



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

LA6500 — Monolithic Linear IC Power Operational Amplifier

Overview

The LA6500 is a power operational amplifier.

Features

- High output current (I_O max = 1.0A)
- High gain
- With current limiter
- Capable of being operated from single supply

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{CC}/V_{EE}		± 18	V
Differential input voltage	V_{ID}		30	V
Common-mode input voltage	V_{IN}		± 15	V
Output current	I_O max		1.0	A
Allowable power dissipation	P_d max1	With infinity large heat sink	20	W
	P_d max2	Independent IC	1.75	W
Operating temperature	T_{opr}		-20 to +75	$^\circ\text{C}$
Storage temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

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LA6500

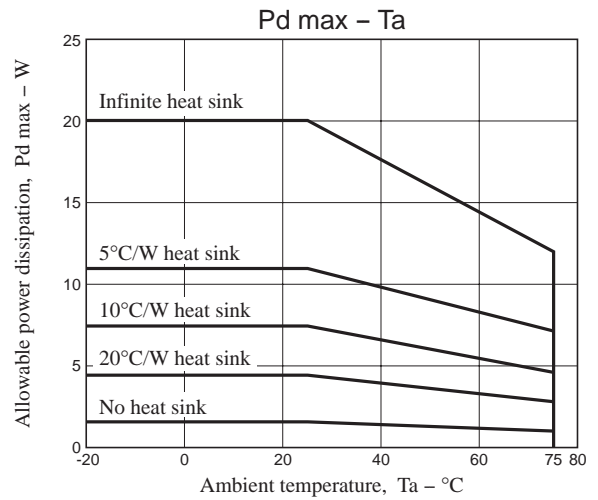
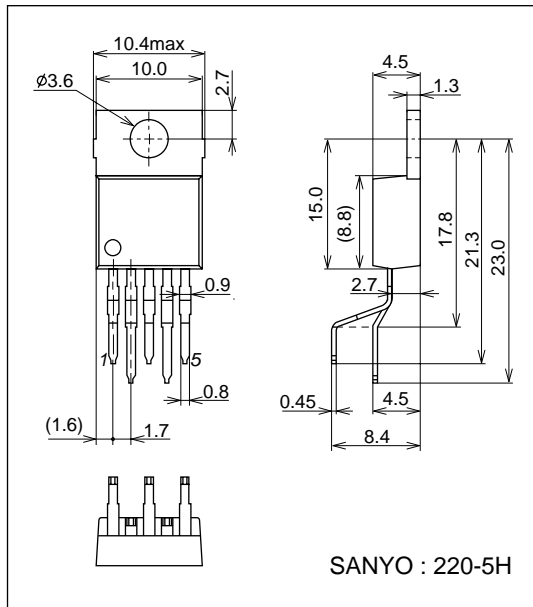
Electrical Characteristics at $T_a = 25^\circ\text{C}$, $V_{CC}/V_{EE} = \pm 15\text{V}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Quiescent current dissipation	I_{CCO}			6.0	12.0	mA
Input offset voltage	V_{IO}			2	6	mV
Input offset current	I_{IO}			10	200	nA
Input bias current	I_B			100	700	nA
Common-mode input voltage range	V_{ICM}		-15		+13	V
Common-mode rejection	CMR		70	80		dB
Maximum output voltage	V_O	$R_L = 33\Omega$	± 12	± 13		V
Voltage gain	V_{GO}			100		dB
Slew rate	SR	$G_V = 0, R_L = 33\Omega, R = 2.2\Omega, L = 0.1\mu\text{F}$		0.15		V/ μs
Equivalent input noise voltage	V_{NI}	$R_g = 1\text{k}\Omega, \text{DIN AUDIO}$		2		μV
Supply voltage rejection	SVR			30	150	$\mu\text{V/V}$
Limiting current	I_{SC}			1.0		A

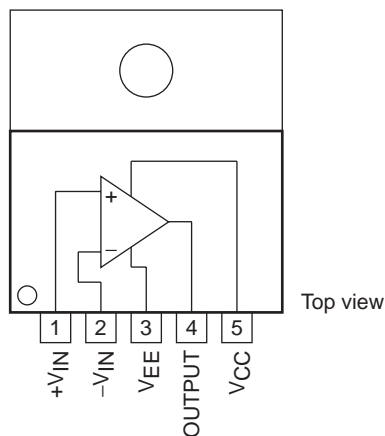
Package Dimensions

unit : mm (typ)

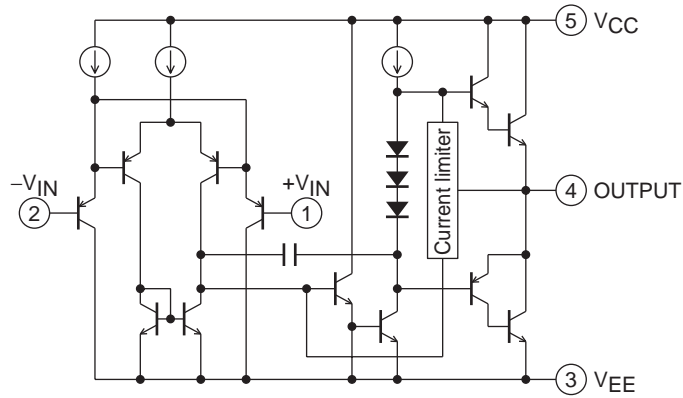
3079C



Pin Assignment

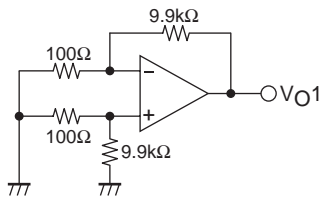


Equivalent Circuit



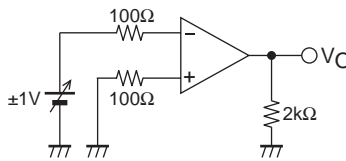
Test Circuit

(1) V_{IO} , SVRR



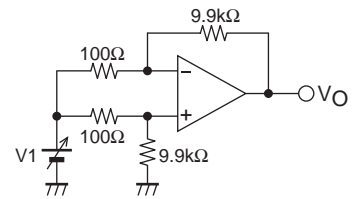
• V_{IO} is $V_{CC}/V_{EE} = \pm 15V$
 • SVRR is $\begin{cases} V_{CC} = 15, 5V \\ V_{EE} = -5, -15V \end{cases}$

(2) V_O



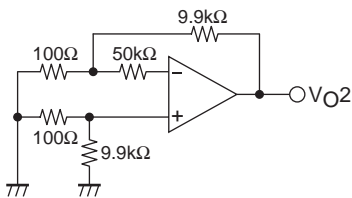
• $V_{IO} = V_{O1} / 100$
 $SVR(+)=\left|\frac{\Delta V_{O1}}{100 \times 10V}\right|$
 $SVR(-)=\left|\frac{\Delta V_{O1}}{100 \times 10V}\right|$

(3) CMMR, V_{ICM}



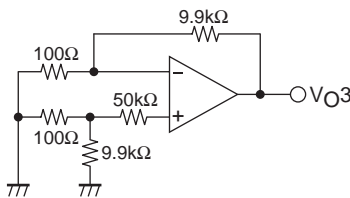
• $CMRR$ $V_1 = \pm 7.5V$
 • $CMR = 20 \log \frac{15 \times 100}{|\Delta V_O|}$

(3) $I_B(+)$



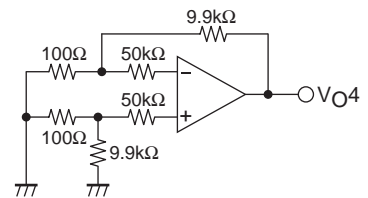
• $I_B(+)=\frac{|V_{O2}-V_{O1}|}{50k\Omega \times 100}$

(4) $I_B(-)$



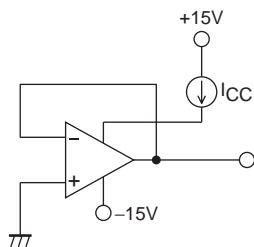
• $I_B(-)=\frac{|V_{O3}-V_{O1}|}{50k\Omega \times 100}$

(5) I_{IO}

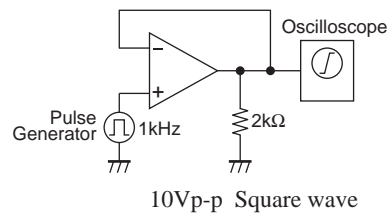


• $I_{IO} = \frac{|V_{O4}-V_{O1}|}{50k\Omega \times 100}$

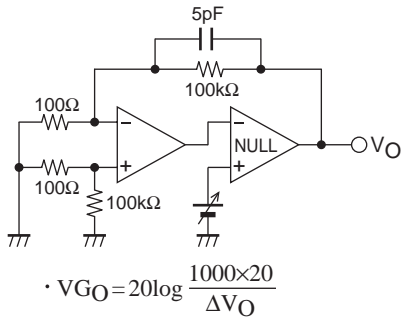
(7) I_{CC}



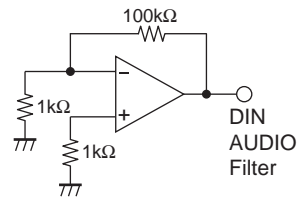
(8) SR



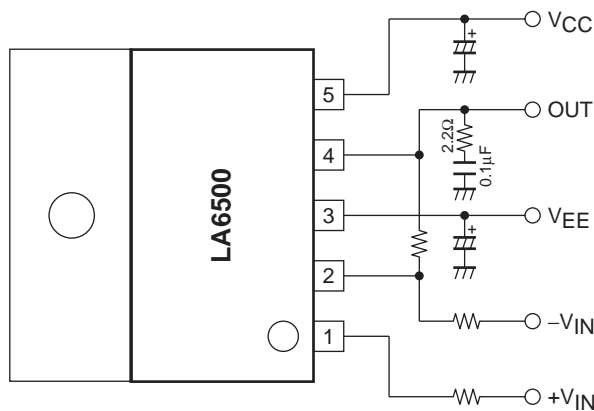
(9) V_{GO}



(10) V_{NI}



Application Circuit Example



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