Ordering number : EN2623F

LA6500

Monolithic Linear IC

Power Operational Amplifier

ON Semiconductor®

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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 Ta = 25°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	Pd max1	With infinity large heat sink	20	W
	Pd max2	Independent IC	1.75	W
Operating temperature	Topr		-20 to +75	°C
Storage temperature	Tstg		-55 to +150	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

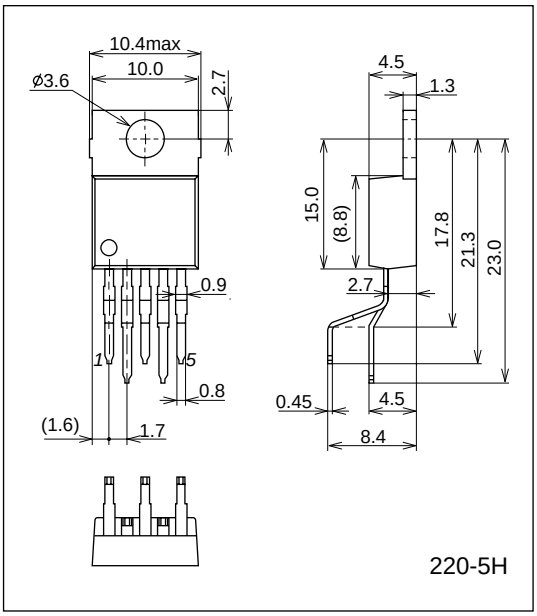
Electrical Characteristics at Ta = 25°C, V_{CC} /V_{EE} = ±15V

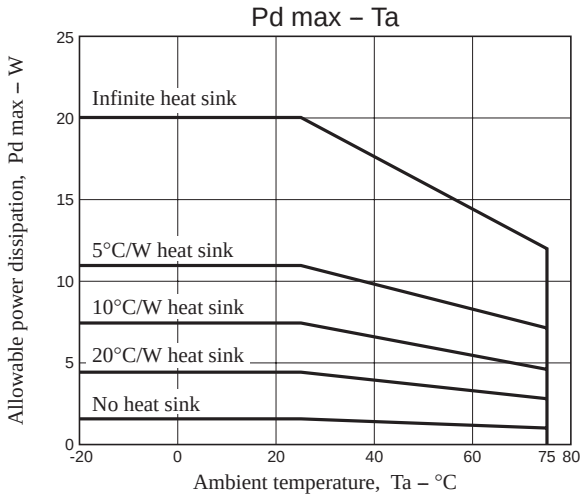
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Quiescent current dissipation	I_{CCO}			6.0	12.0	mA
Input offset voltage	V_{IO}			2	6	mV
Input offset current	I_{IO}			10	200	nA
Input bias current	I_B			100	700	nA
Common-mode input voltage range	V_{ICM}		-15		+13	V
Common-mode rejection	CMR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

Package Dimensions

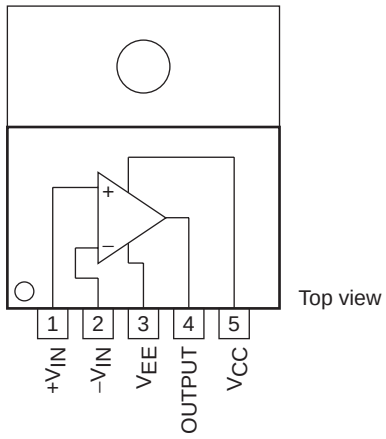
unit : mm (typ)

3079C

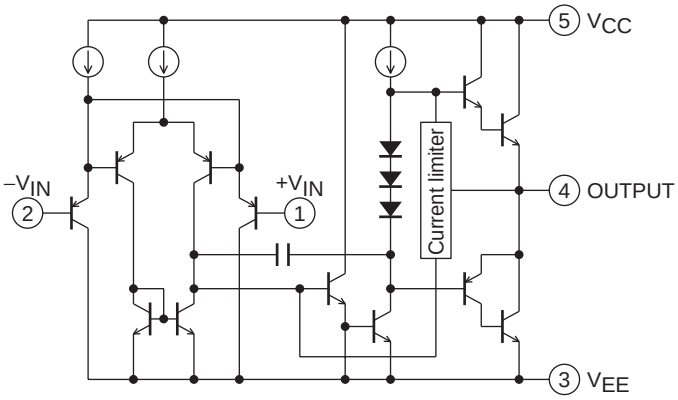




Pin Assignment

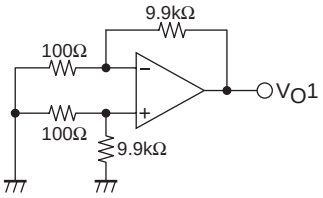


Equivalent Circuit



Test Circuit

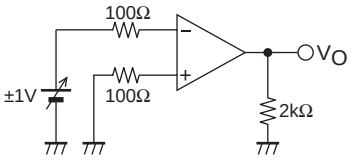
(1) V_{IO}, SVRR



・V_{IO} is $V_{CC}/V_{EE} = \pm 15V$

・SVRR is $\begin{cases} V_{CC} = 15, 5V \\ V_{EE} = -5, -15V \end{cases}$

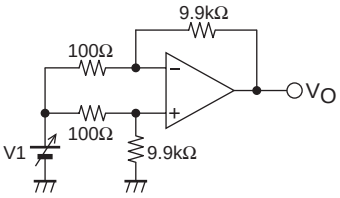
(2) V_O



・$V_{IO} = V_O1/100$

$\left.\begin{matrix} SVR(+) \\ SVR(-) \end{matrix}\right\} = \left|\dfrac{\Delta V_O1}{100 \times 10V}\right|$

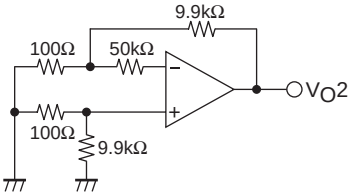
(3) CMMR, V_{ICM}



・CMRR V1 = ±7.5V

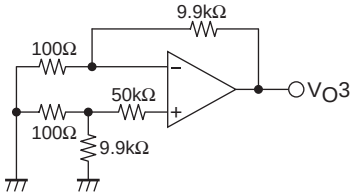
・$CMR = 20\log \dfrac{15 \times 100}{|\Delta V_O|}$

(3) $I_B(+)$



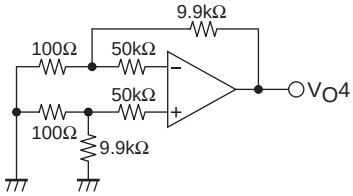
・$I_B(+) = \dfrac{|V_O2 - V_O1|}{50k\Omega \times 100}$

(4) $I_B(-)$



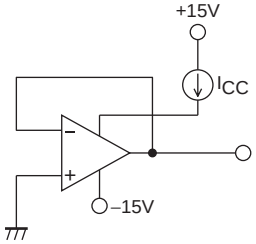
・$I_B(-) = \dfrac{|V_O3 - V_O1|}{50k\Omega \times 100}$

(5) I_{IO}

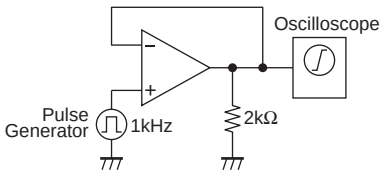


・$I_{IO} = \dfrac{|V_O4 - V_O1|}{50k\Omega \times 100}$

(7) I_{CC}

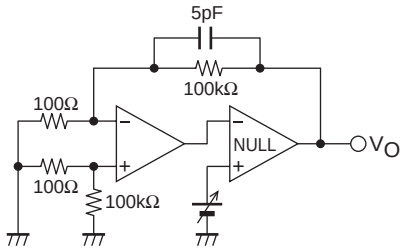


(8) SR



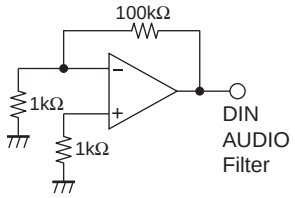
10Vp-p Square wave

(9) VG_O

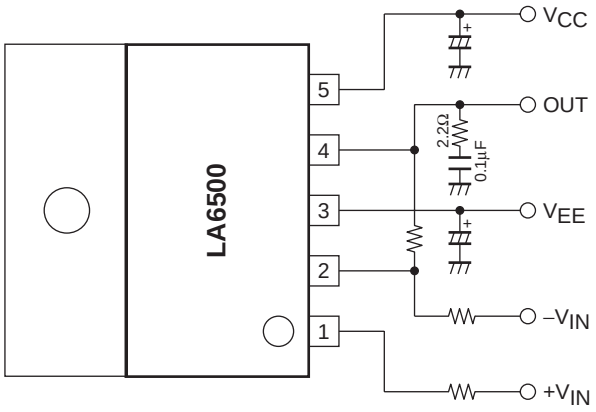


$$\cdot\ VG_O = 20\log\frac{1000\times 20}{\Delta V_O}$$

(10) V_{NI}



Application Circuit Example



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