

## FEATURES

- *Guaranteed* 2nA Max. Input Bias Current
- *Guaranteed* 600 $\mu$ A Max. Supply Current
- *Guaranteed* 0.5mV Max. Offset Voltage
- *Guaranteed* 5 $\mu$ V/ $^{\circ}$ C Max. Drift
- Wide Supply Voltage Range:  $\pm 2$ V to  $\pm 20$ V
- Interchangeable with Other Manufacturers' LH2108

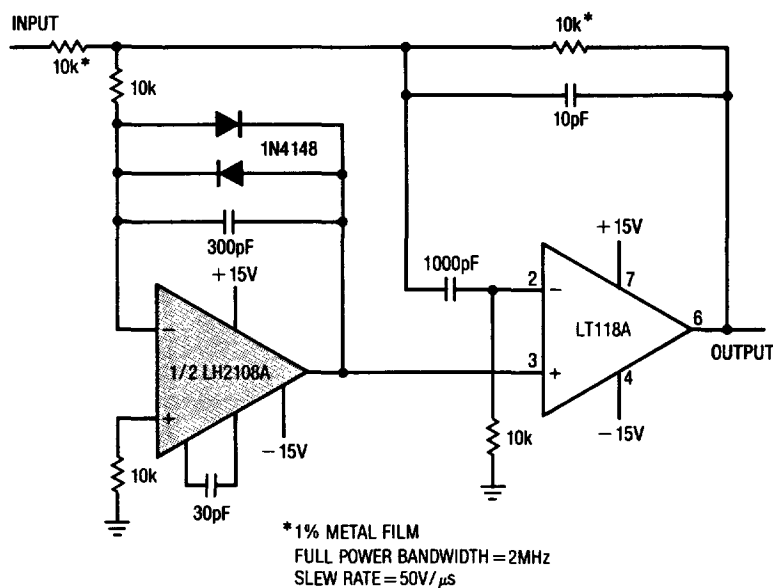
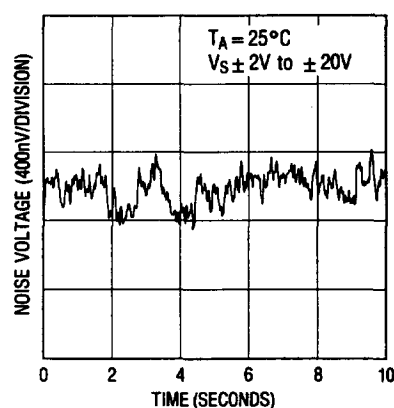
## APPLICATIONS

- Integrators
- Transducer Amplifiers
- Analog Memories
- Light Meters

## DESCRIPTION

The LH2108A series of precision operational amplifiers is particularly well suited for high source impedance applications requiring low offset and bias currents, as well as low power dissipation. Unlike FET input amplifiers, the offset and bias currents of the LH2108A do not change significantly with temperature variations. Advanced design, processing and testing techniques make Linear's LH2108A a superior choice over previous devices.

For higher performance dual amplifiers, see the LT1024, LT1002, and LT1013 data sheets.

**2**
**Fast Precision Inverter**

**0.1Hz to 10Hz Noise**


ABSOLUTE MAXIMUM RATINGS

Supply Voltage . . . . .  $\pm 20V$   
Differential Input Current (Note 1) . . . . .  $\pm 10mA$   
Input Voltage (Note 2) . . . . .  $\pm 15V$   
Output Short Circuit Duration . . . . . Indefinite  
Operating Temperature Range . . . . .  $-55^{\circ}C$  to  $125^{\circ}C$   
Storage Temperature Range . . . . .  $-65^{\circ}C$  to  $150^{\circ}C$   
Lead Temperature (Soldering, 10 sec.) . . . . .  $300^{\circ}C$

PACKAGE/ORDER INFORMATION

ORDER PART NUMBER

LH2108AD/883B  
LH2108D/883B  
LH2108AD  
LH2108D

ELECTRICAL CHARACTERISTICS  $\pm 5V \leq V_S \leq \pm 20V$  and  $-55^{\circ}C \leq T_A \leq 125^{\circ}C$  unless otherwise noted.

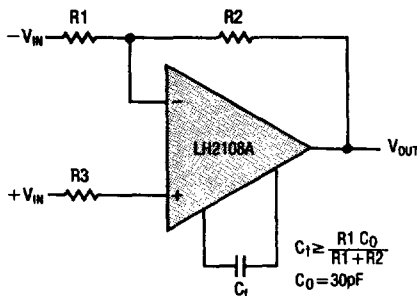
SYMBOL	PARAMETER	CONDITIONS	LH2108A			LH2108			UNITS
			MIN	TYP	MAX	MIN	TYP	MAX	
$V_{OS}$	Input Offset Voltage	$T_A = 25^{\circ}C$		0.3	0.5 1.0		0.7	2.0 3.0	mV mV
$\frac{\Delta V_{OS}}{\Delta Temp}$	Average Temperature Coefficient of Input Offset Voltage			1.0	5.0		3.0	15	$\mu V/^{\circ}C$
$I_{OS}$	Input Offset Current	$T_A = 25^{\circ}C$		0.05	0.2 0.4		0.05	0.2 0.4	nA nA
$\frac{\Delta I_{OS}}{\Delta Temp}$	Average Temperature Coefficient of Input Offset Current			0.5	2.5		0.5	2.5	$pA/^{\circ}C$
$I_B$	Input Bias Current	$T_A = 25^{\circ}C$		0.5	2.0 3.0		0.5	2.0 3.0	nA nA
$A_{VOL}$	Large Signal Voltage Gain	$T_A = 25^{\circ}C, V_S = \pm 15V, V_{OUT} = \pm 10V, R_L \geq 10k\Omega$	80 40	300		50 25	300		V/mV V/mV
CMRR	Common Mode Rejection Ratio		96	110		85	100		dB
PSRR	Power Supply Rejection Ratio		96	110		80	96		dB
	Input Voltage Range	$V_S = \pm 15V$	$\pm 13.5$			$\pm 13.5$			V
$V_{OUT}$	Output Voltage Swing	$V_S = \pm 15V, R_L = 10k\Omega$	$\pm 13$	$\pm 14$		$\pm 13$	$\pm 14$		V
$R_{IN}$	Input Resistance	$T_A = 25^{\circ}C$	30	70		30	70		M $\Omega$
$I_S$	Supply Current	$T_A = 25^{\circ}C$		0.3	0.6		0.3	0.6	mA
		$T_A = 125^{\circ}C$		0.15	0.4		0.15	0.4	mA

Note 1: Differential input voltages greater than 1V will cause excessive current to flow through the input protection diodes unless current limiting resistance is used.

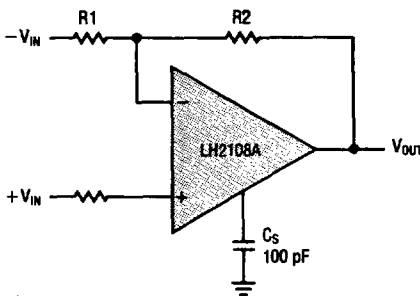
Note 2: For supply voltages less than  $\pm 15V$ , the maximum input voltage is equal to the supply voltage. For typical performance, see LM108A data sheet.

COMPENSATION CIRCUITS

Standard Compensation Circuit



Alternate Frequency Compensation



Feedforward Compensation

