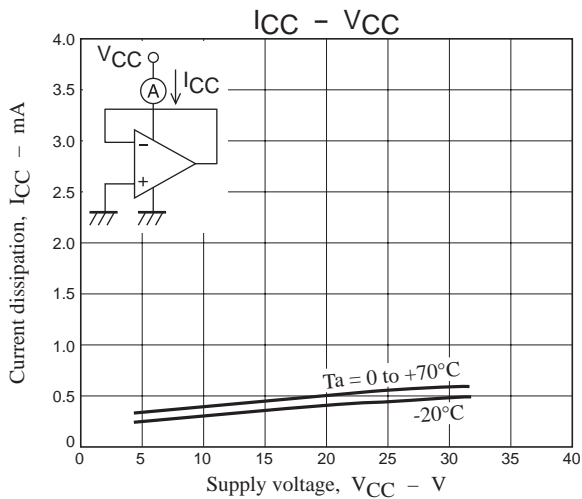
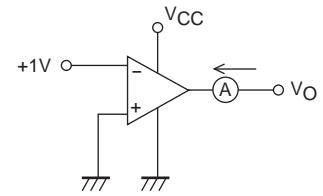
8. I_{CC}



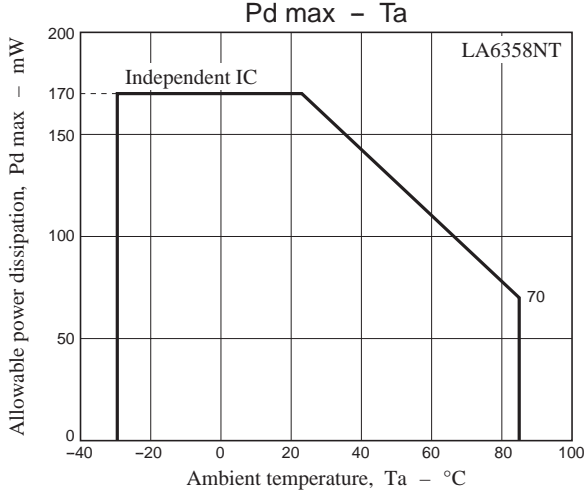
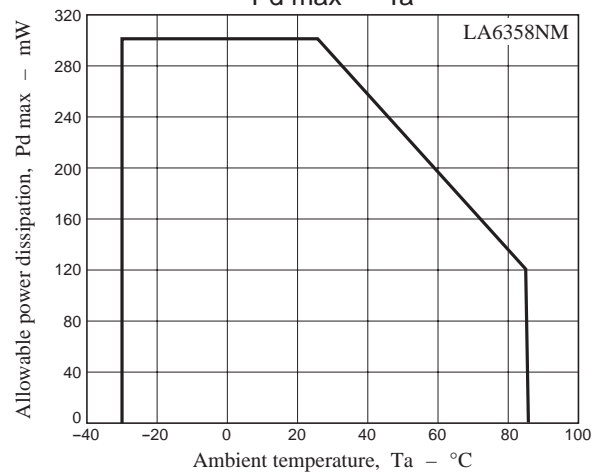
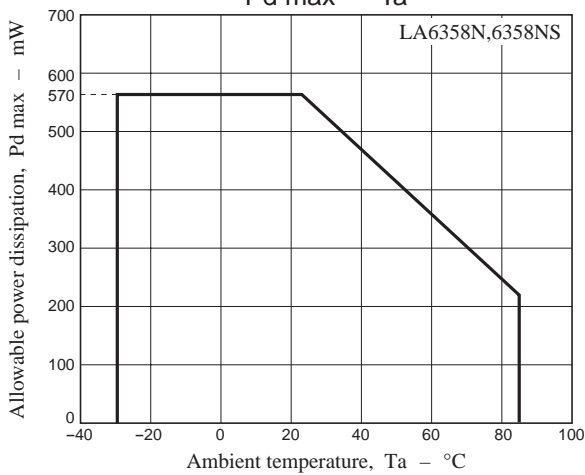
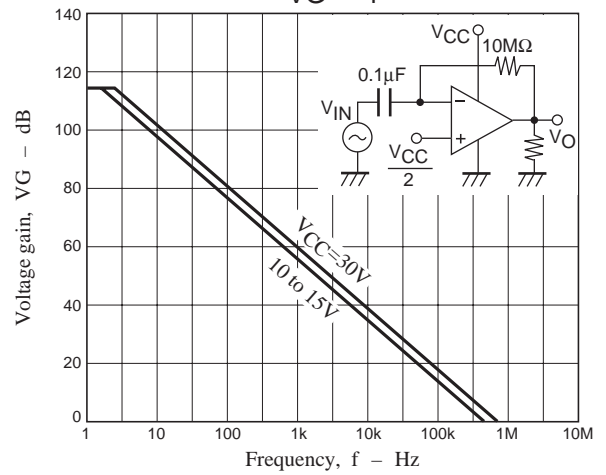
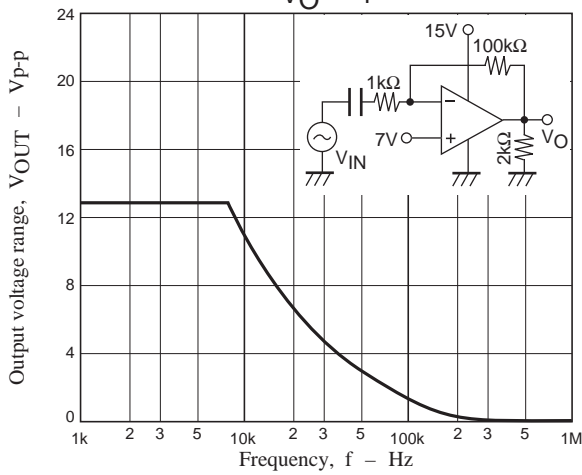
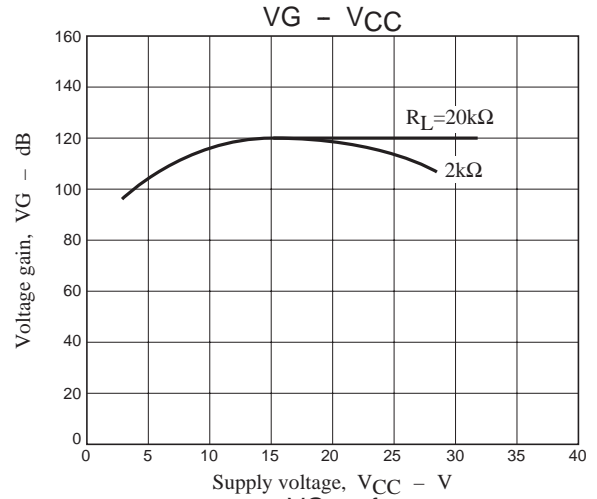
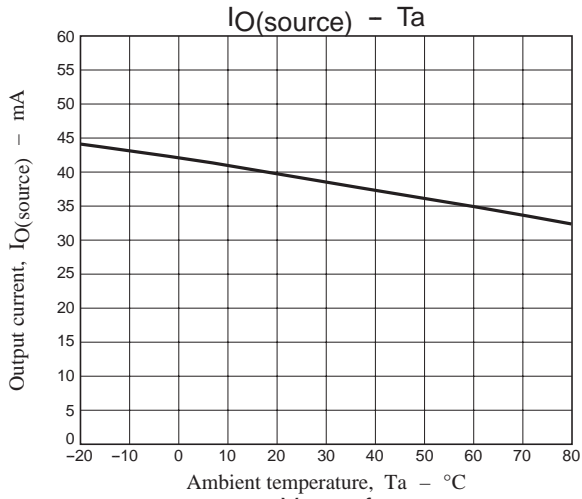
9. I_O source



10. I_O sink

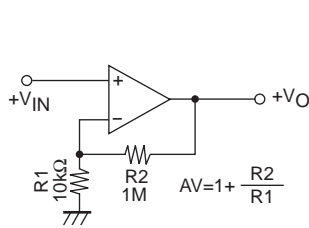


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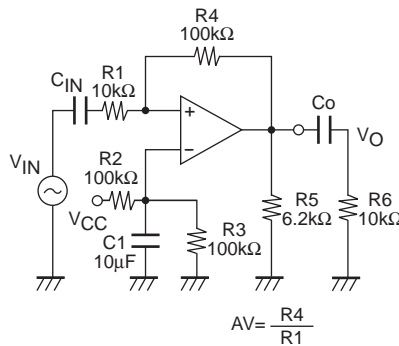


Sample Application Circuits

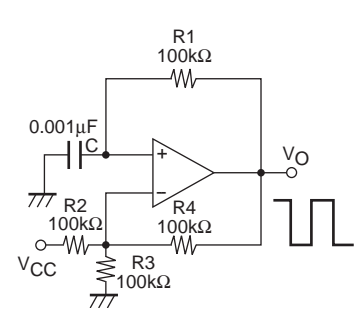
Noninverting DC amplifier



Inverting AC amplifier



Rectangular wave oscillator



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