

FEATURES

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

APPLICATIONS

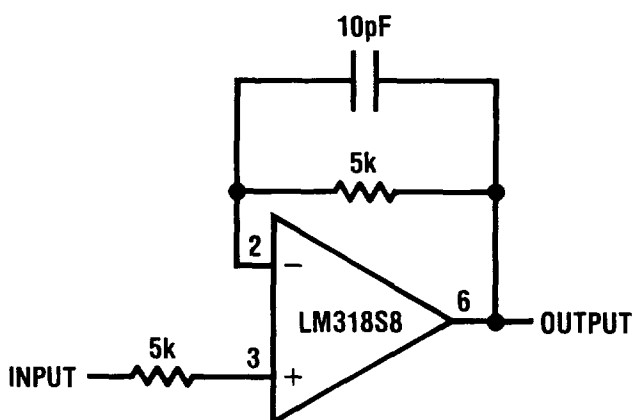
- Wideband Amplifiers
- High Frequency Absolute Value Circuits
- D/A Converter Amplifiers
- Fast Integrators

DESCRIPTION

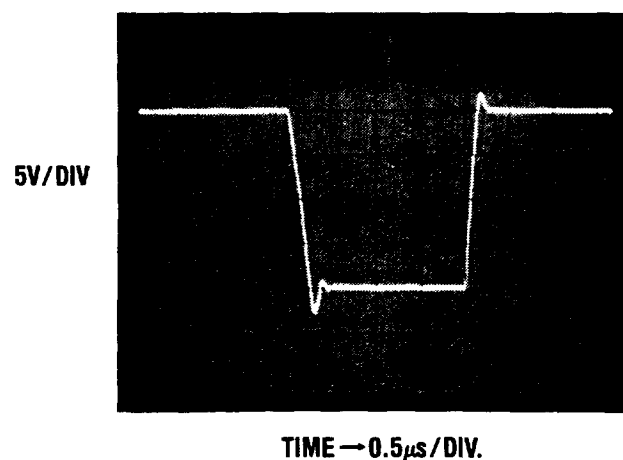
The LM318 is a high speed, unity gain stable operational amplifier designed for applications requiring high slew rate and wide bandwidth. Although the device is internally compensated for unity gain operation, external compensation can be added for increased stability in reduced bandwidth applications.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

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Voltage Follower



Voltage Follower Pulse Response

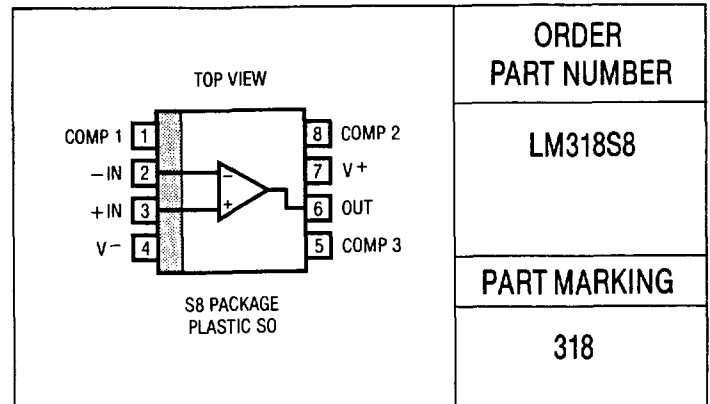


LM318S8

ABSOLUTE MAXIMUM RATINGS

| | |
|---|----------------------------------|
| Supply Voltage | $\pm 20V$ |
| Differential Input Current (Note 1) | $\pm 10mA$ |
| Input Voltage (Note 2) | $\pm 20V$ |
| Output Short Circuit Duration | Indefinite |
| Operating Temperature Range | $0^{\circ}C$ to $70^{\circ}C$ |
| Storage Temperature Range | $-65^{\circ}C$ to $150^{\circ}C$ |
| Lead Temperature (Soldering, 10 sec.) | $300^{\circ}C$ |

PACKAGE/ORDER INFORMATION



ELECTRICAL CHARACTERISTICS (Note 3)

| SYMBOL | PARAMETER | CONDITIONS | LM318 | | | UNITS |
|----------|------------------------------|---|-------|------------|------------|-------|
| | | | MIN | TYP | MAX | |
| 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 | M Ω | |
| 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 |
| | | | ● | ± 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 $\pm 15V$, 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 0.1 μF or greater disc capacitor within 4 inches of the device.