



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	P_d 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	T_{opr}		-30 to +85	$^\circ\text{C}$
Storage temperature	T_{stg}		-55 to +125	$^\circ\text{C}$

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SANYO Semiconductor Co., Ltd.

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53007 MS IM / D1306 MS PC B8-4681,B8-7410 No.5234-1/7

LA6358N, 6358NS, 6358NM, 6358NT

Electrical Characteristics at $T_a = 25^\circ\text{C}$, $V_{CC} = 5.0\text{V}$, Otherwise unless specified.

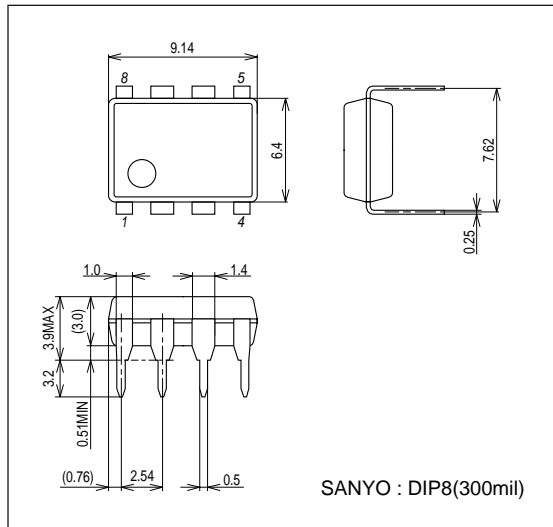
Parameter	Symbol	Conditions	Test Circuit	Ratings			Unit
				min	typ	max	
Input offset voltage	V_{IO}		1		± 2	± 7	mV
Input offset current	I_{IO}	$I_{IN(+)} / I_{IN(-)}$	2		± 5	± 50	nA
Input bias current	I_B	$I_{IN(+)} / I_{IN(-)}$	3		45	250	nA
Common-mode input voltage range	V_{ICM}		4	0		$V_{CC}-1.5$	V
Common-mode rejection ratio	CMR		4	65	80		dB
Large-amplitude voltage gain	GV	$V_{CC} = 15\text{V}$, $R_L \geq 2\text{k}\Omega$	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		$f = 1\text{kHz}$ to 20kHz	7		120		dB
Current drain	I_{CC}		8		0.5	1.2	mA
Output current (source)	$I_{O \text{ source}}$	$V_{IN+} = 1\text{V}$, $V_{IN-} = 0\text{V}$	9	20	40		mA
Output current (sink)	$I_{O \text{ sink}}$	$V_{IN+} = 0\text{V}$, $V_{IN-} = 1\text{V}$	10	10	20		mA

Package Dimensions

unit : mm (typ)

3001D

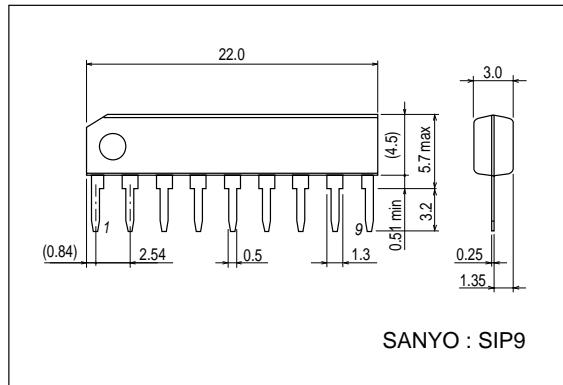
[LA6358N]



unit : mm (typ)

3017D

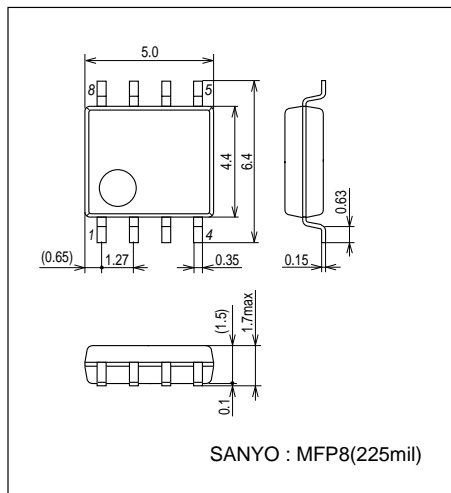
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unit:mm (typ)

3032D

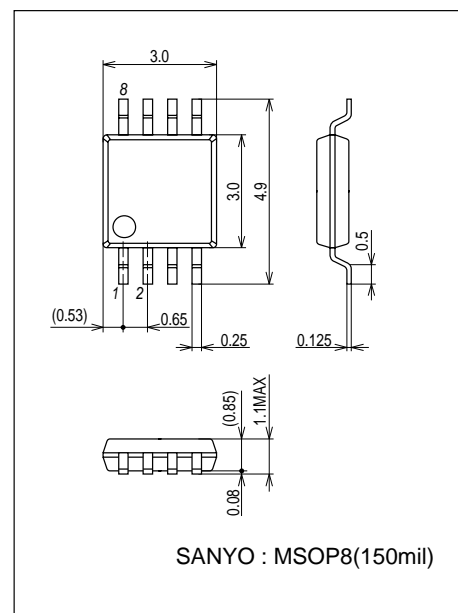
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unit:mm (typ)

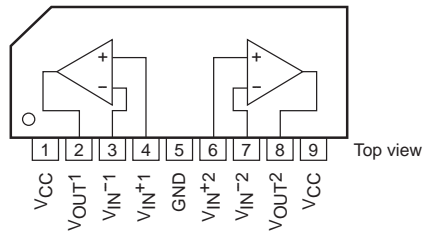
3245B

[LA6358NT]

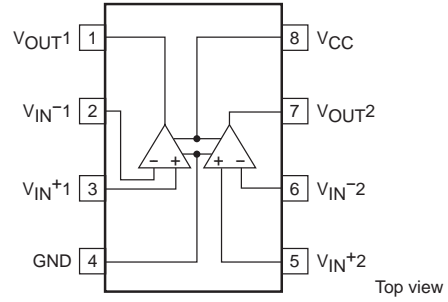


LA6358N, 6358NS, 6358NM, 6358NT

Pin Assignment

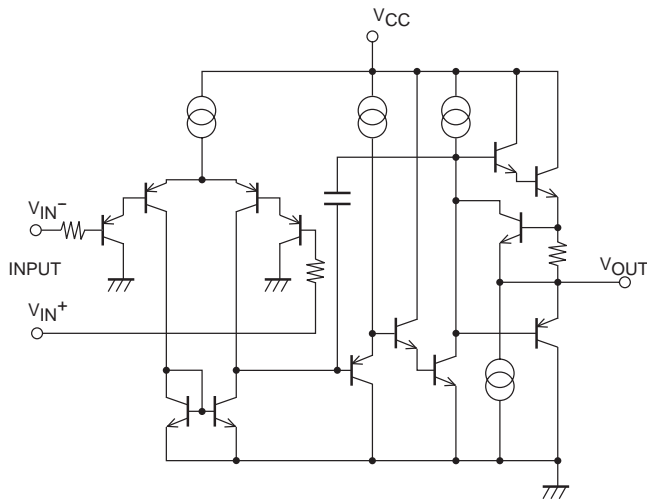


[LA6358NS]



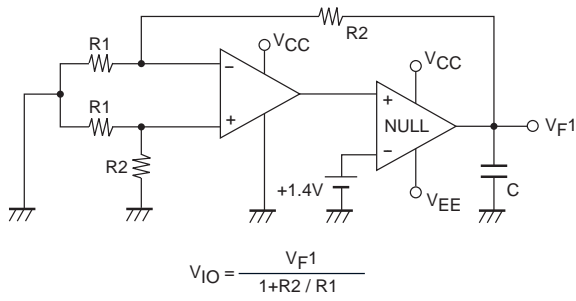
[LA6358N, 6358NM, 6358NT]

Equivalent Circuit

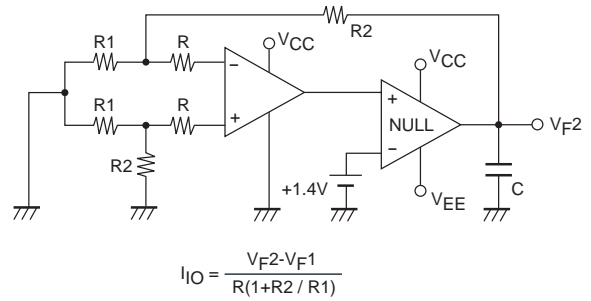


Test Circuits

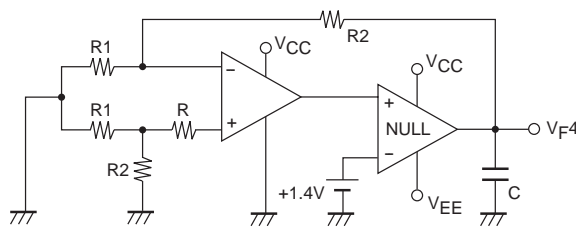
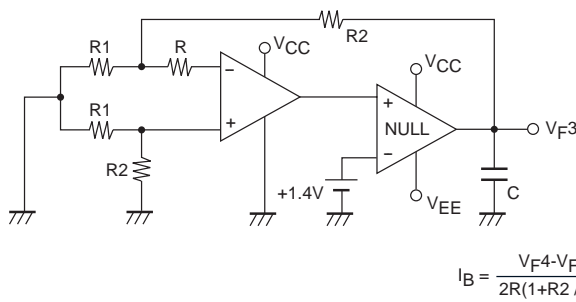
1. V_{IO}



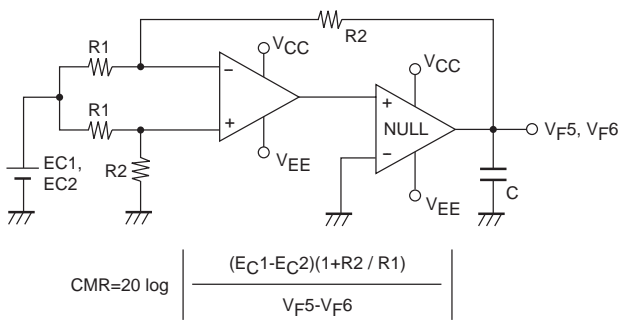
2. I_{IO}



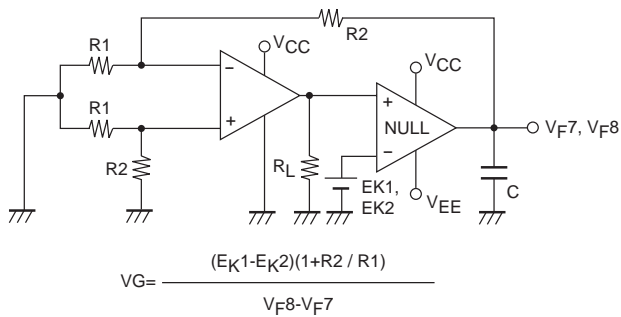
3. I_B



4. CMR, V_{ICM}

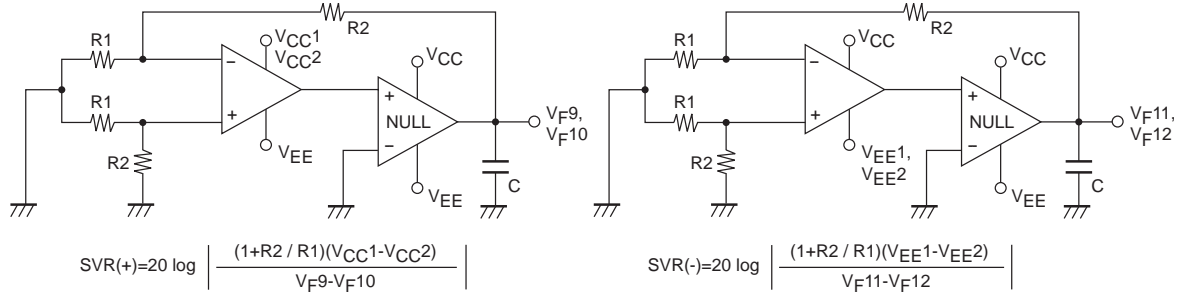


5. V_G

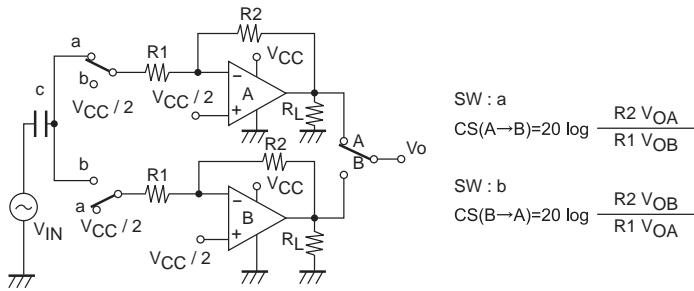


LA6358N, 6358NS, 6358NM, 6358NT

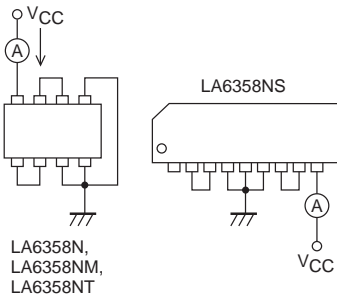
6. SVR



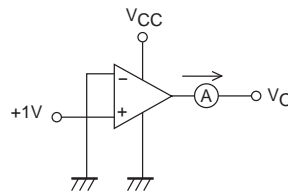
7. CS



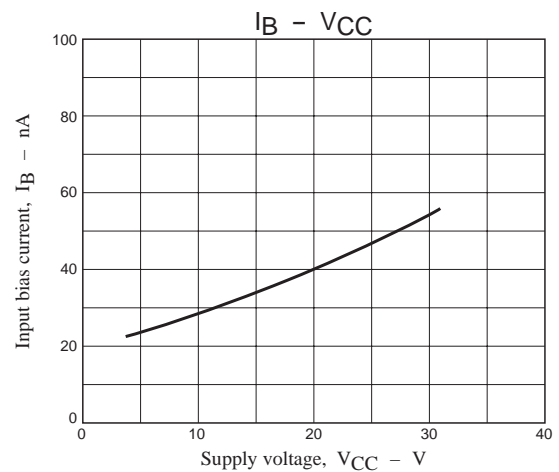
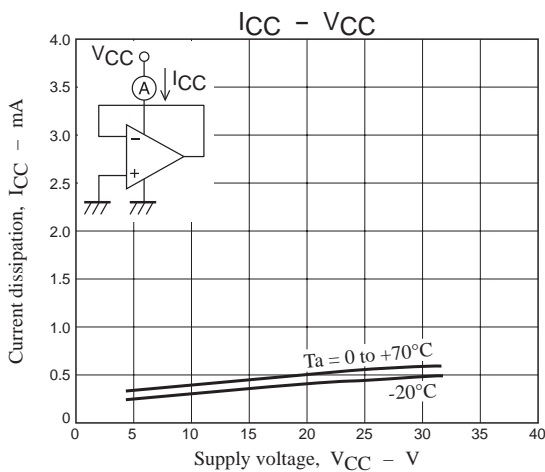
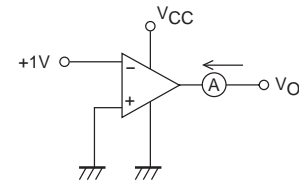
8. ICC



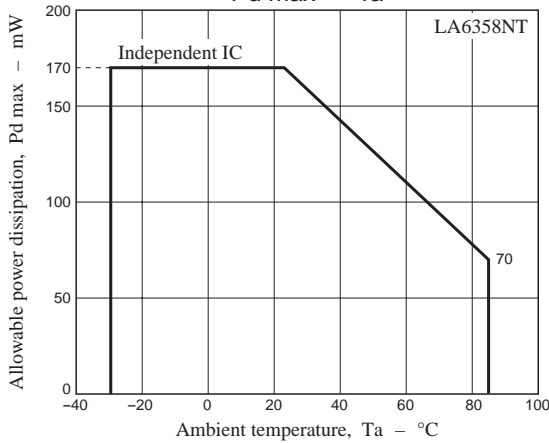
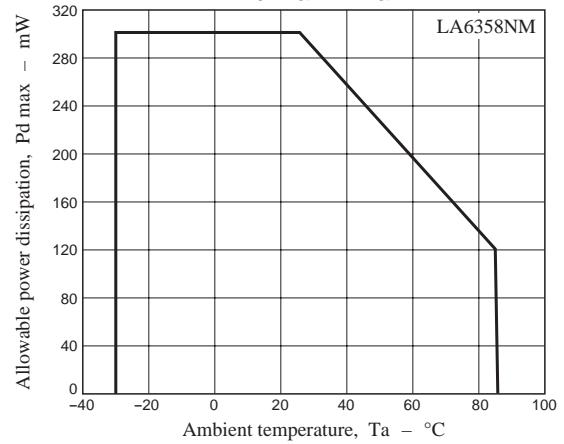
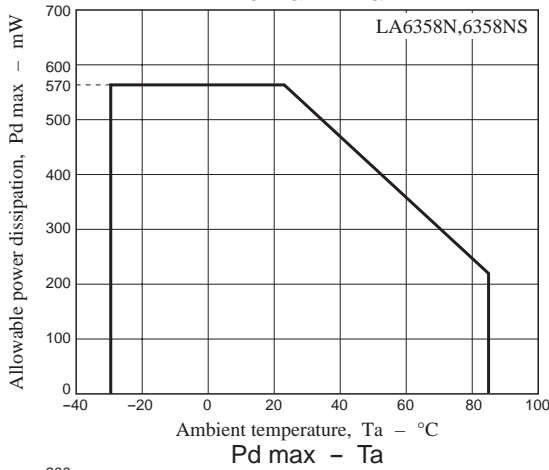
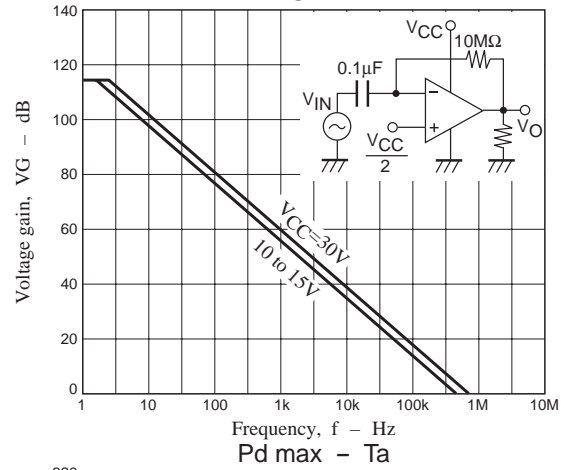
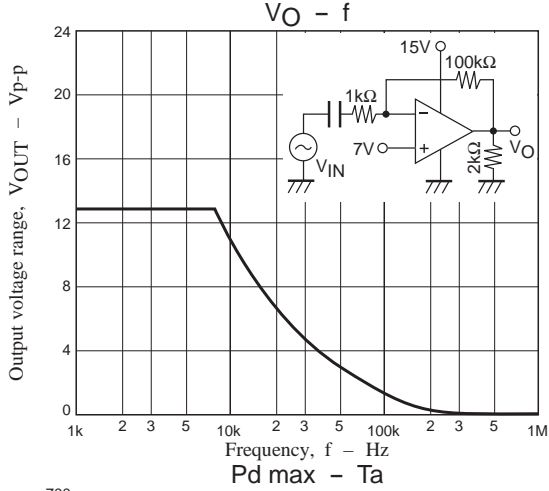
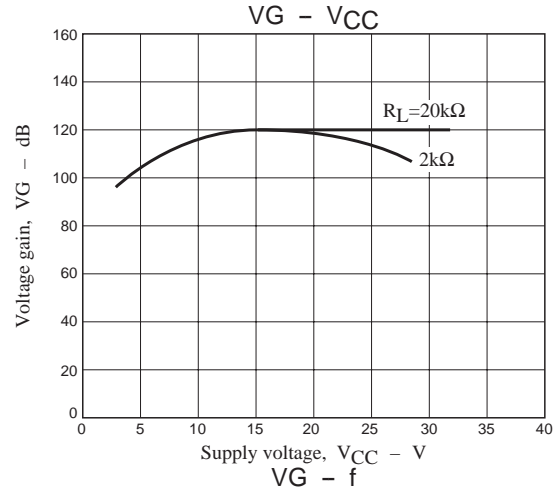
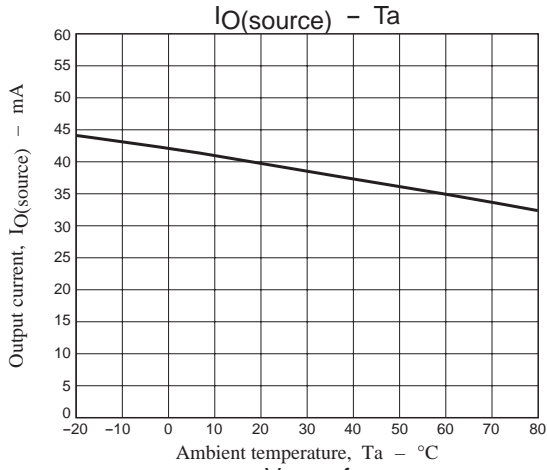
9. IO source



10. IO sink

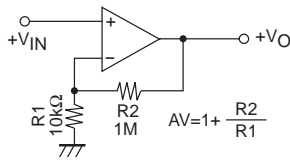


LA6358N, 6358NS, 6358NM, 6358NT

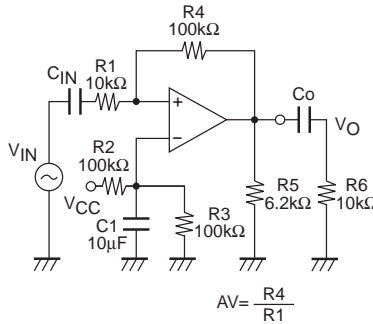


Sample Application Circuits

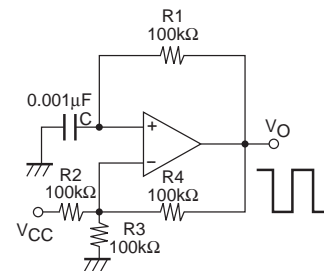
Noninverting DC amplifier



Inverting AC amplifier



Rectangular wave oscillator



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