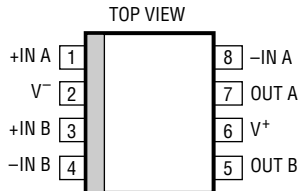


20 μ A Max, Dual SO-8 Package, Single Supply Precision Op Amp

FEATURES

- 8-Pin SO Package
- 20 μ A Max Supply Current per Amplifier
- 180 μ V Max Offset Voltage
- 350pA Max Offset Current
- 0.9 μ V_{P-P}, 0.1Hz to 10Hz Voltage Noise
- 1.5pA_{P-P}, 0.1Hz to 10Hz Current Noise
- 0.6 μ V/ $^{\circ}$ C Offset Voltage Drift
- Single Supply Operation:
 - Input Voltage Range Includes Ground
 - Output Swings to Ground While Sinking Current
 - No Pull-Down Resistors Are Needed
- Output Sources and Sinks 5mA Load Current

PACKAGE/ORDER INFORMATION

| | |
|--|-------------------|
|  <p>S8 PACKAGE 8-LEAD PLASTIC SOIC T_{JMAX} = 150$^{\circ}$C, θ_{JA} = 200$^{\circ}$C/W</p> | ORDER PART NUMBER |
| | LT1178S8 |
| | PART MARKING |
| | 1178 |

Please note that the LT1178S8 surface mount pinout differs from that of the LT1178 standard plastic or ceramic dual-in-line packages. Consult factory for Industrial and Military grade parts.

DESCRIPTION

The LT1178S8 is a micropower dual op amp in the surface mount 8-pin package. It is optimized for single supply operation at 5V. Specifications are also provided at ± 15 V supplies.

The extremely low supply current is combined with true precision specifications: offset voltage is 60 μ V, offset current is 50pA. Both offset parameters have low drift with temperature. The 1.5pA_{P-P} current noise and picoampere offset current permit the use of megohm level source resistors without introducing serious errors. Voltage noise at 0.9 μ V_{P-P} is remarkably low considering the low supply current.

The LT1178S8 can be operated from a single supply as low as one lithium cell or two Ni-Cad batteries. The input range goes below ground. The all-NPN output stage swings to within a few millivolts of ground while sinking current—no power consuming pull-down resistors are needed.

For applications where three times higher supply current is acceptable, the micropower LT1077 single, LT1078 dual and LT1079 quad are recommended. The LT1077/LT1078/LT1079 have significantly higher bandwidth, slew rate; lower voltage noise and better output drive capability.

ELECTRICAL CHARACTERISTICS

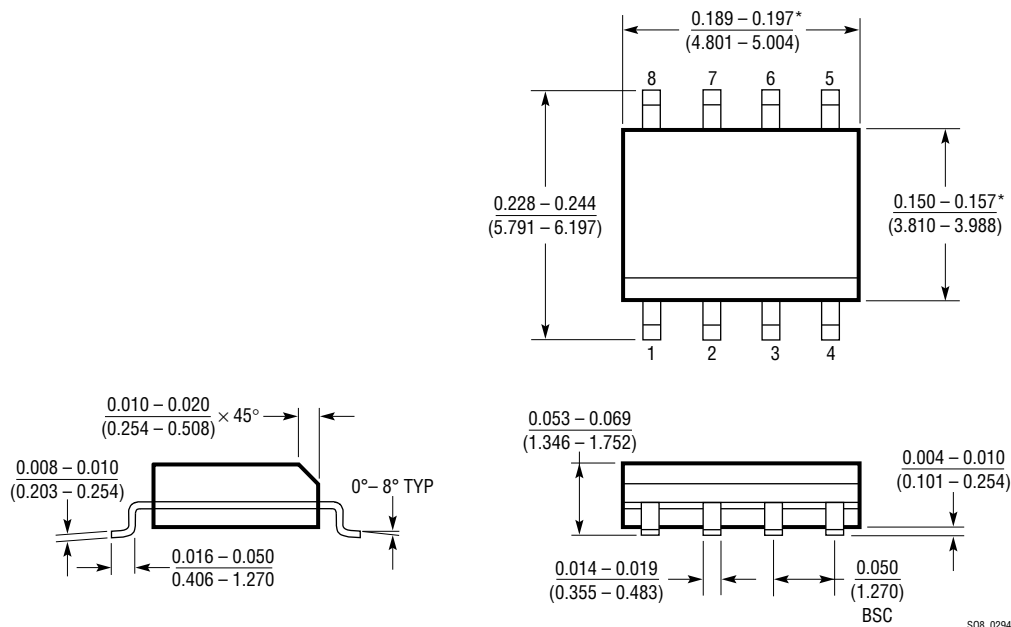
For electrical specifications not listed below, refer to the standard LT1178C data sheet with the changes noted on this page.

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP | MAX | UNITS |
|----------------------------------|-------------------------------------|---|-----|-----|-----|-----------------------|
| V _{OS} | Input Offset Voltage | V _S = 5V, 0V T _A = 25 $^{\circ}$ C | | 60 | 180 | μ V |
| | | V _S = 5V, 0V 0 $^{\circ}$ C \leq T _A \leq 70 $^{\circ}$ C | | 85 | 350 | μ V |
| | | V _S = ± 15 V T _A = 25 $^{\circ}$ C | | 120 | 350 | μ V |
| | | V _S = ± 15 V 0 $^{\circ}$ C \leq T _A \leq 70 $^{\circ}$ C | | 150 | 540 | μ V |
| $\frac{\Delta V_{OS}}{\Delta T}$ | Input Offset Voltage Drift (Note 1) | V _S = 5V, 0V 0 $^{\circ}$ C \leq T _A \leq 70 $^{\circ}$ C | | 0.6 | 3.5 | μ V/ $^{\circ}$ C |
| | | V _S = ± 15 V 0 $^{\circ}$ C \leq T _A \leq 70 $^{\circ}$ C | | 0.7 | 3.8 | μ V/ $^{\circ}$ C |

Note 1: Not 100% production tested.

PACKAGE DESCRIPTION Dimension in inches (millimeters) unless otherwise noted.

S8 Package 8-Lead Plastic SOIC



*THESE DIMENSIONS DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS.
MOLD FLASH OR PROTRUSIONS SHALL NOT EXCEED 0.006 INCH (0.15mm).

S08 0294