



SANYO Semiconductors

DATA SHEET

LA6512

Monolithic Linear IC
High-Voltage
Dual Power Operational Amplifier

Overview

The LA6512 is a power operational amplifier IC capable of withstanding high voltages of $\pm 30\text{V}/1\text{A}$ and are best suited for such voltage division devices as LCD drivers and general-purpose power operational amplifiers.

Features

- High output current ($I_{O \text{ max}} = 1.0\text{A}$).
- High gain.
- Equipped with current limiter pin (Adjustable by external settings).
- Supports single power source operation.
- Withstands high voltages ($\pm 30\text{V}$).

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{CC}/V_{EE \text{ max}}$		± 30	V
Differential input voltage	V_{IDIF}		56	V
Common-mode input voltage	V_{ICOM}		± 28	V
Maximum output current	$I_{O \text{ max}}$		1.0	A
Allowable power dissipation	$P_d \text{ max}$		2.5	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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LA6512

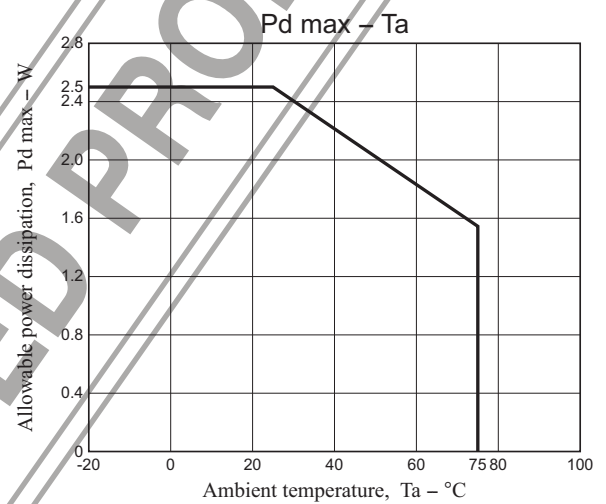
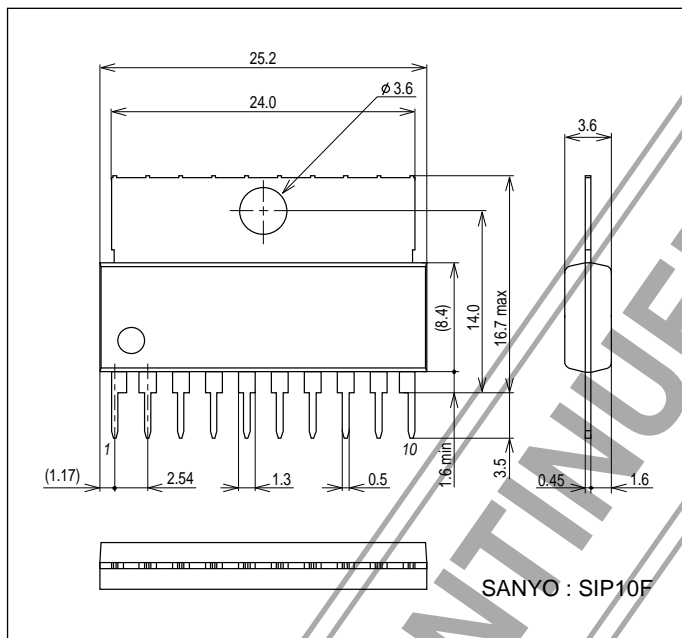
Electrical Characteristics at $T_a = 25^\circ\text{C}$, $V_{CC} = \pm 15\text{V}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Current drain with no load	I_{CCO}		6	12	20	mA
Input offset voltage	V_{IO}	$R_S \leq 10\text{k}\Omega$		2	6	mV
Input offset current	I_{IO}			10	200	nA
Input bias current	I_B			100	700	nA
Input common-mode voltage range	V_{ICM}		-14		+13	V
Common-mode signal rejection ratio	CMRR		70	80		dB
Maximum output voltage	$V_{O\text{ max}}$		± 12	± 13		V
Voltage gain	V_{GO}			100		dB
Slew rate	SR	$G_V = 0, R_L = 33\Omega, R = 2.2\Omega, C = 0.1\mu\text{F}$		0.15		V/ μs
Supply voltage rejection ratio	SVRR			30	150	$\mu\text{V/V}$
Limiting current	I_{SC}	$R_{SC} = 2.2\Omega$		0.35		A

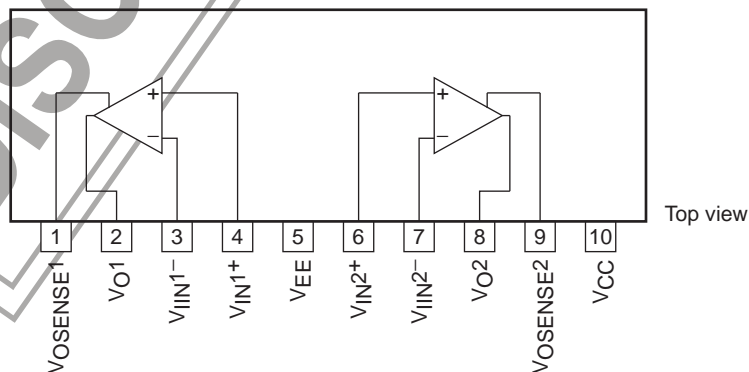
Package Dimensions

unit : mm (typ)

3046D

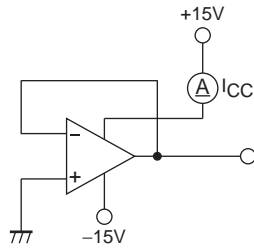


Pin Assignment and Block Diagram

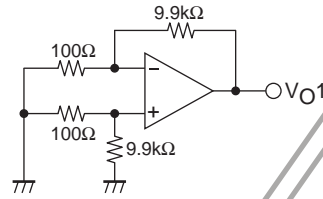


Test Circuit

(1) I_{CC}

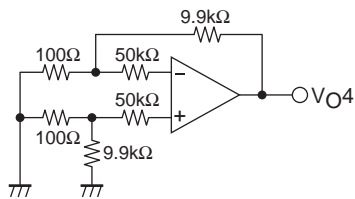


(2) $V_{IO}, SVRR$



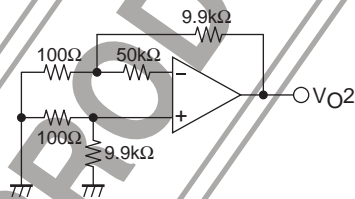
$\cdot V_{IO}$ is $V_{CC}/V_{EE} = \pm 15V$ $\cdot V_{IO} = V_{O1} / 100$
 $\cdot SVRR$ is $\begin{cases} V_{CC} = 15, 5V \\ V_{EE} = -5, -15V \end{cases}$ $\cdot SVR(+)$ $\cdot SVR(-) = \left| \frac{\Delta V_{O1}}{100 \times 10V} \right|$

(3) I_{IO}



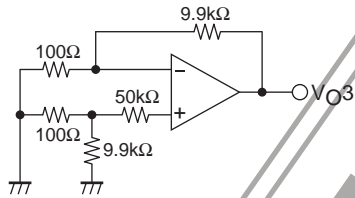
$\cdot I_{IO} = \frac{|V_{O4} - V_{O1}|}{50k\Omega \times 100}$

(4) $V_{B(+)}$



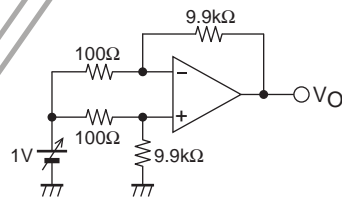
$\cdot I_{B(+)} = \frac{|V_{O2} - V_{O1}|}{50k\Omega \times 100}$

(5) $V_{B(-)}$



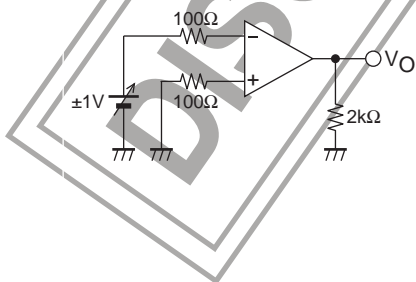
$\cdot I_{B(-)} = \frac{|V_{O3} - V_{O1}|}{50k\Omega \times 100}$

(6) CMRR, V_{ICM}

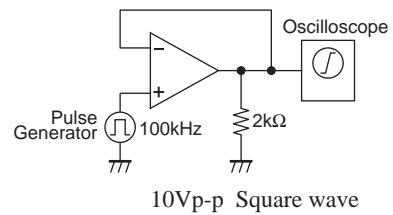


$\cdot CMRR$ $V_1 = \pm 7.5V$
 $\cdot CMR = 20 \log \frac{15 \times 100}{|\Delta V_O|}$

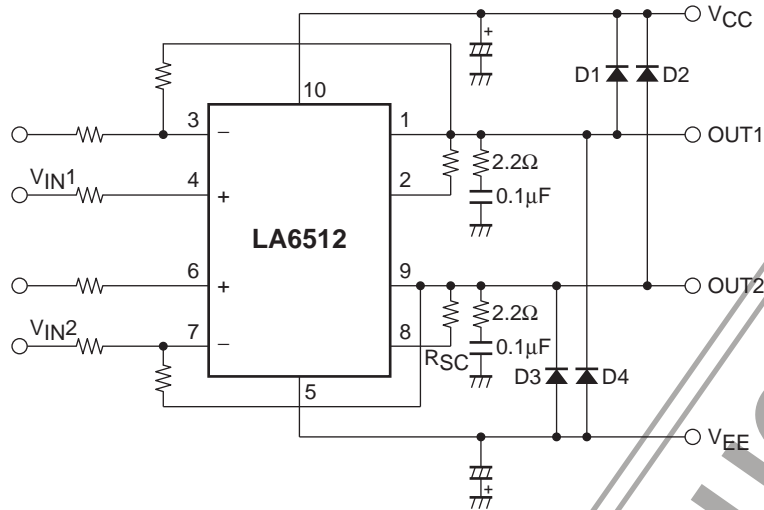
(7) V_O



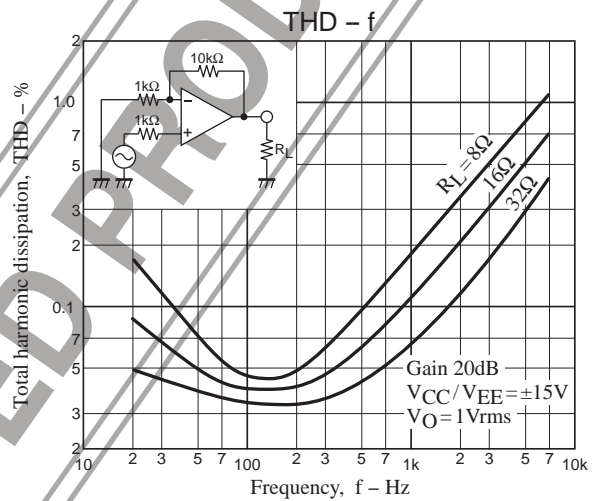
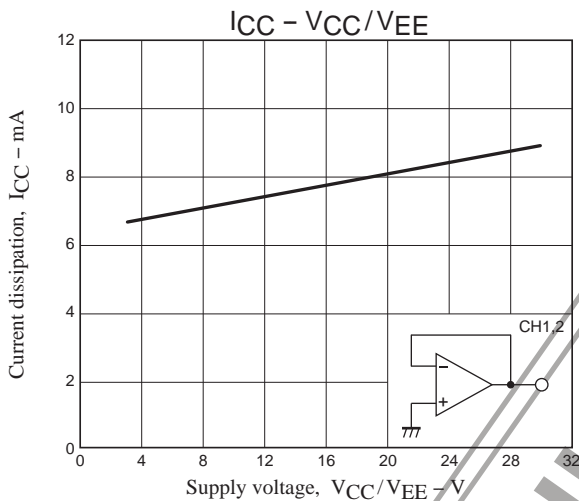
(8) SR



Sample Application Circuit



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



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