

Typical Slew Rate			
$\geq 0.2 \text{ V}/\mu\text{s}$	$\geq 1 \text{ V}/\mu\text{s}$	$\geq 10 \text{ V}/\mu\text{s}$	$\geq 50 \text{ V}/\mu\text{s}$
LT [®] 1006 (All) LT1014 (All) LT1413 (All) LT1464/5	LT1007 LT1113 LT1124 LT1125 LT [®] 1050 LT [®] 1051 LT [®] 1052 LT [®] 1053 LT [®] 1150 LT [®] 1151 LT [®] 1152 LT1215/12	LT1022 LT1028 LT1037 LT1055 LT1056 LT1057 LT1058 LT1115 LT1126 LT1127 LT1213/14	LT1010 LT1122 See High Speed Amplifier Selection Card

Max Input Offset Voltage ($T_A = 25^\circ\text{C}$)			
$\leq 15 \mu\text{V}$	$\leq 25 \mu\text{V}$	$\leq 50 \mu\text{V}$	
LT1001/AM LT1047 LT [®] 1054 LT [®] 1055 LT [®] 1056 LT [®] 1057 LT [®] 1058 LT [®] 1059 LT [®] 1151 LT [®] 1152 LT [®] 1250	LT1001A LT1007A LT1012 LT1024A LT1037A LT1077A	LT1006A LT1012 LT1024A LT1028A LT1077A	

Typical Equivalent Input Noise Voltage per $\sqrt{\text{Hz}}$, $f = 10\text{Hz}$, $R_S = 100\Omega$			
$\leq 1 \text{ nV}/\sqrt{\text{Hz}}$	$\leq 5 \text{ nV}/\sqrt{\text{Hz}}$	$\leq 17 \text{ nV}/\sqrt{\text{Hz}}$	
LT1028 LT1115	LT1007 LT1037 LT1124 LT1125 LT1126 LT1127	LT1001 (All) LT1002 (All) LT1008 LT1012 (All) LT1113* LT1211/12 LT1213/14 LT1215/16	
Low Frequency Noise			
LT [®] 1250**			

*LT1113 Has Lowest Noise of Any JFET Input Op Amp
**LT[®]1250 Has 0.75 $\mu\text{V}/\text{p-p}$ From 0.1Hz to 10Hz;
The Lowest Noise of Any Zero-Drift Op Amp

Single Supply Operation			
Single	Dual	Quad	
LT1006 LT1077 LT [®] 1049 LT [®] 1050 LT [®] 1150 LT [®] 1152 LT [®] 1250	LT1078 LT1178 LT1211 LT1213 LT1215 LT1366 LT1413 LT1490 LT [®] 1047 LT [®] 1051 LT [®] 1151	LT1014 LT1079 LT1179 LT1212 LT1214 LT1216 LT1367 LT1389 LT1491 LT [®] 1053	

LT1097	
Single General Purpose Precision Op Amp	
■ 50 μV Max Input Offset Voltage	
■ 1 $\mu\text{V}/^\circ\text{C}$ Max Vos Drift with Temperature	
■ 250 μA Max Input Bias Current	
■ 0.2V/ μs Min Slew Rate	
■ 16nV/ $\sqrt{\text{Hz}}$ Input Noise Voltage Density	
■ 560 μA Max Supply Current	
■ Minimum Supply Voltage: $\pm 1.2\text{V}$	

Multiple Op Amps			
Multiple Op Amps		Multiple Op Amps	
Duals	SO Pin Count	Quads	SO Pin Count
LT1057 LT1078 LT1112 LT1113 LT1124 LT1126 LT1178 LT1179 LT1362 LT1366 LT1368 LT [®] 1047 LT [®] 1051 LT1211/13/15 LT1457 LT1462 LT1464 LT1490	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	LT1014 LT1038 LT1079 LT1114 LT1125 LT1127 LT1179 LT1363 LT1367 LT1369 LT1463 LT1465 LT1491	16 16 16 16* 16 16 16 16 16* 16* 16* 14* 14* 14*

*Narrow: 0.150" Wide

Rail-to-Rail Input and Output			
Single	Dual	Quad	
LT [®] 1152	LT1366 LT1368 LT1490	LT1367 LT1369	

Max Supply Current per Amplifier			
$\leq 20 \mu\text{A}$	$\leq 60 \mu\text{A}$	$\leq 500 \mu\text{A}$	
LT1178 (All) LT1179 (All)	LT1077 (All) LT1078 (All) LT1079 (All) LT1462/3 LT1490 LT1491	LT1012 (All) LT1413 (All) LT1014 (All) LT1352/3 LT1366/7/8/9 LT1464/5 LT [®] 1047 LT [®] 1049	

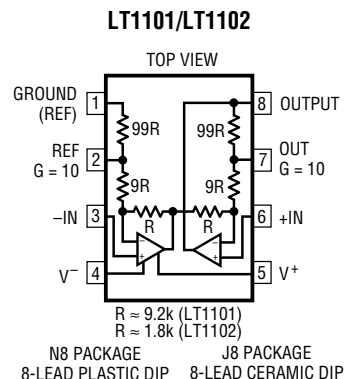
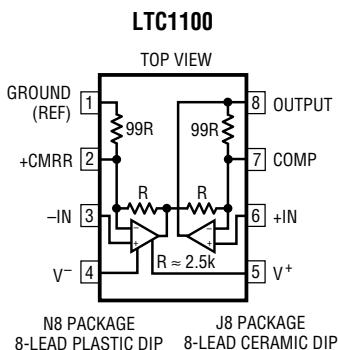
Max Offset Voltage Drift			
$\leq 0.06 \mu\text{V}/^\circ\text{C}$	$\leq 0.6 \mu\text{V}/^\circ\text{C}$	$\leq 1 \mu\text{V}/^\circ\text{C}$	
LT [®] 1047 LT [®] 1050 LT [®] 1051 LT [®] 1053 LT [®] 1150 LT [®] 1152 LT [®] 1250	LT1001A LT1007A LT1012A LT1037A LT1049 LT1057 LT1058 LT1059 LT1077A	LT1001 LT1002A LT1007 LT1012 LT1028 (All) LT1037 LT1115 LT1124A LT1125A LT1126A LT1127A	

Max Input Bias Current (25°C)			
$\leq 5 \text{ pA}$	$\leq 50 \text{ pA}$	$\leq 100 \text{ pA}$	$\leq 250 \text{ pA}$
LT1169	LT1022 LT1055 LT1056 LT1057A LT1058A LT1457A LT1464 LT [®] 1047 LT [®] 1049 LT [®] 1052 LT [®] 1150M	LT1008 LT1012 LT1024A LT [®] 1250M	LT1024 LT [®] 1250

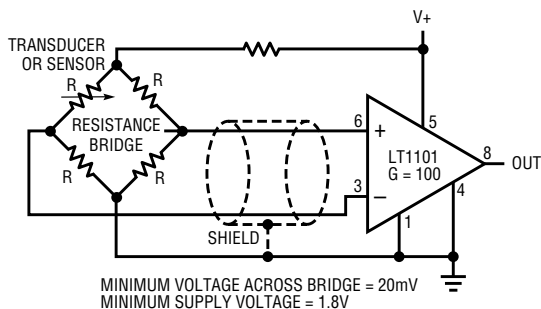
Complete Instrumentation Amplifiers in 8-Pin Packages

- LTC1100: Zero Offset, Drift; Gain of 100
- LT1101: Micropower, Single Supply; Gain of 10 or 100
- LT1102: High Speed JFET Input; Gain of 10 or 100

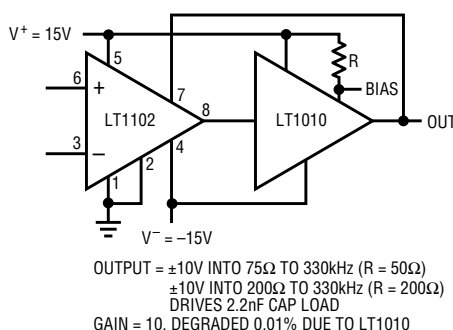
PARAMETER	LTC1100A $V_S = \pm 5V$	LT1101A $V_S = 5V$	LT1102A $V_S = \pm 15V$
Offset (Max)	10 μV	160 μV	600 μV
Offset Drift (Max)	100nV/ $^{\circ}C$	2 $\mu V/^{\circ}C$	8 $\mu V/^{\circ}C$
Bias Current (Max)	50pA	8nA	40pA
Noise (0.1Hz to 10Hz)	1.9 μV_{P-P} Typ	0.9 μV_{P-P} Typ	2.8 μV_{P-P} Typ
Gain	100/10 (SW PKG)	10/100	10/100
Gain Error (Max)	0.05%	0.05%	0.05%
Gain Drift	4ppm/ $^{\circ}C$ Typ	4ppm/ $^{\circ}C$ Max	18ppm/ $^{\circ}C$ Max
Gain Nonlinearity (Max)	8ppm	8ppm	14ppm
CMRR (G = 100)(Min)	104dB	95dB	84dB
Power Supply (Max)	Single, Dual, 16V	Single, Dual, 44V	Dual, 44V
Supply Current (Max)	2.8mA	130 μA	5mA
Slew Rate	1.5V/ μs Typ	0.06V/ μs Min	21V/ μs Min (6:10)
Bandwidth (G = 10)	18kHz Typ	22kHz Min	2MHz Min



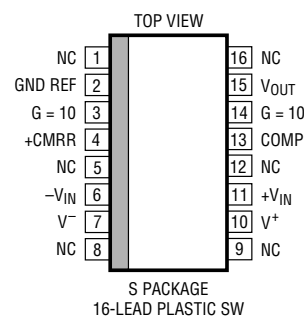
Differential Voltage Amplification from a Resistance Bridge (Single 5V Powered)



Wideband Instrumentation Amplifier with $\pm 150mA$ Output Current



LTC1100CS

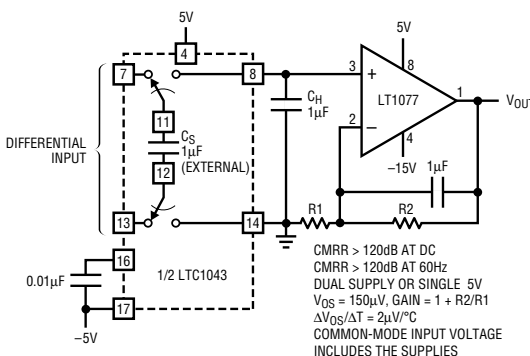


Dual Precision Instrumentation Switched Capacitor Building Block: LTC1043

- Up to 120dB CMRR
- Adjustable Gain-Set by Output Op Amp
- Offset and Offset Drift as Low as Output Amp Specs
- Precise, Charge-Balanced Switching
- Up to 5MHz Clock Rate
- Internal or External Clock

PARAMETER	LTC1043 (USING LTC1050 AMPLIFIER)
Offset	0.5 μV
Offset Drift	50nV/ $^{\circ}C$
Bias Current	10pA
Noise (0.1Hz to 10Hz)	1.6 μV
Gain	Resistor Programmable
Gain Error	Resistor Limited 0.001% Possible
Gain Drift	Resistor Limited <1ppm/ $^{\circ}C$ Possible
Gain Nonlinearity	Resistor Limited 1ppm Possible
CMRR	120dB
Power Supply	Single, Dual (18V, $\pm 9V$ Max)
Supply Current	2mA
Slew Rate	1mV/ms
Bandwidth	10Hz

Instrumentation Amplifier



CMRR vs Frequency

