Ordering number : EN2623F

SANYO Semiconductors
DATA SHEET

An ON Semiconductor Company

Monolithic Linear IC

LA6500 — 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 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

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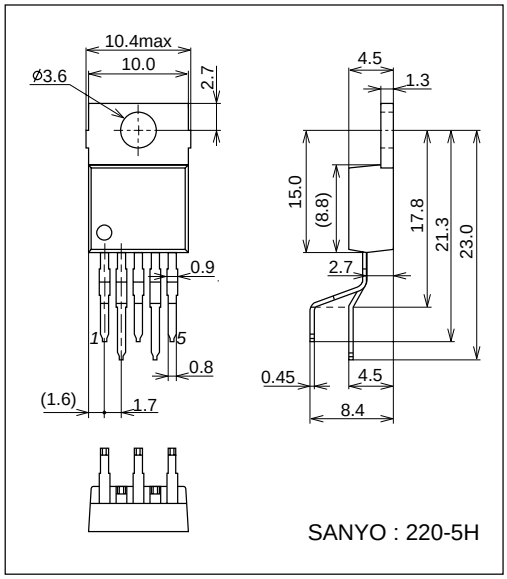
Electrical Characteristics at Ta = 25°C, V_{CC} /V_{EE} = ±15V

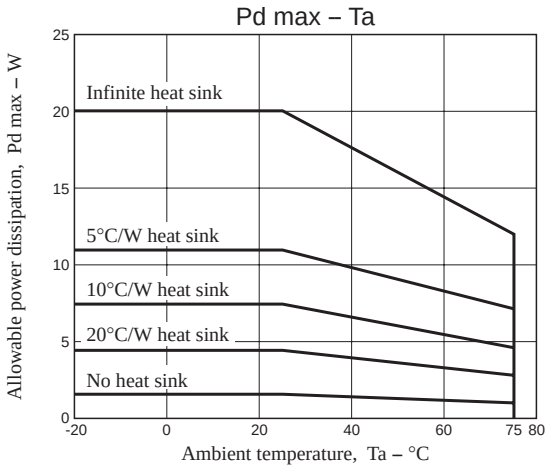
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Quiescent current dissipation	I_{CCO}			6.0	12.0	mA
Input offset voltage	V_{IO}			2	6	mV
Input offset current	I_{IO}			10	200	nA
Input bias current	I_B			100	700	nA
Common-mode input voltage range	V_{ICM}		-15		+13	V
Common-mode rejection	CMR		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

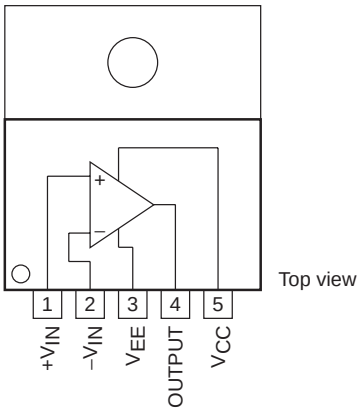
unit : mm (typ)

3079C

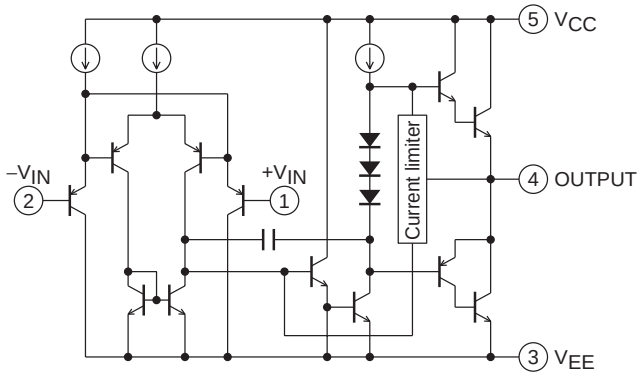




Pin Assignment

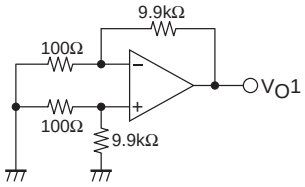


Equivalent Circuit



Test Circuit

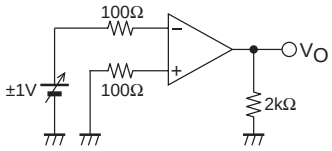
(1) V_{IO}, SVRR



・V_{IO} is $V_{CC}/V_{EE} = \pm 15V$

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

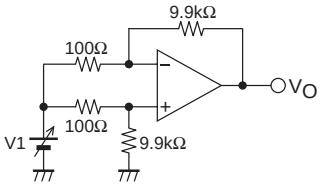
(2) V_O



・$V_{IO} = V_O1/100$

$SVR(+)\ SVR(-) = \left|\frac{\Delta V_O1}{100 \times 10V}\right|$

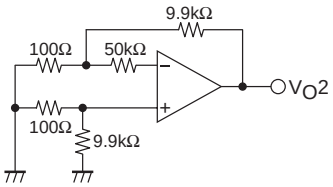
(3) CMMR, V_{ICM}



・CMRR V1 = ±7.5V

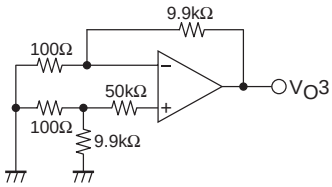
・$CMR = 20\log \frac{15 \times 100}{|\Delta V_O|}$

(3) $I_B(+)$



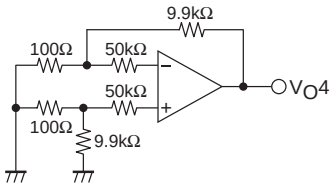
・$I_B(+) = \frac{|V_O2 - V_O1|}{50k\Omega \times 100}$

(4) $I_B(-)$



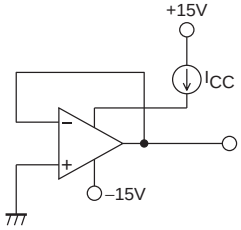
・$I_B(-) = \frac{|V_O3 - V_O1|}{50k\Omega \times 100}$

(5) I_{IO}

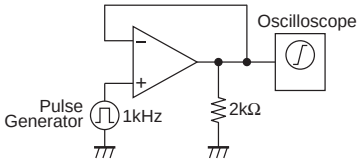


・$I_{IO} = \frac{|V_O4 - V_O1|}{50k\Omega \times 100}$

(7) I_{CC}

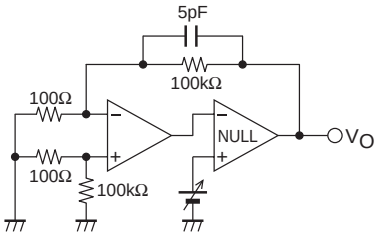


(8) SR



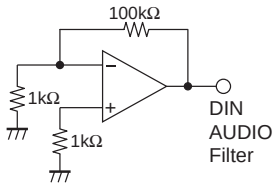
10Vp-p Square wave

(9) VG_O



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

(10) V_{NI}



Application Circuit Example