INTERSIL

LH2101A/LH2301A Dual High Performance Op Amp

FEATURES

- **Low offset voltage**
- **Low offset current**
- **Guaranteed drift characteristics**
- **Offsets guaranteed over entire common mode and supply voltage ranges**
- **Slew rate of 10V/μs**

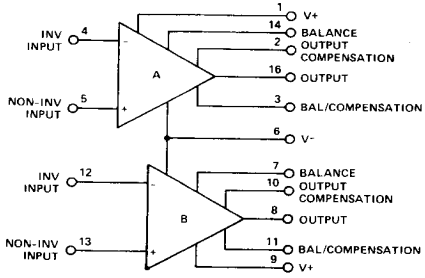
GENERAL DESCRIPTION

The LH2101A series of dual operational amplifiers consist of two LM101A type op amps in a single hermetic package. Featuring all the same performance characteristics of the single, these duals offer in addition closer thermal tracking, lower weight, and reduced insertion cost.

The LH2101A is specified for operation over the −55°C to +125°C military temperature range, while the LH2301A is specified for operation over the 0°C to +70°C temperature range.

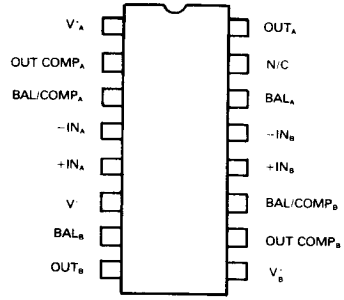
5

CONNECTION DIAGRAM



ORDER NUMBER LH2101AD, LH2301AD

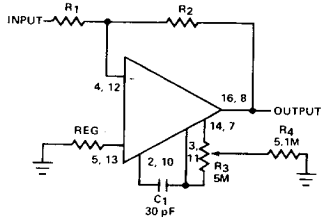
PIN CONFIGURATION



(outline dwg DE)

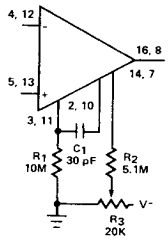
AUXILIARY CIRCUITS

INVERTING AMPLIFIER WITH BALANCING CIRCUIT

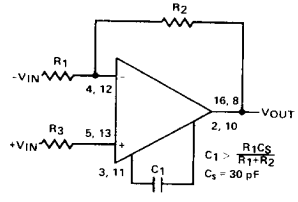


*May be zero or equal to parallel combination of R_1 and R_2 for minimum offset.

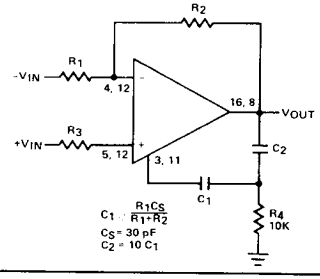
ALTERNATE BALANCING CIRCUIT



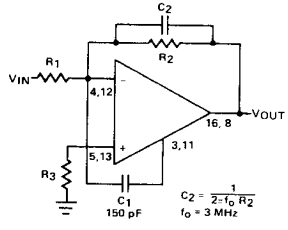
SINGLE POLE COMPENSATION



TWO POLE COMPENSATION



FEEDFORWARD COMPENSATION



ABSOLUTE MAXIMUM RATINGS

Supply Voltage ..... ±22V
Power Dissipation (Note 1) ..... 500 mW
Differential Input Voltage ..... ±30V
Input Voltage (Note 2) ..... ±15V
Output Short-Circuit Duration ..... Continuous
Operating Temperature Range LH2101A ..... −55°C to 125°C
LH2301A ..... 0°C to 70°C
Storage Temperature Range ..... −65°C to 150°C
Lead Temperature (Soldering, 10 sec) ..... 300°C

ELECTRICAL CHARACTERISTICS Each side (Note 3)

PARAMETER	CONDITIONS	LIMITS		UNITS
		LH2101A	LH2301A	
Offset Voltage	$T_A = 25°C$, $R_S \leq 50k\Omega$	2.0	7.5	mV Max
Input Offset Current	$T_A = 25°C$	10	50	nA Max
Input Bias Current	$T_A = 25°C$	75	250	
Input Resistance	$T_A = 25°C$	1.5	0.5	MΩ Min
Supply Current	$T_A = 25°C$, $V_S = \pm 20V$	3.0	3.0	mA Max
Large Signal Voltage Gain	$T_A = 25°C$, $V_S = \pm 15V$ $V_{OUT} = \pm 10V$, $R_L \geq 2k\Omega$	50	25	V/mV Min
Input Offset Voltage Average Temperature	$R_S \leq 50\ k\Omega$	3.0	10	mV Max
Coefficient of Input Offset Voltage		15	30	µV/°C Max
Input Offset Current		20	70	nA Max
Average Temperature	$25°C \leq T_A \leq 125°C$	0.1	0.3	nA/°C Max
Coefficient of Input Offset Current	$-55°C \leq T_A \leq 25°C$	0.2	0.6	
Input Bias Current		100	300	nA Max
Supply Current	$T_A = +125°C$, $V_S = \pm 20V$	2.5		mA Max
Large Signal Voltage Gain	$V_S = \pm 15V$, $V_{OUT} = \pm 10V$ $R_L \geq 2\ k\Omega$	25	15	V/mV Min
Output Voltage Swing	$V_S = \pm 15V$, $R_L = 10\ k\Omega$	±12	±12	V Min
	$R_L = 2\ k\Omega$	±10	±10	
Input Voltage Range Common Mode	$V_S = \pm 20V$	±15	±12	
Rejection Ratio Supply Voltage	$R_S \leq 50\ k\Omega$	80	70	dB Min
Rejection Ratio	$R_S \leq 50\ k\Omega$	80	70	

Note 1: The maximum junction temperature of the LH2101A is 150°C, and the thermal resistance is 100°C/W, junction to ambient.
Note 2: For supply voltages less than ±15V, the absolute maximum input voltage is equal to the supply voltage.
Note 3: These specifications apply for $\pm 5V \leq V_S \leq \pm 20V$ and $-55°C \leq T_A \leq 125°C$, unless otherwise specified. For the LH2301A these specifications apply for $0°C \leq T_A \leq 70°C$, ±5V and $\leq V_S \leq \pm 15V$. Supply current and input voltage range are specified as $V_S = \pm 15V$ for the LH2301A. $C_1 = 30$ pF unless otherwise specified.

5