Ordering number:ENN4424

Monolithic Linear IC

LA6512, 6513

High-Voltage Dual Power Operational Amplifiers

Overview

LA6512 (SIP10F) and LA6513 (SIP10) are power operational amplifier ICs capable of withstanding high voltages of ±30 V/1 A and are best suited for such voltage division devices as LCD drivers and general-purpose power operational amplifiers.

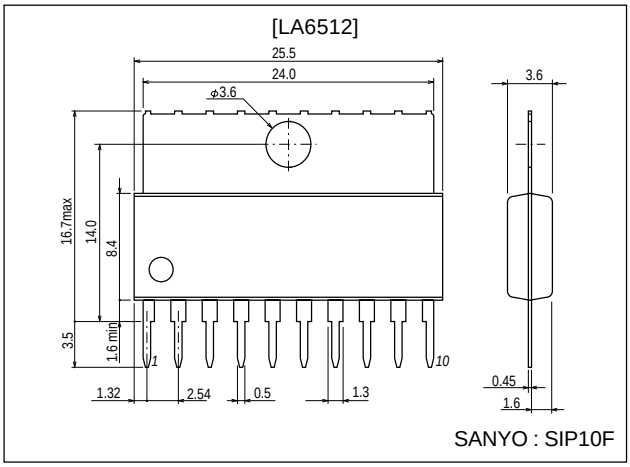
Features

- High output current (I_O max=1.0A).
- High gain.
- Equipped with current limiter pin (Adjustable by external settings).
- Supports single power source operation.
- Withstands high voltages (±30V).

Package Dimensions

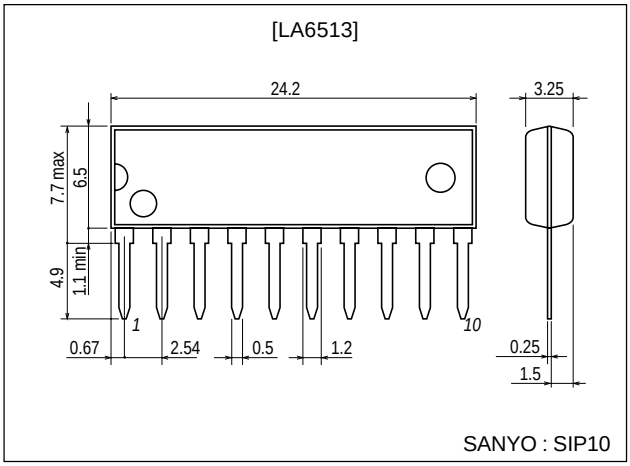
unit:mm

3046B-SIP10F



unit:mm

3043A-SIP10



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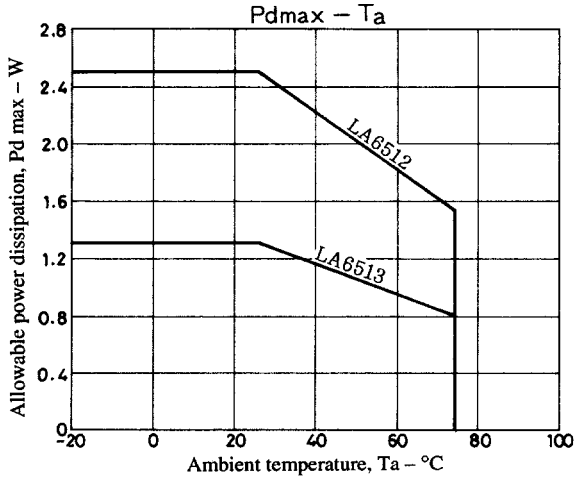
Specifications

Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{CC}/ V_{EE} max		±30	V
Differential input voltage	V_{IDIF}		56	V
Common-mode input voltage	V_{ICOM}		±28	V
Maximum output current	I_O max		1.0	A
Allowable power dissipation	Pd max	LA6512	2.5	W
		LA6513	1.3	W
Operating temperature	Topr		–20 to +75	˚C
Storage temperature	Tstg		–55 to +150	˚C

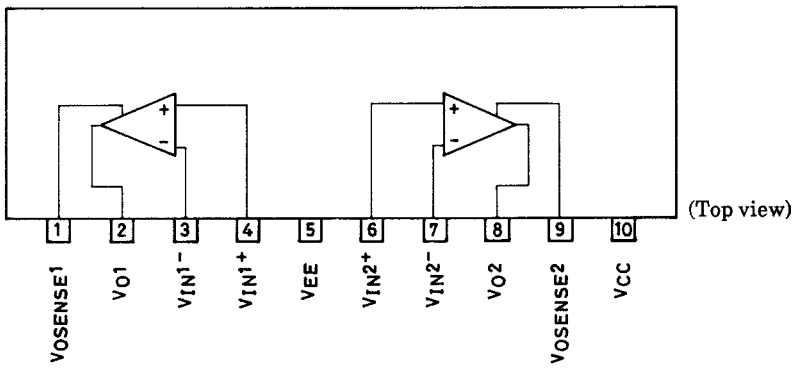
Operating Characteristics at Ta = 25˚C, V_{CC}/V_{EE}=±15

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
No load current drain	I_{CCO}		6	12	20	mA
Input offset voltage	V_{IO}	R_S≤10kΩ		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}		–14		+13	V
Common-mode single rejection ratio	CMRR		70	80		dB
Maximum output voltage	V_O max		±12	±13		V
Voltage gain	V_{GO}			100		dB
Slew rate	SR	GV=0, R_L=33Ω, R=2.2Ω, C=0.1μF		0.15		V/μs
Supply voltage rejection ratio	SVRR			30	150	μV/V
Limiting current	I_{SC}	R_{SC}=2.2Ω		0.35		A



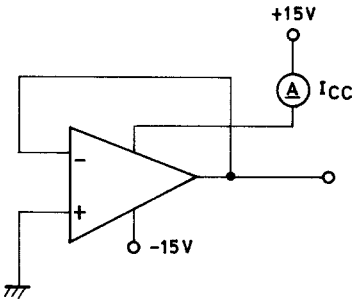
Pin Assignment

(LA6512, 6513 common)

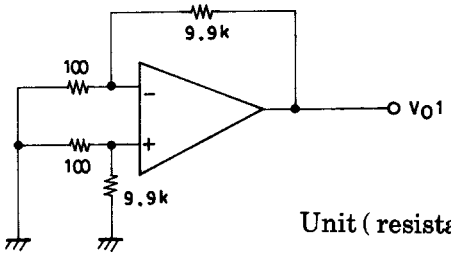


Test Circuits

I_{CC}



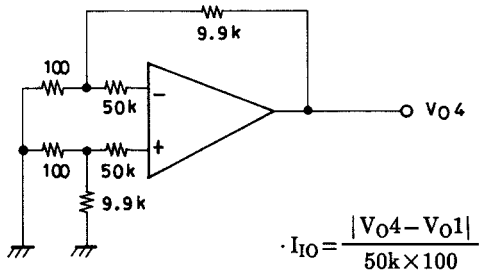
V_{IO}, SVRR



Unit (resistance:Ω)

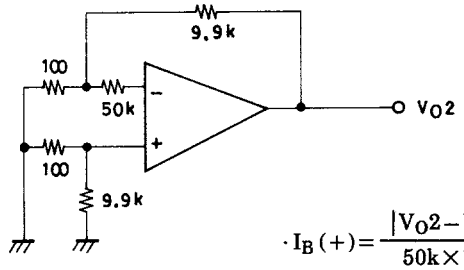
- V_{IO} is with $V_{CC}/V_{EE} = \pm 15$ V
- SVRR is with $\begin{bmatrix} V_{CC} = 15{,}5V \\ V_{EE} = -5, -15V \end{bmatrix}$
- $V_{IO} = V01/100$
- SVR (+) / SVR (–) $= \left| \frac{\triangle V_O1}{100 \times 10V} \right|$

I_{IO}



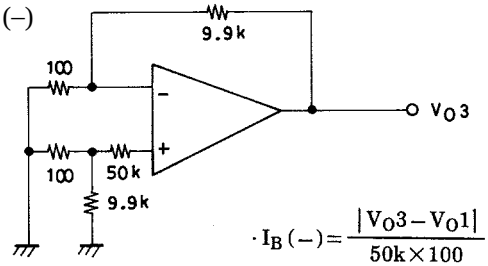
$$\cdot I_{IO} = \frac{|V_O4 - V_O1|}{50k \times 100}$$

I_B (+)



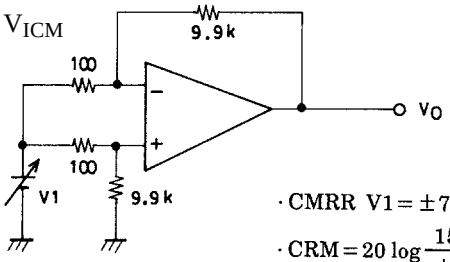
$$\cdot I_B(+) = \frac{|V_O2 - V_O1|}{50k \times 100}$$

I_B (–)



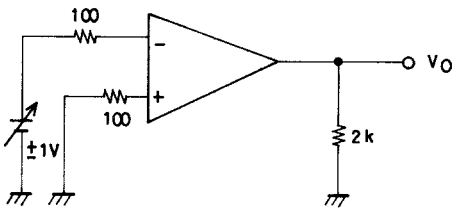
$$\cdot I_B(-) = \frac{|V_O3 - V_O1|}{50k \times 100}$$

CMRR, V_{ICM}

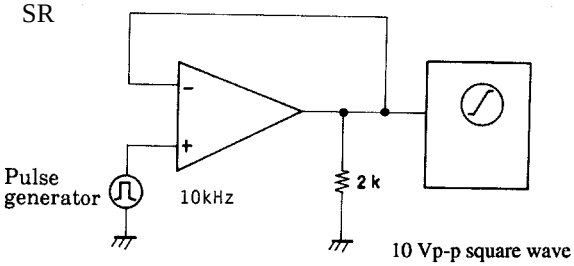


- CMRR V1 = ±7.5V
- $\text{CRM} = 20 \log \frac{15 \times 100}{|\triangle V0|}$

V_O

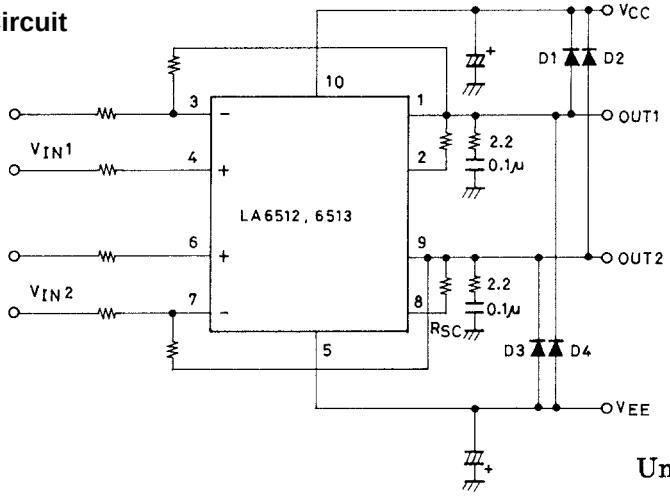


SR



10 Vp-p square wave

Sample Application Circuit



Unit (resistance:Ω capacitance:F)

Note : When driving an inductive load, a D1 to D4 protective diode should be installed.