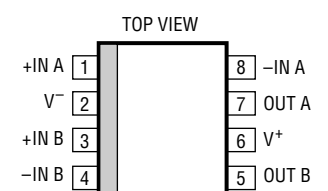


20 μ A Max, Dual SO-8 Package, Single Supply Precision Op Amp

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 style="text-align: center;">S8 PACKAGE 8-LEAD PLASTIC SOIC T_{JMAX} = 150$^{\circ}$C, θ_{JA} = 200$^{\circ}$C/W</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">ORDER PART NUMBER</td> </tr> <tr> <td style="text-align: center;">LT1178S8</td> </tr> <tr> <td style="text-align: center;">PART MARKING</td> </tr> <tr> <td style="text-align: center;">1178</td> </tr> </table>	ORDER PART NUMBER	LT1178S8	PART MARKING	1178
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 \pm 15V 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

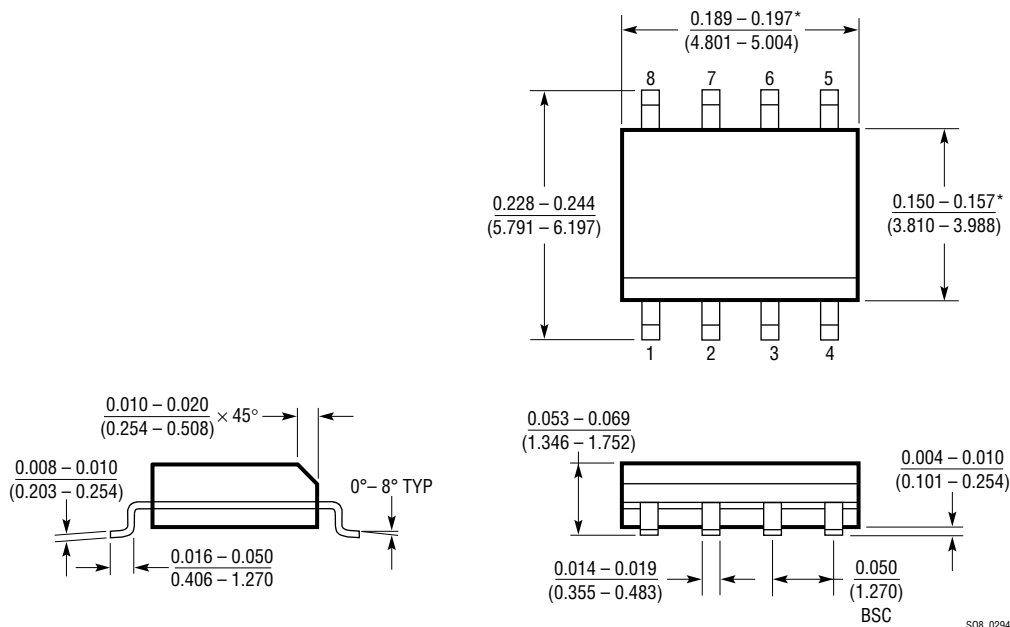
For electrical specifications not listed below, refer to the standard LT1178C data sheet with the changes noted on this page.

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 = \pm 15V T _A = 25 $^{\circ}$ C		120	350	μ V
		V _S = \pm 15V 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 = \pm 15V 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