High Speed Operational Amplifier

FEATURES

- 4mV Typ. Input Offset Voltage
- *Guaranteed* 25,000 Min. Gain
- *Guaranteed* 50V/μs Slew Rate
- 30nA Typ. Input Offset Current
- 15MHz Bandwidth
- Unity Gain Stable

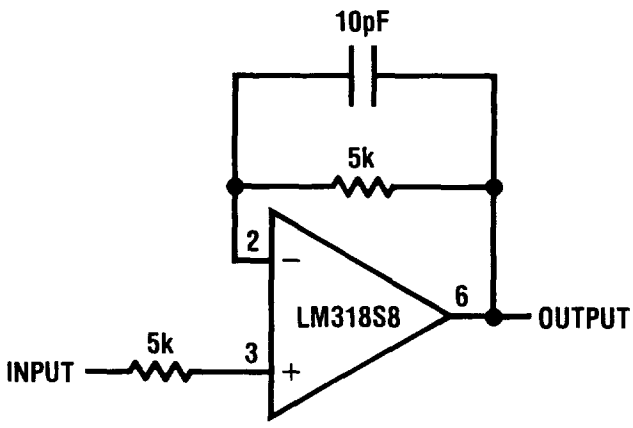
APPLICATIONS

- Wideband Amplifiers
- High Frequency Absolute Value Circuits
- D/A Converter Amplifiers
- Fast Integrators

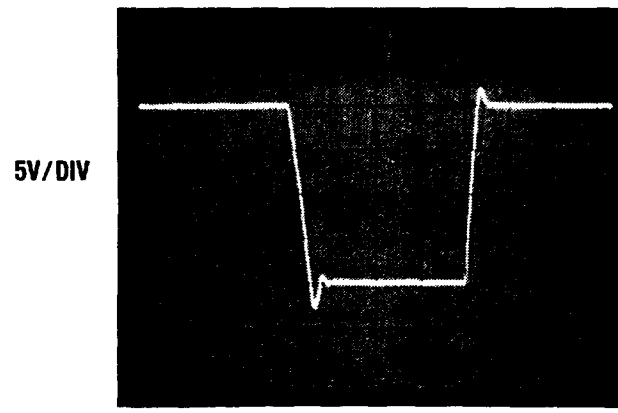
DESCRIPTION

The LM318 is a high speed, unity gain stable operational amplifier designed for applications requiring high slew rate and wide bandwidth. Although the device is internally compensated for unity gain operation, external compensation can be added for increased stability in reduced bandwidth applications. With a single capacitor, the 0.1% settling time is reduced to under 1μs. Feedforward compensation can be used in inverting applications to increase slew rate to over 150V/μs and almost double the bandwidth.

Voltage Follower



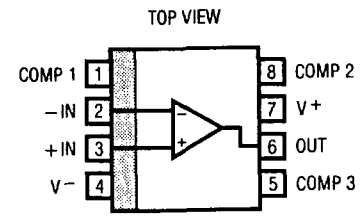
Voltage Follower Pulse Response



ABSOLUTE MAXIMUM RATINGS

Supply Voltage ..... ±20V
Differential Input Current (Note 1) ..... ±10mA
Input Voltage (Note 2) ..... ±20V
Output Short Circuit Duration ..... Indefinite
Operating Temperature Range ..... 0°C to 70°C
Storage Temperature Range ..... −65°C to 150°C
Lead Temperature (Soldering, 10 sec.) ..... 300°C

PACKAGE/ORDER INFORMATION



S8 PACKAGE
PLASTIC SO

ORDER PART NUMBER
LM318S8
PART MARKING
318

ELECTRICAL CHARACTERISTICS (Note 3)

SYMBOL	PARAMETER	CONDITIONS		LM318 MIN	LM318 TYP	LM318 MAX	UNITS
V_{OS}	Input Offset Voltage				4	10	mV
			●			15	mV
I_{OS}	Input Offset Current				30	200	nA
			●			300	nA
I_B	Input Bias Current				150	500	nA
			●			750	nA
R_{IN}	Input Resistance			0.5	3		MΩ
A_V	Large-Signal Voltage Gain	$V_S = \pm 15V$, $V_{OUT} = \pm 10V$, $R_L \geq 2k\Omega$		25	200		V/mV
			●	20			V/mV
SR	Slew Rate	$V_S = \pm 15V$, $A_V = 1$		50	70		V/μs
GBW	Gain Bandwidth Product	$V_S = \pm 15V$			15		MHz
	Output Voltage Swing	$V_S = \pm 15V$, $R_L = 2k\Omega$	●	±12	±13		V
	Input Voltage Range	$V_S = \pm 15V$	●	±11.5			V
I_S	Supply Current				5	10	mA
CMRR	Common-Mode Rejection Ratio		●	70	100		dB
PSRR	Power Supply Rejection Ratio		●	65	80		dB

The ● denotes those specifications which apply over the full operating temperature range.

Note 1: The inputs are shunted with back-to-back zeners for overvoltage protection. Excessive current will flow if a differential voltage greater than 5V is applied to the inputs.

Note 2: For supply voltages less than ±15V, the maximum input voltage is equal to the supply voltage.

Note 3: These specifications apply for $\pm 5V \leq V_S \leq \pm 20V$. The power supplies must be bypassed with a 0.1μF or greater disc capacitor within 4 inches of the device.