



# LA6462M, 6462S

## High-Performance Dual Operational Amplifiers

### Overview

The LA6462 consists of two independent, internally phase compensated operational amplifiers. They feature low noise, high speed, wide band. Application areas include audio preamplifiers, active filters, and various electronic circuits.

### Features

- Built-in phase compensation circuit  
(Gain  $\geq 10$  dB recommended)
- Low noise: Equivalent input noise voltage  
0.70  $\mu\text{V}$  typ ( $R_g = 2.2 \text{ k}\Omega$  RIAA, DIN Audio).  
0.50  $\mu\text{V}$  typ ( $R_g = 300 \Omega$ , IHF-A)
- High speed: Slew rate 4.0 V/ $\mu\text{s}$  typ.
- Wide band: Gain-bandwidth product 6 MHz typ.

### Specifications

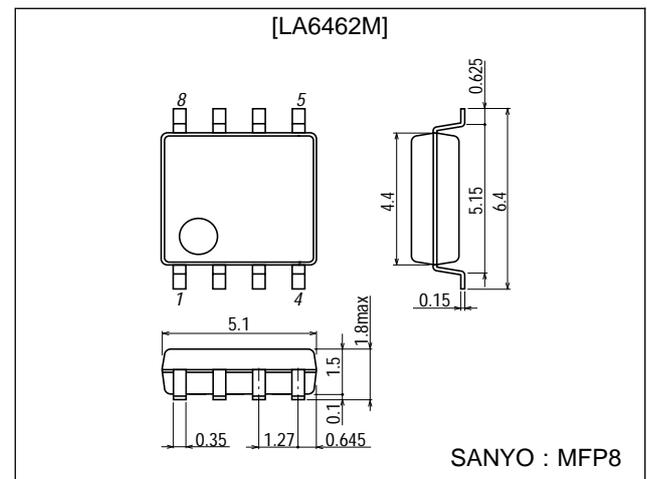
#### Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{CC}/V_{EE}$		$\pm 18$	V
Differential input voltage	$V_{ID}$		$\pm 30$	V
Common-mode input voltage	$V_{IN}$		$\pm 15$	V
Allowable power dissipation	Pd max	LA6462M	300	mW
		LA6462S	500	mW
Operating temperature	$T_{opr}$		-20 to +75	$^\circ\text{C}$
Storage temperature	$T_{stg}$		-40 to +125	$^\circ\text{C}$

### Package Dimensions

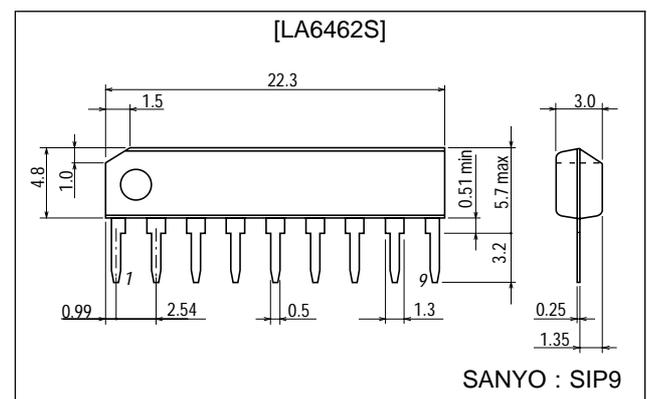
unit : mm

#### 3032B-MFP8



unit : mm

#### 3017C-SIP9



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53096HA(II)/4050YT/8077KI/3277KI, TS No. 2064-1/5

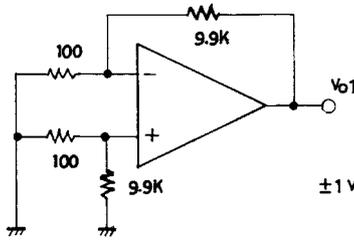
# LA6462M, 6462S

## Operating Characteristics at $T_a = 25^\circ\text{C}$ , $V_{CC} = 15\text{ V}$ , $V_{EE} = -15\text{ V}$

Parameter	Symbol	Conditions	min	typ	max	Unit
Input offset voltage	$V_{IO}$	$R_S = 10\text{ k}\Omega$		0.3	6.0	mV
Input offset current	$I_{IO}$			5	200	nA
Input bias current	$I_B$			200	500	nA
Common-mode input voltage	$V_{ICM}$		$\pm 12$	$\pm 14$		V
Common-mode rejection ratio	CMRR		70	90		dB
Voltage gain	$V_{G_O}$	$R_L \geq 2\text{ k}\Omega$ , $V_O = \pm 10\text{ V}$	96	110		dB
Maximum output voltage	$V_O(1)$	$R_L \geq 10\text{ k}\Omega$		$\pm 14$		V
	$V_O(2)$	$R_L \geq 2\text{ k}\Omega$		$\pm 13$		V
Slew rate	SR	$V_G = 0$ , $R_L \geq 2\text{ k}\Omega$		4.0		V/ $\mu\text{s}$
Equivalent input noise voltage	$V_{NI}(1)$	$R_g = 2.2\text{ k}\Omega$ , RIAA, DIN audio weight		0.70		$\mu\text{V}$
	$V_{NI}(2)$	$R_g = 300\ \Omega$ , IHF-A weight		0.50		$\mu\text{V}$
Current drain	$I_{CC}$			6.0		mA
Power dissipation	$P_d$			180		mW
Gain-bandwidth product	$f_T$			6		MHz

### Test Circuits

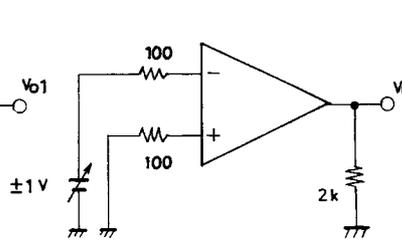
(1)  $V_{IO}$ , SVRR



$\cdot V_{IO} : V_{CC} / V_{EE} = \pm 15\text{V}$

$\cdot \text{SVRR} : \begin{cases} V_{CC} = 15\text{V}, 5\text{V} \\ V_{EE} = -5\text{V}, -15\text{V} \end{cases}$

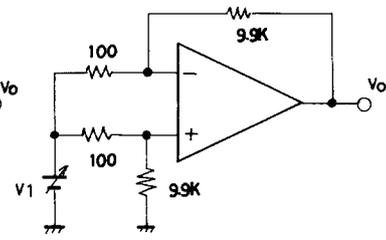
(2)  $V_O$



$\cdot V_{IO} = V_{O1} / 100$

$\cdot \left. \begin{matrix} \text{SVR}(+) \\ \text{SVR}(-) \end{matrix} \right\} = \left| \frac{\Delta V_{O1}}{100 \times 10\text{V}} \right|$

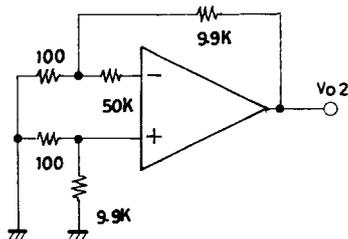
(3) CMRR,  $V_{ICM}$



$\cdot \text{CMRR } V_1 = \pm 7.5\text{V}$

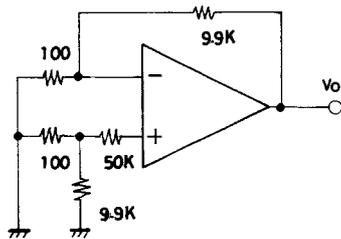
$\text{CMR} = 20 \log \frac{15 \times 100}{|\Delta V_{O'}|}$

(4)  $I_B(+)$



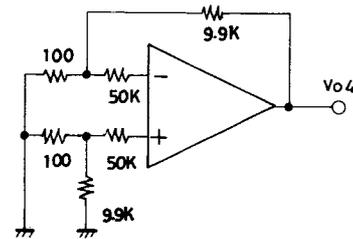
$\cdot I_B(+)= \frac{|V_{O2}-V_{O1}|}{50\text{k}\Omega \times 100}$

(5)  $I_B(-)$



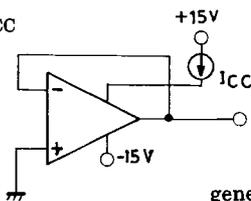
$\cdot I_B(-)= \frac{|V_{O3}-V_{O1}|}{50\text{k}\Omega \times 100}$

(6)  $I_{IO}$

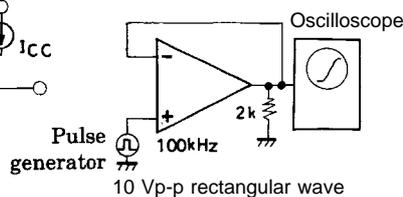


$\cdot I_{IO}= \frac{|V_{O4}-V_{O1}|}{50\text{k}\Omega \times 100}$

(7)  $I_{CC}$

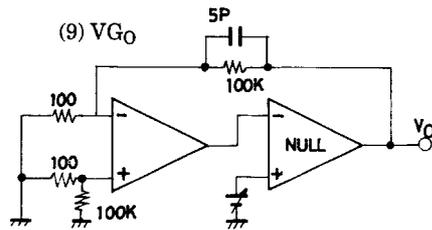


(8) SR



10 Vp-p rectangular wave

(9)  $V_{G_O}$

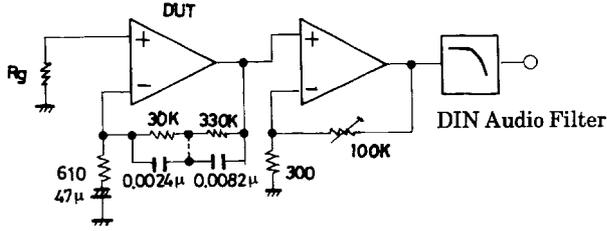


$\cdot V_{G_O} = 20 \log \frac{1000 \times 20}{\Delta V_O}$

# LA6462M, 6462S

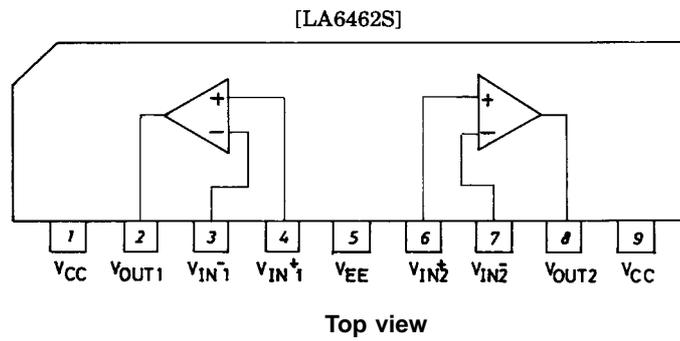
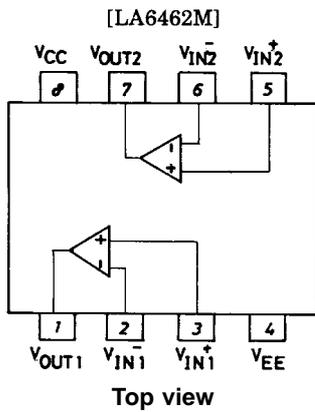
(10)  $V_{NI}$

RIAA (36dB/1kHz)  
Total Gain 80dB/1kHz

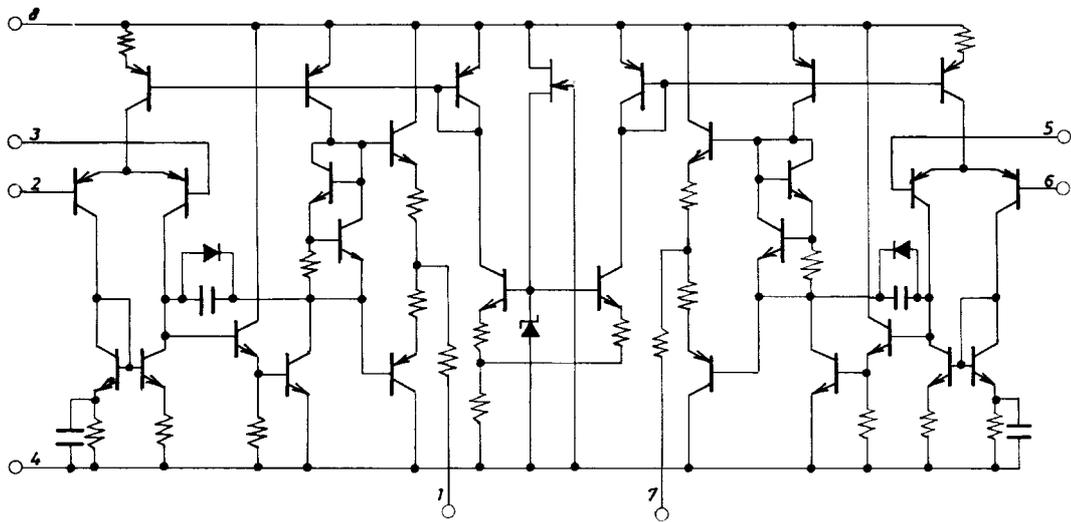


Unit (resistance:  $\Omega$ , capacitance: F)

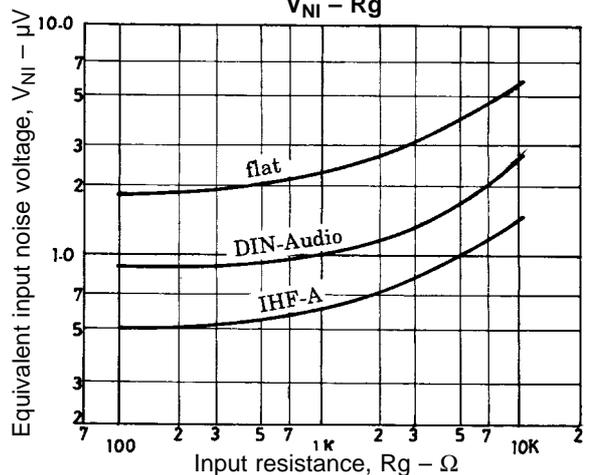
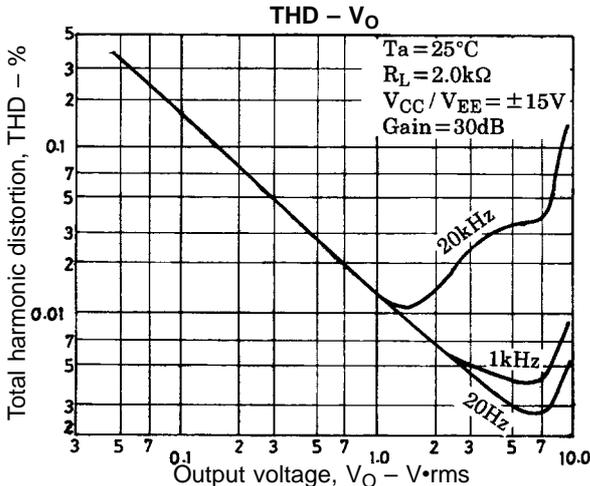
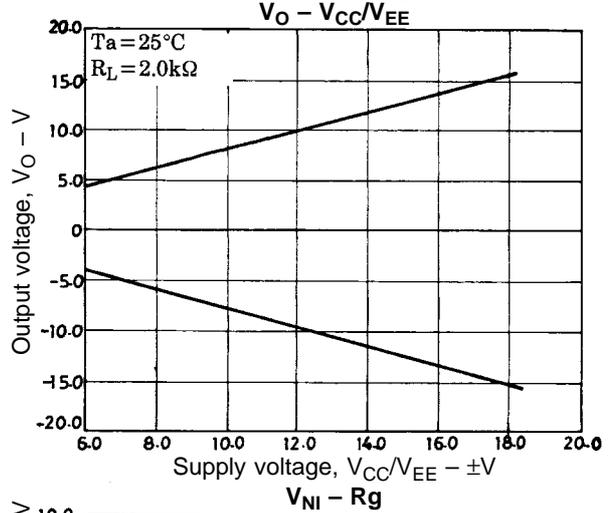
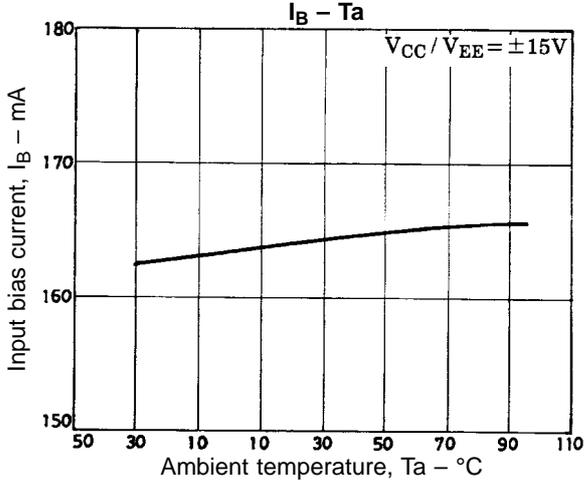
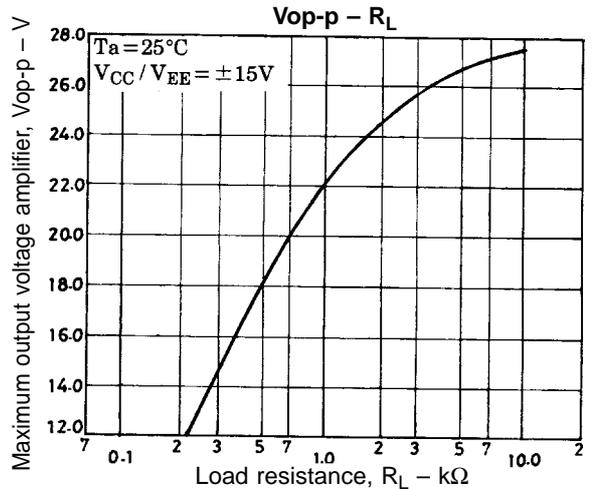
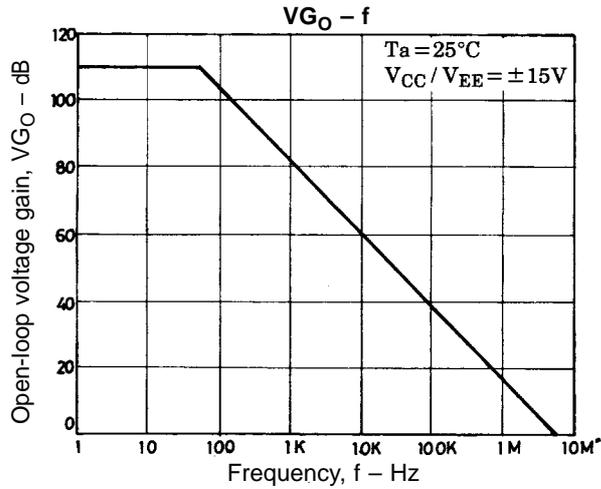
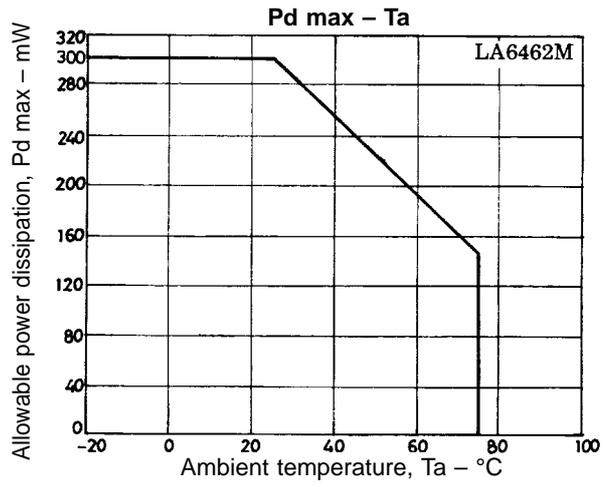
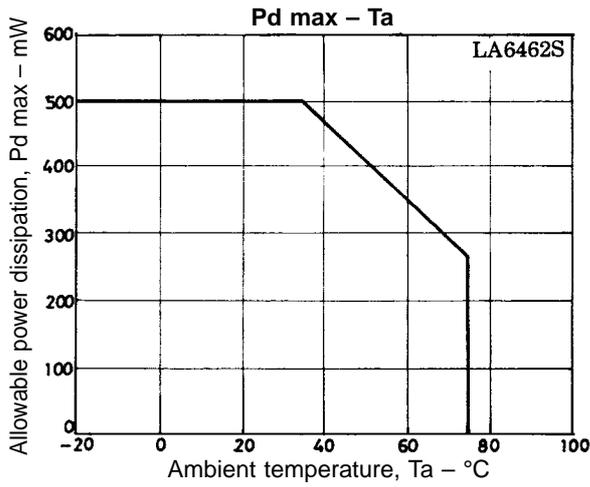
## Pin Assignments



## Equivalent Circuit



# LA6462M, 6462S



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