

## Subject Index to Linear Technology's Applications Circuits

### A GUIDE TO THE INDEX

Linear Technology has made a major effort to address a wide variety of circuit topics. The number of application problems solvable with innovative circuit techniques or new linear integrated circuits continues to grow. This comprehensive index includes Application Notes (AN1–AN68), Design Notes (DN 1–DN134), *Linear Technology* magazine (LTM I:1–LTM V:4) and Data Sheet circuits through December 1995).

The category and subject index is organized so that application circuits and subject tutorials are easily found. The major topics are broken up into specialized categories to help isolate a particular application. Use the Table of Contents (below) to locate major topic areas, then scan the left-hand "Category" column to find the category of interest. The second column gives the titles or descriptions of the specific circuits and/or discussion topics. The third column

lists the publications (AN = Application Note, DN = Design Note, DS = Data Sheet, LTM = *Linear Technology* magazine). The remaining columns indicate the page number, figure number (where applicable) and Linear Technology part numbers.

Two other sources of applications information for LTC products recently became available: The LinearView™ CD-ROM and the Linear Technology web site. The LinearView CD-ROM contains a complete selection of Data Sheets, Application Notes, Design Notes and *Linear Technology* magazines through 1995, combined with a powerful search engine. Periodic updates of the CD-ROM are planned. The Linear Technology web site ([www.linear-tech.com](http://www.linear-tech.com)) also contains the complete library of Linear Technology publications in Adobe PDF format for download or delivery via FAX. The web site is updated regularly.

**NOTE:** Application Notes 1–40 and Design Notes 1–32 are found in Volume I of the *Applications Handbook*; Application Notes 41–54 and Design Notes 33–69 are found in Volume II; the remaining Application Notes and Design Notes to date are found in the current volume.

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**A/D (see Converters—Data)**

<b>AC Line Monitor</b>					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
AC Line Monitor	AC Line Monitor	LTC1145/46 DS	11	NA	LTC1145, LT1013

**Accelerometer (see Signal Conditioning)**

**Acoustic Thermometer (see Signal Conditioning—Temperature)**

<b>Amplifiers</b>					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Absolute Value</b>	Inverting Amplifier with High Input Resistance	LM108 DS	5	NA	LM108
	Precision Absolute Value Circuit	OP05 DS	8	NA	OP-05CH
		LT1001 DS	9	NA	LT1001
		LT1002 DS	13	NA	LT1002
	Wide Bandwidth Absolute Value Circuit	LT1022 DS	6	NA	LT1022
		LT1122 DS	8	NA	LT1122
<b>Additional Feature Circuits</b>	Ammeter with Six Decade Range	LT1012 DS	9	NA	LT1012, LT1004-1.2
		LT1008 DS	11	NA	LT1008, LT1004-1.2
	Constant Gain Amplifier Over Temperature	LT1004 DS	6	NA	LT1004-1.2
	DC and AC Zeroing	LF198 DS	11	NA	LF198
	DC Stabilized FET Probe	LTC1052 DS	15	NA	LTC1052, LT1010
	Five Decade Kelvin-Varley Divider	LT1008 DS	9	NA	LT1008
	Input Amplifier for 4-1/2 Digit Voltmeter	LT1008 DS	1	NA	LT1008
		LT1012 DS	11	NA	LT1012
	Input Bias Current Cancellation	LT1366-69 DS	18	10	LT1366

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Amplifiers (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Additional Feature Circuits (Continued)	LTC1329 Used to Null Op Amp's Offset Voltage	AN67	7	6	LTC1329-50, LT1006
	Soft Clipper	LT1251/56 DS	17	NA	LT1256
	Typical Application—Input Bias Current Cancellation	LT1211/12 DS	1	NA	LT1211
Artificial Ground	Synthetic Ground	AN50	5	6	LT1006, LT1013, LT1014, LT1077, LT1078, LT1079, LT1178, LT1179, others (see schematic)
Audio	1.8kW Shaker-Table Driver/Audio Amplifier	LTM V:4	4	7a–7c	LT1166, LT1360
	350W Power Amplifier	DN126	2	3	LT1166, LT1360, LT1004-2.5
	Balanced, Transformerless Microphone Preamp	LT1115 DS	8	1	LT1115
	Gain-of-Five, Noninverting Line Driver	LTM I:1	12	1	LT1122, LT1010
	High Performance Transformer Coupled Microphone Preamp	LT1115 DS	11	5	LT1115, LT1010, LT1097
	Low Noise DC Accurate $\times 10$ Buffered Line Amplifier	LT1115 DS	9	2	LT1115, LT1010, LT1097
	Low Noise, Low Distortion Audio Buffer with Gain of 10	LTM III:2	12	8	LT1206, LT1115
	Moving Coil Passive RIAA Phonograph Preamp	LT1115 DS	10	4	LT1115, LT1056
	RIAA Moving Coil "Pre-Preamplifier"	LT1115 DS	9	3	LT1115, LT1097
	RIAA Phonograph Preamplifier (40dB/60dB Gain)	LT1115 DS	1	NA	LT1115, LT1010
	Very Low Distortion Buffered Preamplifier	AN52	15	21	LT1122, LT1010
Auto-Bias	Basic, LT1166 Circuit Configuration	LTM V:4	3	1	LT1166
Boosted Output	$\pm 15V$ Powered, Bipolar Output, Voltage-Gain Stage, ( $\pm 100V$ Swing)	AN18	9	15	LT1013, LT319A
	1.5V Voltage Boosted Output Op Amp (0V–10V)	AN15	6	9	LM10
	Basic Boosted Op Amp (150mA)	AN4	1	1	LT1010, LM101A

## Amplifiers (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Boosted Output (Continued)	Detailed High Voltage Op Amp	LTM IV:2	20	2	LT1078
	Fast Power Buffer (10MHz)	AN16	20	51	LT1010, LT118A
	Fast, 1A Booster Stage	AN47	47	104	LT1220
	Fast—200mA	AN47	46	101	LT1220
	High Current Booster (3A)	AN18	2	2	LT1010, LT1056
	High Current Rail-to-Rail Output Stage (100mA)	AN18	5	7	LT1022
	High Output Current Op Amp	LT1022 DS	7	NA	LT1022, LT1010
		LTC1052DS	14	NA	LTC1052
	Increasing Output Current (10mA–20mA)	AN9	18	28	LTC1052
	Increasing Output Current and Voltage	LTC1052 DS	15	NA	LTC1052, LT318A
	Increasing Output Current and Voltage ( $\pm 12V$ at 20mA)	AN9	18	29	LTC1052, LT318A
	Instrumentation Amplifier with $\pm 150mA$ Output Current	LT1101 DS	11	NA	LT1101, LT1010
	LT1010, Paralleling	AN16	17	43	LT1010
	Output Stage ( $\pm 120V$ Swing)	AN18	7	9	LT1055
		LT1055 DS	11	NA	LT1055
	Output Stage ( $\pm 150V$ Swing)	AN18	8	11	LT1055
	Output Stage (150mA)	AN18	2	1A–1C	LT1022, LT1010, LT1012, LT118A
	Paralleling for High Current	AN21	12	17	LT1010
	Precision Amplifier Drives $300\Omega$ Load to $\pm 10V$	OP227 DS	1	NA	OP227
		LT1007 DS	10	NA	LT1007, LT1037
	Precision Amplifier Drives $500\Omega$ Load to $\pm 10V$	LT1002 DS	12	NA	LT1002
	Ultrafast Feed Forward Current Booster (1000V/ $\mu s$ , 14MHz, 200mA)	AN18	3	3	LT1012

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Amplifiers (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Boosted Output (continued)	Unipolar-Output Gain Stage (1000V Swing)	AN18	9	13	LT1013, LT1018
	Voltage Gain Stage	AN18	4	5A–5B	LT1013
		AN50	2	1A	LT1014
Buffer	Fast $\pm 150\text{mA}$ Power Buffer	LT1010 DS	1–20	NA	LT1010
	Fast, Stabilized FET Buffer (FET Probe)	AN9	9	14	LT1010, LTC1052
	Infinite-Input-Impedance, Unity-Gain, High Voltage Buffer	LTM III:3	19	5	LT1300, LT1097
	Input Buffer for the LT1088	AN22	12	23	NA
	Large Signal Voltage Follower	LT1001 DS	9	NA	LT1001
	Low Noise $\times 10$ Buffered Line Driver	AN67	70	106	LT1115, LT1206
	Noise Meter Buffer/Driver Section	AN67	42	54	LT1206
	Rail-to-Rail Potentiometer Buffer	LTM IV:3	14	3	LT1366
	Reference Buffer	LTC1250 DS	8	NA	LTC1250
	Unity-Gain Buffer with Extended Load Capacitance Drive Capability	LT1169 DS	10	NA	LT1169
	High Voltage Buffer	AN59	9	17	LT1300, LT1097
Clamping Techniques	Precision Clamp	LM129 DS	3	NA	LM329, LM301
Composite	Composite Op Amp (“Super Gain Block”)	LTM IV:1	28	9	LT1230, LT1007
	DC Stabilized Fast Amplifier (23V/ $\mu\text{s}$ , 300kHz Full Power Bandwidth)	AN21	1	1	LT1012, LT1022
	DC Stabilized, Full Differential, Parallel Path	AN47	35	74	LT1102, LT1191, LT1193
	DC Stabilized, Full Differential, Parallel Path, A = 1000	AN47	36	76	LT1056, LT1102, LT1194
	DC Stabilized Offset Pin Correction	AN47	34	72	LT1097, LT1220
	DC Stabilized FET Input	AN47	34	73	LT1097, LT1223
	DC Stabilized Summing Point Correction	AN47	33	71	LT1097, LT1191
	Fast DC Stabilized FET Amplifier (100V/ $\mu\text{s}$ , 1MHz Full Power Bandwidth)	AN21	2	2	LT1012, LT318A
	Fast Summing Amplifier	LM108 DS	6	NA	LM108, LM101A

## Amplifiers (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Composite (Continued)</b>	First and Second Sections of Composite Amplifier	AN67	63	90–91	LT1230
	LT1007 Followed by Composite Amplifier	AN67	62	89	LT1007
	Super Gain Block	AN67	64	95	LT1230, LT1007
<b>Current Sense</b>	High-Side Current-Sense Amplifier	LTM IV:3	15	6	LT1366
<b>DAC Buffer</b>	"No Trims" 12-Bit Multiplying DAC Output Amplifier	LT1022 DS	1	NA	LT1022
		AN47	32	66	LT1220
		LT1122 DS	1	NA	LT1122
	Fast Settling 12-Bit DAC Buffer	LT1220 DS	8	NA	LT1220
	No $V_{OS}$ Adjust CMOS DAC Buffer	LTC1052 DS	13	NA	LTC1052, LTC1043
	Simple Preamplifier for Comparator	AN17	4	5	LT318A, LT1016
<b>Dead Zone</b>	Dead Zone Generator	LT1002 DS	13	NA	LT1002, LM301A
		LT1001 DS	10	NA	LT1001, LM301A
<b>Differential</b>	+90V, –3V Common Mode Range Difference Amplifier ( $A_V = 1$ )	LT1413 DS	1	NA	LT1413
	Difference Amplifier with Wide Input Common Mode Range	LT1213/14 DS	16	NA	LT1213, LT1004-1.2
	Differential Bridge Amplifier	LTC1250 DS	1	NA	LTC1250
	Differential-Input, Variable-Gain Amplifier	LTM II:3	15	1	LT1228
<b>Discussion</b>	Achieving Picoampere/Microvolt Performance	LT1012 DS	8	NA	NA
		LTC1052 DS	8	NA	NA
		LT1008 DS	6	NA	NA
	Advantages of Matched Dual Op Amps	LT1024 DS	6	NA	NA
		OP227 DS	10	NA	NA
		LT1002 DS	10	NA	NA
	Amplifier Compensation	AN10	8	B1–B3	NA
	Chopper Stabilized Op Amps	AN9	19	B1–B2	NA
	Chopper vs. Bipolar Op Amps	DN42	1	NA	NA

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Discussion (Continued)	Demo DC009 High Frequency Amplifier	DN50	1	NA	NA
	Frequency Compensation	AN18	12	NA	NA
		LT1008 DS	8	NA	LT1008
	Gain of 1000 Amplifier with 0.001% DC Accuracy	LT1007 DS	10	NA	LT1037
	High Frequency Amplifier Evaluation Board	AN47	127	I2	NA
	High Speed Effects in Cable, Connectors and Termination	AN47	15	NA	NA
	High Speed Operation	LT1055 DS	8	NA	LT1055, LT1056
	Input Guarding	LM108 DS	7	NA	LM108 series
	Input Protection	LM108 DS	7	NA	LM108 series
	Isolating Capacitive Loads	LT1010 DS	9	NA	LT1010, LT1007
	Isolating Large Capacitive Loads	LT118 DS	5	NA	LT318A
	LT1010 Buffer	AN16	1	NA	LT1010
		AN4	7	NA	LT1010
	LT1010 Performance Summary	AN16	7	NA	LT1010
	Offset Voltage Adjustment	OP27 DS	9	NA	OP27
	Operational Amplifier Selection Guide for Optimum Noise Performance	DN3	1	NA	NA
	Perspectives on High Speed Design	AN47	5	NA	NA
	Perspectives on Speed	AN47	5	NA	NA
	Phase Reversal Protection	LT1055 DS	9	NA	LT1055, LT1056
	Typical High Speed Amplifier Problem	AN47	7	NA	NA
Divider	Analog Divider	LT1057 DS	9	NA	LT1057, LTC1043
	Divide by 3	LTC1043 DS	8	NA	LTC1043
	Divide by 4	LTC1043 DS	9	NA	LTC1043
	Divided by 2	LTC1043 DS	8	NA	LTC1043
	Precision Voltage Divide by 2	LTC203 DS	11	NA	LTC203

## Amplifiers (Continued)

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Fast	"Current Mode Feedback" Amplifier (1MHz Full Power Bandwidth)	AN21	7	11	LT1001, LT1010
		AN22	12	24	LT1001, LT1010
		LT1088 DS	9	NA	LT1001, LT1010
	"Current Mode Feedback" Amplifier (3000V/μs, 25MHz Full Power Bandwidth)	LT1088 DS	10	NA	LT1013
		AN22	13	25	LT1013
		AN21	8	12	LT1013
	Fast DC Stabilized FET Amplifier (100V/μs, 1MHz Full Power Bandwidth)	AN21	2	2	LT318A, LT1012
	Fast Precision Inverter	LH2108 DS	1	NA	LH2108A, LT118A
		LT1008 DS	11	NA	LT1008, LT318A
	Fast Summing Amplifier	LM108 DS	6	NA	LM101, LM108
	Precision High Speed Op Amp (1000V/μs)	AN6	7	8	LT1001
		LT1001 DS	7	NA	LT1001
	Stabilized FET Buffer (FET Probe)	AN9	9	4	LT1010, LTC1052
High Voltage	High Voltage Op Amp	AN67	58	79	LT1227
	High Speed Suspended Op Amp	AN67	58	80	LT1227
Hydrophone	Low Noise Hydrophone Amplifier with DC Servo	AN67	69	104	LT1113
Instrumentation	±5V Precision Instrumentation Amplifier	AN3	2	2	LT1013, LTC1043
		LT1006 DS	11	NA	LTC1043, LT1006
		LTC1051 DS	1	NA	LTC1051
	2 Op Amp Instrumentation Amplifier	LT1364/65 DS	11	NA	LT1364
		LT1363 DS	11	NA	LT1363
		LT1361/62 DS	11	NA	LT1361
		LT1360 DS	1	NA	LT1360
	20MHz, A <sub>V</sub> = 50 Instrumentation Amplifier	LT1225 DS	1	NA	LT1225
		LT1221 DS	7	NA	LT1221

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Amplifiers (Continued)					
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Instrumentation (Continued)	3.5MHz Instrumentation Amplifier Rejects 120V <sub>p-p</sub>	AN67	77	125	LT1192
	3.5MHz Instrumentation Amplifier	LTM II:3	5	10	LT1192
	5V Powered Precision Instrumentation Amplifier	LT1013 DS	11	NA	LT1014
	5V Powered Ultraprecision Instrumentation Amplifier	LTC1052 DS	12	NA	LTC1052, LTC1043
	5V Single-Supply Dual Instrumentation Amplifier	LT1013 DS	9	NA	LT1013, LTC1043
	Basic Single Op Amp Instrumentation Amplifier	AN67	83	138	LTC1100/LT1101/LT1102
	Buffered Dual Op Amp Instrumentation Amplifier	AN67	83	139	LTC1100/LT1101/LT1102
		LTM I:2	5	1b	NA
	Chopper Stabilized Instrumentation Amplifier	AN3	3	3	LTC1043, LT1056
		LTC1043 DS	10	NA	LTC1043, LT1056
	Differential Input Instrumentation Amplifier	LM108 DS	6	NA	LM108
	Differential Output	LT1102 DS	8	NA	LT1102
		LT1101 DS	12	NA	LT1101
	Gain = 20, 110 or 200 Instrumentation Amplifier	LT1102 DS	8	NA	LT1102
		LT1101 DS	12	NA	LT1101
	High Performance Instrumentation Amplifier	LTC1051 DS	1	NA	LTC1051
	High Speed, Precision, JFET Input Instrumentation Amplifier	LT1102 DS	1-8	NA	LT1102
	High Voltage Instrumentation Amplifier	LTC1151 DS	7	NA	LTC1151
	Instrumentation Amplifier with Shield Driver	LT1124 DS	1	NA	LT1125
		LT1058 DS	11	NA	LT1058
	Instrumentation Amplifier	LT1355/56 DS	11	NA	LT1355
		LT1354 DS	11	NA	LT1354
		LT1357 DS	11	NA	LT1357

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Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Instrumentation (Continued)	Instrumentation Amplifier	LT1358/59 DS	11	NA	LT1358
	Instrumentation Amplifier with $\pm 100V$ Common Mode Range	LT1012 DS	11	NA	LT1012
	Instrumentation Amplifier with 300V Common Mode Range	AN6	2	1	LT1001, LM301A
		LT1001 DS	11	NA	LT1001, LM301A
	Instrumentation Amplifier with Guard/Shield Driver and Input Bias Current Cancellation	LT1213/14 DS	16	NA	LT1214
	Low Noise, Wide Bandwidth Instrumentation Amplifier	LT1028 DS	15	NA	LT1028
	Precision Instrumentation Amplifier	AN11	6	6A	LT1014
	Precision, Chopper Stabilized, Single-Supply Instrumentation Amplifier	LTC1100 DS	1-8	NA	LTC1100
	Precision, Micropower, Single-Supply Instrumentation Amplifier	LT1101 DS	1-12	NA	LT1101
	Rachel's IA Circuit	LTM II:2	13	2b	LTC1047
	Rex's IA Circuit	LTM II:2	13	2a	LTC1047
	Single Amplifier, Precision High Voltage Instrumentation Amp	DN25	1	1	LT1012A
	Single Op Amp Instrumentation Amplifier	LTM I:2	5	1a	NA
	Single- or Dual-Supply, Chopper Stabilized Instrumentation Amplifier	LTC1050 DS	1	NA	LTC1150, LTC1043
	Single-Supply Instrumentation Amplifier	LT1215/16 DS	1	NA	LT1215
	The Final IA Circuit	LTM II:2	13	3	LTC1047, LTC1043
	Three Op Amp Instrumentation Amp with Gain of 100	LTM II:3	12	2	LT1112, LT1114, LT1097
		AN67	79	130	LT1112/LT1114, LT1097/LT1114
	Three Op Amp Instrumentation Amplifier	LT1002 DS	10	NA	LT1002, LT1037
		OP05 DS	1	NA	OP05, OP37
		LT1024 DS	6	NA	LT1024, LT1037
		LT1169 DS	10	5	LT1169

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Amplifiers (Continued)					
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Instrumentation (Continued)	Three Op Amp, Low Noise Instrumentation Amplifier	LTM II:3	14	2	LT1128, LT1037
	Three Op Amp, Ultralow Noise Instrumentation Amplifier	AN67	80	131	LT1128, LT1037
	Triple Op Amp Instrumentation Amplifier with Bias Current Cancellation	LT1013 DS	16	NA	LT1014
	Two Op Amp Instrumentation Amplifier with CMRR Trim	LT1024 DS	1	NA	LT1024
		LT1002 DS	12	NA	LT1002
	Ultraprecision Instrumentation Amplifier	AN11	6	6B	LTC1043, LTC1052
		AN9	6	11	LTC1043, LTC1052
Integrator	Integrator with Programmable Reset Level	LF198 DS	10	NA	LF398, LT1008
	Low Drift Integrator with Reset	LM108 DS	5	NA	LM108
Inverter	Ultraprecision Voltage Inverter	LTC1043 DS	8	NA	LTC1043
Isolation	Precision Isolation Amplifier (250V Iso.—0.03% Acc.)	AN9	8	12	LTC1052
		LTC1052 DS	19	NA	LM301A, LTC1052
Lock In	Lock In Amplifier	AN3	4	4	LTC1043, LM301A, LT1007, LT1011, LT1012
		AN43	24	27	LTC1043, LT1007, LT1011, LT1057
		LTC1043 DS	11	NA	LTC1043, LM301A, LT1007, LT1011, LT1012
Logarithmic	Logarithmic Amplifier	LT1008 DS	9	NA	LT1008, LM107, LT1004
	Six-Decade Log Amplifier	LTC1051 DS	13	NA	LTC1051
Low Noise	40dB 40MHz Low Noise Amplifier	LTM V:3	28	1	LT1192, LT1206, LT1226
	Accelerometer Circuit with DC Servo	LTM III:3	9	4	LT1113
	Chopped Bipolar Low Noise Amplifier	AN45	2	2	LT1028, LT1097
	Chopper-Stabilized Low Noise, Low Drift FET Amplifier	LTM I:2	17	1	LTC1150, LT1097

## Amplifiers (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Low Noise (Continued)</b>	DC Stabilized, Ultralow Noise ( $V_{OS} = 5\mu V$ , $1.1nV/\sqrt{Hz}$ )	AN21	10	14	LTC1052
		LT1028 DS	16	14	LT1028, LTC1052
		LTC1150 DS	11	NA	LTC1150, LT1028
	Low Noise Hydrophone Amplifier with DC Servo	LTM III:3	9	3	LT1113
	Low Noise, Chopper Stabilized FET Pair	AN45	3	4	LTC1050, LT1097
	Paralleling Amplifiers to Reduce Voltage Noise	LT1169 DS	11	NA	LT1169
	Paralleling for Low Noise	LT1028 DS	15	NA	LT1028
		LTC1051 DS	12	NA	LTC1053
		AN21	11	16	LT1028
	Ultralow Noise, Low Drift Amplifier	LTC1052 DS	1	NA	LTC1052, LT1007
	Ultralow Noise, Low Drift, Chopped FET Amplifier	AN61	14	18	LTC1150, LT1097
<b>Low Voltage</b>	3V Operation of Linear Technology Op Amps	DN56	1	Table 1	NA
	High Gain Amplifier with $\pm 1.5V$ Supplies	LTC1152 DS	8	NA	LTC1152
<b>Low <math>V_{OS}</math> Drift</b>	Obtaining Ultralow $V_{OS}$ Drift and Low Noise	LTC1051 DS	11	NA	LTC1051
	Ultralow Noise, Low Drift Chopper Amplifier	LTC203 DS	8	NA	LTC203, LT1028, LT1097
	$V_{OS}$ Nulling Loop	LT1220 DS	10	NA	LT1220, LT1097
<b>Micropower</b>	Meter Amplifier	LM10 DS	13	NA	LM10
	Microphone Amplifier	LM10 DS	14	NA	LM10
	Micropower, Single-Supply Op Amp	LT1178 DS	1–8	NA	LT1178, LT1179
	Precision, Micropower, Single-Supply Instrumentation Amplifier	LT1101 DS	1–12	NA	LT1101
	Transducer Amplifier	LM10 DS	12	NA	LM10
<b>Multiplexer</b>	High Precision, 3-Input MUX	LTC1152 DS	8	NA	LTC1152
	2-Quadrant, 150kHz Bandwidth Analog Multiplier	AN62	3	1	LTC1099, LT1122, LT1019-5

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Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Multiplier	4 Quadrant Multiplier with Double Sideband, Suppressed Carrier Modulator	AN67	57	77	LT1256
	AM Modulator with DC Output Nulling Circuit	AN67	57	76	LT1256, LT1077
		LTM IV:2	29	9	LT1256, LT1077
	Analog Multiplier	LTC1099 DS	11	9	LTC1099
	Analog Multiplier with 0.01% Accuracy	AN3	14	19	LTC1043, LT1056
	Analog Multiplier/Divider	LTC1040 DS	11	NA	LTC1040, LTC1043
	Crystal Oscillator, Op Amp Buffer, and Diode-Ring Mixer	LTM V:3	33	1	LT1206
	Four-Quadrant Multiplier Used as a Double-Sideband, Suppressed-Carrier Modulator	LTM IV:2	29	10	LT1256
	Four-Quadrant, 250kHz Bandwidth Analog Multiplier	AN62	4	3	LTC1278, LT1122
	Multiplier—DC to 50MHz	AN47	45	99	LT1193
	Multiply by 2	LTC1043 DS	8	NA	LTC1043
	Precision Multiply by 3	LTC1043 DS	8	NA	LTC1043
	Precision Multiply by 4	LTC1043 DS	8	NA	LTC1043
	Resistor Multiplier	LT1012 DS	11	NA	LT1012
Noise	Noise Calculation in Op Amp Circuits	DN15	1	NA	NA
	Noise Testing	OP27 DS	8	NA	OP27
Oscillation	Frequency Compensation without Tears	AN47	86	NA	NA
Programmable Gain	Programmable Gain Amplifier (Single-Supply)	LT1078 DS	14	NA	LT1079
	Single-Supply, Noninverting AC Amplifier with Digital Gain Control	LTC1251/56 DS	16	NA	LT1251/LT1256, LT1257
Rail-to-Rail	Input Bias Current Cancellation	LT1366-69 DS	18	10	LT1366
	Positive Supply-Rail Current Sense	LT1366-69 DS	1	NA	LT1366
	Rail-to-Rail Buffer	LTC1152 DS	1	NA	LTC1152

## Amplifiers (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Rail-to-Rail (Continued)</b>	Rail-to-Rail Potentiometer Buffer	LT1366-69 DS	18	11	LT1366
<b>Rectifier</b>	100kHz Precision Rectifier	LT1011 DS	15	NA	LT1011
	Half Wave Rectifier	LT1077 DS	10	NA	LT1077
	Precision Rectifier	LM101 DS	5	NA	LM101A
<b>RF</b>	RF Leveling Loop	AN22	14	27	LT1010, LT1012, LT1013, LT1088
		LT1088 DS	11	NA	LT1010, LT1012, LT1013, LT1088
		AN47	64	139A	LT1006, LT1088, LT1223
	Simple RF Leveling Loop	AN47	64	139B	LT1006, LT1228
		AN52	13	19	LT1006, LT1223
<b>RF Bias</b>	GaAsFET Bias Generator	AN66	89	170	LTC1044, LTC1153, LT1004-2.5
<b>Sample and Hold</b>	1.5V Fast Sample and Hold (125 $\mu$ s, 0.1%)	AN15	4	7	LM10, LT1018
	1.5V Powered Sample and Hold	AN15	3	6	LM10, LT1018
	5 $\mu$ s Sample and Hold with Zero Hold Step	LT119A DS	6	NA	LT119A
	8-Bit 100ns Sample and Hold	AN47	57	124	LT1220
	Basic Sample and Hold	LF198 DS	1	NA	LF198
	Differential Hold	LF198 DS	12	NA	LF198
	Fast Acquisition, Low Droop Sample and Hold	LF198 DS	11	NA	LF398
	Fast Sample-Hold, 2 $\mu$ s 0.01%, with Hold Step Compensation	AN4	5	9	LT318A, LT1010, LT1056
	Infinite-Hold-Time Sample and Hold	LTC1099 DS	1	NA	LTC1099, LT1022
		AN62	3	2	LTC1099, LT1122
	Low Power, Low Hold Step Sample and Hold	LTC1049 DS	7	NA	LTC1049, LTC201
	Micropower Sample and Hold	AN23	10	14	LT1006
		LT1006 DS	1	NA	LT1006
	Output Holds at Average of Sample Input	LF198 DS	11	NA	LF198

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Amplifiers (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Sample and Hold (Continued)	Quad 12-Bit Sample and Hold	DN38	2	3	LTC201A, LT1014
		LTC201A DS	7	NA	LTC201A/LTC202/LTC203, LT1014/LT1079
	Quad Single 5V Supply, Low Hold Step, Sample and Hold	LTC1043 DS	12	NA	LTC1043, LT1014
	Sample and Difference Circuit	LF198 DS	10	NA	LF198
	Sample and Hold	LF198 DS	6	NA	LM108
	Sample and Hold (10ns)	AN13	18	29	LT318A, LT1016
	Sample and Hold (200ns, 0.01%)	AN13	15	23	LT1016
	×1000 Sample and Hold	LM108 DS	10	NA	LF198, LT1008
Settling Time	Circuit for Testing Followers	AN10	3	4	NA
	Improved Settling-Time Test Circuit	LT1055 DS	8	NA	LT1056
		AN10	2	2	NA
	Measuring Amplifier Settling Time	AN47	82	B1	NA
	Sampling Switch for Ultraprecision Settling Time Measurement	AN10	4	5	NA
	Settling Time Test Circuit	AN10	1	1	NA
Single-Supply	Ground Current-Sense Amplifier	LT1213/14 DS	16	NA	LT1213
	Input Bias Current	LT1211/12 DS	1	NA	LT1211
Switchable Gain	Switchable Gain Video Amplifier	LTM III:3	16	7	LT1204
Track and Hold	Fast Track and Hold	AN13	16	26	LT1016
	Track and Hold (5MHz)	AN16	19	47	LT118A, LT1010
Variable Gain	2-Input Video Fader	LT1251/56 DS	1	NA	LT1251/LT1256
	Basic Variable Integrator	LT1251/56 DS	18	NA	LT1256
	Differential Input, Variable Gain Amplifier	AN67	81	132	LT1228

## Amplifiers (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Variable Gain (Continued)</b>	Four-Quadrant Multiplier as a Double Sideband, Suppressed-Carrier Modulator	LT1251/56 DS	15	NA	LT1256
	Logarithmic Gain Control	LT1251/56 DS	17	NA	LT1251/LT1256
	Single-Supply, Inverting AC Amplifier	LT1251/56 DS	16	NA	LT1251/LT1256
	Soft Clipper	LT1251/56 DS	17	NA	LT1256
	Variable-Gain Amplifier	AN3	5	6	LTC1043, LT1056
		LTC1043 DS	14	NA	LTC1043, LT1056
<b>Video</b>	"Picture-in-Picture" Test Setup	LTM III:3	21	1	LT1204
	±3dB Variable-Gain Video Amp Optimized for Differential Gain and Phase	AN57	3	1	LT1227, LT1228
	10MHz Bandwidth-Limited Amplifier	LT1189 DS	10	NA	LT1189
	2-Channel Multiplexed Video Cable Driver	AN47	33	68	LT1190
		DN57	1	NA	LT1190
		LT1190 DS	1	NA	LT1190
	2-Input Video Fader	LTM IV:2	28	4	LT1251/LT1256
	250mA Output Line Driver	LTM V:4	21	3	LT1206
	4 × 4 Video Crosspoint	DN81	2	1	LT1205, LT1254
	Bidirectional Video Bus	DN65	1	1	LT1190, LT1193
		LT1187 DS	11	NA	LT1187, LT1195
		LT1195 DS	11	NA	LT1195, LT1187
	Black Clamp Circuit	AN57	4	2	LT1227
	Cable-Sense Amplifier for Loop-Through Connections with DC Adjust	LT1189 DS	1	NA	LT1189
		LT1187 DS	1	NA	LT1187
	DC Stabilized Fast Amplifier (32MHz)	AN21	5	8	LT1008, LT1010
	Differential Cable Sense Amplifier	LT1193 DS	1	NA	LT1193
		AN47	33	70	LT1193

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Amplifiers (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Video (Continued)	Differential Input Video Loop-Through Amplifier	DN57	2	NA	LT1194
	Differential Receiver MUX for Power-Down Applications	LTC1189 DS	11	NA	LT1189
	Differential-Input, Variable-Gain Amplifier	AN57	12	A1	LT1228
	Double Terminated Cable Driver	LT1195 DS	8	NA	LT1195
		LT1192 DS	1	NA	LT1192
		LT1193 DS	10	NA	LT1193
		AN47	33	69	LT1192
	Electronically Controlled Gain, Video Loop-Through Amplifier (LT1228)	DN57	2	NA	LT1228
	Fast RGB Multiplexer	LTM IV:1	9	4	LT1203, LT1205, LT1260
	Four-Input Video Multiplexer with Cable Driver	DN79	1	1	LT1204
	Full Differential Line Receiver	AN47	38	82	LT1194
	Gamma Amp	AN57	6	7	LT1227, LT1229
	Low Cost 50MHz Voltage Controlled Amplifier	DN55	1	1	LT1193
	LT1206 Video Distribution Amplifier	AN67	71	107	LT1206
		LTM III:2	11	4	LT1206
	LT1223 Video Cable Driver	LTM I:1	5	2	LT1223
	LT1228 Soft Limiter	AN57	5	4	LT1228
	LT1251 Video Fader	LTM V:1	36	1	LT1251, LT1360
	LT1256 Video Cable Equalizer	DN92	1	1	LT1256, LT1227
	Luma Keyer	LTM IV:3	27	1	LT1203, LT1363, LT1016
		AN67	55	71	LT1203, LT1363, LT1016
	Many-Input Video MUX Cable Driver	LTM II:2	16	2	LT1227
	Picture-in-Picture Test Setup	AN57	18	C1	LT1204
	Programmable Gain Amplifier Accepts Inputs from 62.5mV <sub>P-P</sub> to 8V <sub>P-P</sub>	LT1204 DS	17	NA	LT1204

## Amplifiers (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Video (Continued)</b>	Single 5V Video Amplifier	LT1195 DS	9	NA	LT1195
	Single-Supply, AC-Coupled, Inverting Amplifier	LT1252 DS	6	NA	LT1252
	Single-Supply, AC-Coupled, Noninverting Amplifier	LT1252 DS	6	NA	LT1252
	Switchable-Gain Amplifier Accepts Inputs from 62.5mV <sub>P-P</sub> to 18V <sub>P-P</sub>	AN57	8	11	LT1204
	Switchable-Gain Amplifier with Input Z = 75Ω	AN57	9	12	LT1204
	Twisted-Pair Driver/Receiver	AN57	9	13	LT1204, LT1227, LT1193
	Two Input Video Fader	AN67	56	74	LT1251/LT1256
	Video Cable Driver	LT1220 DS	10	NA	LT1220
	Video DC Restore (Clamp) Circuit (LT1228)	DN57	2	NA	LT1228
	Video Distribution Amplifier	AN4	4	7	LT1010
	Video Fader	AN67	53	68	LT1251, LT1360, LT1004-2.5
		DN57	2	NA	LT1228, LT1223
	Video Gain-Control Stage	AN67	72	111	LT1228
	Video Gain-Control Circuit and Test Setup	AN57	15	B1	LT1228
		LTM III:2	17	1	LT1228
	Video Line Driver	LTM V:4	20	1	LT1363
	Video Line Driving Amplifier	AN4	3	6	LT1010
	Video Loop-Through Connection with DC Control	LTM I:2	12	5	LT1193
	Video MUX Cable Driver (LT1227)	DN57	1	NA	LT1227
<b>Wideband (See also Amplifiers, Fast)</b>	DC Stabilized Fast Amplifier, Low Bias Current (100V/μs, 1MHz Full Power Bandwidth)	AN21	6	9	LT1010, LT1012
	Differential Comparator Amplifier—Settable Limiting and Offset	AN47	40	88	LT1016, LT1194
	Fast Differential Comparator Amplifier	AN47	39	86	LT1006, LT1193, LT1019
	Feed Forward, DC Stabilized Buffer	AN4	2	4	LT1008, LT1010

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## Amplifiers (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Wideband (Continued)</b>	Gain-Trimable Wideband FET Amplifier	AN21	4	6	LT1010, LT1012
	LT1010 Wideband Amplifier	AN16	17	44	LT1010
	Stabilized, Wideband Cable-Driving Amplifier	AN45	4	6	LTC1150, LT1010
	Transformer Coupled Amplifier	AN47	39	84	LT1191
	Wideband FET Input Stabilized Buffer	AN21	3	4	LT1010, LTC1052
	Wideband, High Input Impedance, Gain = 1000 Amplifier	LT1058 DS	8	NA	LT1058

## Amplifiers—Current Feedback

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>AC Coupled</b>	AC Coupled Inverting	LT1227 DS	11	NA	LT1227
		LT1229 DS	11	NA	LT1229
	AC Coupled Noninverting	LT1229 DS	11	NA	LT1229
		LT1227 DS	11	NA	LT1227
<b>Boosted Output</b>	150mA Output Current Video Amp	LT1223 DS	11	NA	LT1223, LT1010
<b>Discussion</b>	Current Feedback	AN47	124	NA	NA
	Current Feedback Amplifier “Dos and Don’ts”	DN46	1–2	NA	LT1223
<b>Driver</b>	Bridge Driver for HDSL	DN132	2	2	LT1207
	CCD Clock Driver	DN132	2	3	LT1207
	Twisted Pair Driver for ADSL	DN132	1	1	LT1210
<b>General</b>	“Current Mode Feedback” (Son of Godzilla Amplifier)	AN21	8	12	LT1013
		AN22	13	25	LT1013
	“Current Mode Feedback” Amplifier (1MHz Full Power Bandwidth)	AN21	7	11	LT1001, LT1010
		LT1088 DS	9	NA	LT1001, LT1010
		AN22	12	24	LT1001, LT1010

## Amplifiers—Current Feedback (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Instrumentation	Difference Amplifier	LT1223 DS	10	NA	LT1223
	Video Instrumentation Amplifier	LT1223 DS	10	NA	LT1223
Integrator	Current Feedback Amplifier Integrator	LT1223 DS	9	NA	LT1223
Rectifier	Half-Wave Rectifier	LT1252 DS	6	NA	LT1252
RF	Simple RF Leveling Loop	LTM 1:2	16	1	LT1228, LT1006, LT1004-1.2
Single-Supply	Single-Supply AC Coupled Amplifiers	LT1229 DS	11	NA	LT1229
Video	2-Input Video MUX Cable Driver	LT1259/60 DS	1	NA	LT1259
	3.58MHz Phase Shifter	LTC1251/56 DS	19	NA	LT1256, LT1253
	Cable Driver for Composite Video	LT1229 DS	10	NA	LT1229
	Video Cable Driver	LT1223 DS	1	NA	LT1223
	Video Loop-Through Amplifier	LT1229 DS	1	NA	LT1229

## Analog Switches

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Driver	±5V Analog Switch Driver	LTC1045 DS	10	NA	LTC1045
Multichannel	Micropower, Low Charge Injection, Quad Analog Switch	LTC201 DS	1–12	NA	LTC201/LTC202/LTC203
Multiplexed	2-Channel Switch	LF198 DS	11	NA	LF398

**Anemometer (see Signal Conditioning)**

**Audio (see Amplifier, Audio)**

**Backlight (see Regulator—Switching, Backlight)**

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Ballistocardiograph					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Ballistocardiograph	Heart-Condition Monitoring	AN43	8	11	LT1010, LT1012, LT1018, LTC1043, LTC1150, LT1021

Battery Chargers					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Discussion	Battery Charging Current System Test Circuit	AN68	28	A1	LT1510, LT1006
	Battery Simulator	AN68	35	B1	LT1078, LT1073-12
	Charging up to 8 Cells from a 25V Supply	AN64	7	4	LTC1325
	Construction of Low Resistance Shunts	AN37	4	NA	NA
	Controlled, Constant-Current Load	AN68	36	B2	NA
	Current Comparator for Initiating Float Time	LT1510 DS	10	6	LT1510, LT1011
	Disconnecting the Voltage Divider to Keep $V_{BAT}$ Regulated to the Battery Voltage	LT1510 DS	10	5	LT1510
	LT1510 with Undervoltage Lockout	LT1510 DS	9	3	LT1510
	LTC1325 Charge, Discharge, and Gas Gauge Circuit	AN64	3	2	LTC1325
		LTM IV:3	18	2	LTC1325
	LTC1325 Fast Charger Circuit	LTM IV:3	17	1	LTC1325
	LTC1325 Fault-Detection Circuitry	AN64	4	3	LTC1325
	PWM Current Programming	LT1510 DS	9	4	LT1510
General	50mA Battery Charger and Regulator	LT1020 DS	14	NA	LT1020
	Battery Charger	LT1086 DS	10	NA	LT1086
	Battery Charger with Reversed-Battery Protection	AN64	14	11	LTC1325
	Battery Charger with $T_{BAT}$ and $V_{BAT}$ Failsafes Disabled	AN64	10	8	LTC1325

## Battery Chargers (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>General (Continued)</b>	Charging External Battery Through, LTC694/695-3.3 V <sub>OUT</sub>	LTC694/5-3.3 DS	9	3	LTC694-3.3/LTC695-3.3
	Charging More than 8 Cells from 25V	AN64	8	5	LTC1325, LT1006
	Connecting Portable System Circuits to the LT1510 SENSE Pin	AN68	15	9	LT1510, LT1302/LT1304/LT1307 or Similar
	Constant Current Battery Charger	AN51	8	11	LT1171
	High Efficiency Battery Charger	DN124	1	1	LT1511
	High Efficiency, Dual-Rate Battery Charger	AN51	9	12	LT1171, LT1006
	High Efficiency Power Supply Providing 3.3V/2A with Built-In Charger	LTC1142 DS	18	14	LTC1142
	LT1510 Block Diagram, Showing Basic Charger Circuit	AN68	6	2	LT1510
	LT1510 Charger System, 2-Diode Configuration	AN68	16	10	LT1510, LT1373/LT1439 or Similar
	LT1510 Charger System, Current-Boost Configuration	AN68	17	11	LT1510, LT1006
	LTC1325 Charger Using a Gated, Constant-Current Supply	AN64	11	9	LTC1325
	LTC1325 Typical Application	LTC1325 DS	1	NA	LTC1325
	LTC1325 Typical Application (another one)	LTC1325 DS	23	NA	LTC1325
	Programmable Battery Charger	AN51	10	13	LT1171, LT1006
	SEPIC Charger with 0.5A Output Current	LT1512 DS	1	NA	LT1512
	Wind-Powered Battery Charger	LTC1042 DS	7	NA	LTC1042, LM334, LT1004-1.2
<b>Lead-Acid</b>	Constant Voltage Charger	AN64	12	10	LTC1325
	Fast, Temperature-Compensated SLA Charger	AN68	23, 32	18, A7	LT1510, LT1011
	Lead Acid Battery Charger	AN51	10	16	LT1171, LT1013
		LTC1041 DS	7	NA	LTC1041
	Perfectly Temperature-Compensated Lead-Acid Battery Charger	AN66	74	148	LT1086, LT1012

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Battery Chargers (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Lead Acid (Continued)	Temperature-Compensated Lead Acid Batter Charger	LT1038 DS	9	NA	LT1038 LM301A
		LT138 DS	7	NA	LT338A
		LTM IV:1	18	1	LT1086, LT1012
	Temperature-Compensated Standard Sealed-Lead-Acid Battery Charger	AN68	22	16	LT1510
Li-Ion	87% Efficient Lithium Battery Charger	LT1510 DS	1	2	LT1510
	Adding a Protection Resistor for Lithium-Ion Charger	LT1239 DS	11	5	LT1239
	Current Comparator for Initiating Float Time Out	DN111	2	4	LT1510, LT1011
	High Efficiency Li-Ion battery charger	DN111	1	1	LT1510
	Li-Ion Battery Charger	AN66	70	145	LT1510
		AN66	72	146	LTC1147, LT1014, LT1009
		LTM V:2	35	1	
	Li-Ion $I_{MIN}$ + Timer Charger	AN68	24, 34	19, A9	LT1510, LT1011
	Typical LT1510 Based Li-Ion Charger Circuit	AN68	8	3	LT1510
Microprocessor Controlled	12-Bit, Serial Interface, Microprocessor Charge-Current Control	AN68	26	23	LT1510, LTC7543, LT1097
	12-Bit, Parallel Loading, Microprocessor Charge-Current Control	AN68	26	22	LT1510, LTC7541A, LT1097
	Complete LTC1325 Battery Management System	AN64	1	1	LTC1325
	Microprocessor Control of, LT1510 Constant-Voltage Output	AN68	27	24	LT1510, LTC7541A/LTC7543, LT1097
NiCd	4–6 Cell NiCd Battery Charger	DN125	2	6	LT1377
	4-Cell NiCd Battery Charger	AN66	73	147	LT1377
	4-Cell NiCd Regulator/Charger for Notebook Computers	DN54	1	1	LT1018, LTC1155, LT1431
		AN51	14	21	
	4-Cell, 1.3A Battery Charger Using Surface Mount Components	LTM III:3	23	1	LTC1148

## Battery Chargers (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
NiCd (continued)	4-Cell, 300mA NiCd Battery Charger	LTM IV:1	17	1	LTC1174
		LTC1265 DS	16	NA	LTC1265
	4-NiCd Cell Battery Charger	DN98	2	6	LTC1265
	5V or 3.3V Input, 4-Cell NiCd Battery Charger	LTM V:2	34	1	LT1377
	90% Efficient NiMH or NiCd Battery Charger	LT1510 DS	1	1	LT1510
	All Surface Mount 4-Cell NiCd Battery Charger	AN66	75	149	LTC1174
	Constant Current Battery Charger	LTM V:4	18	1	LTC1174HV-3.3
	High Efficiency (>90%) NiCd Battery Charger Programmable for Fast Charge or Trickle Charge	AN66	76	150	LTC1148
	LT1510 NiCd Charger with $-\Delta V$ Termination	AN68	21, 31	15, A5	LT1510, LT1013, LT1029CZ, LF398
	LT1510 NiCd Charger with $dT/dt$ Termination	AN68	18, 29	13, A3	LT1510, LT1014
	LTC1325 Typical Application	LTC1325 DS	1	NA	LTC1325
	LTC1325 Typical Application (Wide Range Battery Charger)	LTC1325 DS	23	NA	LTC1325
	Microprocessor Controlled NiCd or NiMH Charger	AN68	25	20	LT1510, LTC1096-5, LT1086-5CT
	NiCd or NiMH Battery Charger	AN66	70	144	LT1510
	Switched Mode Thermal NiCd Charger	AN37	4	6	LT311, LT1006
		AN37	3	5	LT1006
	Thermally Controlled NiCd Battery Charger	LT1001 DS	9	NA	LT1001
		AN6	4	3	LT1001
		AN37	2	2	LT1006
NiMH	90% Efficient NiMH or NiCd Battery Charger	LT1510 DS	1	1	LT1510
	Microprocessor Controlled NiCd or NiMH Charger	AN68	25	20	LT1510, LTC1096 LT1086-5CT
	NiCd or NiMH Battery Charger	AN66	70	144	LT1510
	LTC1352 Typical Application	LTC1325 DS	1	NA	LTC1325

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### Battery Chargers (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Termination	Hardwired Delta TCO Termination	AN64	9	7	LTC1325
	Hardwired TCO Termination	AN64	9	6	LTC1325

### Booster (see Amplifier)

### Breadboarding Techniques

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Discussion	Breadboarding Techniques	AN47	26	NA	NA
		AN47	98	NA	NA

### Bridge Amplifier (see Signal Conditioning)

### Buffer (see Amplifier, Buffer)

### Bypassing (see Capacitors)

### Capacitors

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Discussion	About Bypass Capacitors	AN13	25	A1	NA
		AN47	25	54	NA
	Hold Capacitor	LF198 DS	6	NA	LF198 Series

### CCFL—(see Regulator—Switching, Backlight; Regulator—Switching (Micropower), Backlight

## CCFL Test Equipment

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Electrical	Fast, Single-Supply Adaptive Trigger	AN61	15	21	LT1192, LT1006, LT1116
	Floating Output Callibrator	AN65	77	C19	LT1172, LT1220, LT1221, LT1222
	High Voltage RMS Calibrator	AN55	71	C13	LT1172, LT1006
	Precision Wideband Differential Probe Amplifier for Floating-Lamp Voltage Measurement	AN65	72	C14	LT1012, LT1193
Photometric	Glometer Lamp-Drive Electronics	AN65	88	D2	LT1006, LT1012, LT1228, LT1021-10, LT1122
	Glometer Photodiode Amplifier	AN65	90	D5	LT1006
	Precision, "Clip-On" Current Probe for CCFL Measurement	DN101	1	1	LT1223

## Circuit Breakers

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Circuit Breaker	12V Lamp Driver/Circuit Breaker with Autoreset	LTC1153 DS	12	NA	LTC1153
	24V to 28V Overtemperature Circuit Breaker	LTC1153 DS	11	NA	LTC1153
	24V to 28V Overtemperature Circuit Breaker with Bootstrapped Supply	LTC1153 DS	11	NA	LTC1153
	5V/1A Circuit Breaker with 1ms Trip Delay, 200ms Autoreset Period and 70°C Thermal Shutdown	LTC1153 DS	1	NA	LTC1153
	5V/1A Circuit Breaker with Shutdown	AN66	86	166	LTC1153
	5V/1A Circuit Breaker with Thermal Shutdown	LTM II:2	8	1	LTC1153
	Autoreset Circuit Breaker with Programmable Number of Retries Using Binary Counter	LTC1153 DS	14	NA	LTC1153
	Overtemperature Circuit Breaker	LTC1153 DS	11	NA	LTC1153
	Overvoltage Circuit Breaker	LTC1153 DS	11	NA	LTC1153

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### Circuit Breakers (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
	SCSI Termination Power 1A Circuit Breaker with Autoreset and Ramped Turn-On	LTC1153 DS	12	NA	LTC1153

### Clock Circuits (see Oscillators)

Comparators					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Additional Feature Circuits	Driving Ground Referred Load	LT1011 DS	10	NA	LT1011
		LT311A DS	6	NA	LT311A
	Driving Load Referenced to Negative Supply	LT1011 DS	9	NA	LT1011
		LT311A DS	6	NA	LT311A
	Driving Load Referenced to Positive Supply	LT311A DS	6	NA	LT311A
		LT1011 DS	9	NA	LT1011
	Noise Immune 60Hz Line Sync	LT119A DS	5	NA	LT319A
		LT1101 DS	11	NA	LT1011
	Using Clamp Diodes to Improve Frequency Response	LT1011 DS	10	NA	LT1011
		LT311A DS	6	NA	LT311A
Current	Fast Current Comparator (12-Bit)	OP15 DS	1	NA	OP16, LT1011, LT1009-2.5
	Fast Current Comparator (16-Bit)	LT1055 DS	10	NA	LT1056, LT1011, LT1009-2.5
DAC	Fast Preamplifier for Comparator	AN17	5	7	LT1016
Discussion	High Speed Comparator Problems	AN13	4	3–4	NA
Hysteresis	Combining Offset Adjust with Hysteresis	LT1011 DS	11	NA	LT1011
	Comparator with Hysteresis	LT685 DS	1	NA	LT685
	Low Power Comparator with <10 $\mu$ V Hysteresis	LT1012 DS	11	NA	LT1012
		LT1097 DS	7	NA	LT1097
Isolated	Fully Isolated Limit Comparator (500V Iso) with Gain of 100	AN11	10	12	LT1018
		LT1017 DS	8	NA	LT1018, LT1004-1.2
Level Shift	Output Level Shifting	AN13	31	E1–E4	LT1016
Microvolt	Dual-Limit Microvolt Comparator	OP227 DS	11	NA	OP227
One Shot	Voltage Controlled High Speed One Shot	LT319A DS	6	NA	LT319A, LM385-1.2
Precision	Dual Limit Microvolt Comparator	LT1002 DS	11	NA	LT1002
	Microvolt Comparator with Hysteresis	LT1007 DS	10	NA	LT1007
	Microvolt Comparator with TTL Output	LT1001 DS	8	NA	LT1001

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## Comparators (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Precision (Continued)	Offset-Stabilized Comparator	LTC1052 DS	12	NA	LT1011, LTC1052, LTC1043
		AN9	11	16	
Trigger	Trigger (50MHz)	AN13	24	42	LT1016
		AN47	59	130	LT1016, LT1097, LT1222
Ultrafast	High Speed Comparator with Hysteresis	LT685 DS	1	NA	LT685
	Single-Supply, Ground-Sensing Comparator	LT1116 DS	1–8	NA	LT1116
	Ultrafast Summing Comparator	AN47	58	128	LT1016, LT1191
Window	1.5V Powered Refrigerator Alarm	LT1017 DS	1	NA	LT1017
	Multiwindow Comparator and Display	LTC1045 DS	13	NA	LTC1045
	Undervoltage/Overvoltage Detector	DN123	2	2	LTC1442
	Window Comparator	LTC1042 DS	1–8	NA	LTC1042
	Window Comparator with Symmetric Window Limits	LTC1040 DS	1	NA	LTC1040
	Window Detector	LT1011 DS	10	NA	LT1011
		LT311A DS	6	NA	LT311A
Zero Crossing	Fast Zero Crossing Detector	LT1116 DS	6	NA	LT1116

## Controllers

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Cooler	Peltier Cooled, Switch-Mode 0°C Reference	AN25	12	18	LT1070, LTC1043, LT1013
Oven	In Crystal Oven Controller	AN1	6	12	LT1005
	Ovenized Oscillator	AN12	3	5	LT1005, LT1001

Converters					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
AC/DC	Fast, Bridge-Switched, Synchronous Rectifier Based AC-DC Converter	AN43	34	50	LT1012, LT1016
	Synchronous Rectifier Based AC/DC Converter ( $0V_{RMS}$ – $1.5V_{RMS}$ to $0V$ – $1.5V$ )	AN13	21	36	LT1012, LT1016
AC/F	Bipolar (AC) Input V/F Converter	LTC203 DS	9	NA	LTC203, LT1056, LT1011, LT1102
		LT1058 DS	10	NA	LT1058
	Bipolar Input-to-Frequency Converter	AN45	17	24	LTC201, LT1056, LT1011, LT1102
Capacitance/ Frequency	Humidity-to-Frequency Converter	AN7	11	11	LT1011, LT1056, LTC1043
Capacitance/ Pulse Width	Capacitance-to-Pulse Width Converter	LT1011 DS	13	NA	LT1011
DC/AC	LT1074-Based 400Hz Sine Wave Output (28V to 110VAC)	AN35	15	31	LT1074, LT1013, LT1086-12
DC/AC	Sine Wave Output Converter (115VAC)	AN8	11	24	NA
DC/DC: See Regulators—Switching					
Discussion	Analog Considerations for Interfacing the LTC1090 10-Bit DA System	LTC1090 DS	17–21	6–16	LTC1090
	Analog Considerations for Interfacing the LTC1091	LTC1091 DS	20–25	4–14	LTC1091
	Successive Approximation Techniques	AN17	8	NA	NA
	Thermal RMS/DC Converters	LT1088 DS	1–12	NA	LT1088
		AN22	1	1	NA
	V/F Techniques	AN14	18	B1–B5	NA
F/V	Frequency to Voltage	AN3	11	12	LTC1043
I/V	DAC I-to-V Converter	LT1357 DS	1	NA	LT1357
		LT1358/59 DS	1	NA	LT1358
	Inverting Op Amp Current-to-Voltage Converter	LTM V:2	16	2	LT1311
	LT1220 High Speed I/V Converter	LTM I:1	4	1	LT1220

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Converters (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
I/V (Continued)	Photodiode Current-to-Voltage Converter	LTM V:2	16	1	LT1113
Pulse Width/ Voltage	Fast Time-to-Height Converter	AN47	60	132	LT1220
	Pulse Width-to-Voltage Converter	LF198 DS	13	NA	LF398, LT1004
RMS/DC	100MHz Thermally Based RMS/DC Converter	AN61	17	22	LT1088, LT1013, LT1018, LT1097, LT1206
	50MHz Thermal RMS to DC Converter	AN5	4	6	LT1001, LT1002
		LT1013 DS	9	NA	LT1014
		LTC1043 DS	11	NA	LTC1043, LT1013
	Fast Settling RMS/DC Converter	AN22	9	17	LT1088, LT1010, LT1013
		LT1088 DS	7	NA	LT1088, LT1010, LT1013
	Servo-Sensed Heater Protection Circuit	AN22	10	20	LT1018
	Thermal RMS/DC Converter (100MHz)	AN22	5	8	LT1088, LT1013, LT1004-1.2
		LT1088 DS	6	4	
Temperature to Frequency	Isolated Temperature-to-Frequency Converter	LTM III:1	4	4	LTC1146, LTC1049, LT1025
	Isolated, Battery-Powered Temperature-to-Frequency Converter	LTC1145/46 DS	9	NA	LTC1164, LTC201, LT1025, LTC1049, LT1004-1.2
	Quartz-Crystal Based Thermometer	AN61	13	17	LT485
V/F	1.5V Voltage-to-Frequency Converter (0V–1V to 25Hz–10kHz)	AN15	1	1	LT1017
	1.5V Voltage-to-Frequency Converter (1Hz–1kHz, 0V–1V)	AN14	9	12	LT1017
	1/V <sub>IN</sub> to Frequency Converter (0V–10V to 1kHz–2Hz)	AN14	12	17	LT1011, LT1056
	3.3V-Powered Voltage-to-Frequency Converter	AN61	23	31	LTC1043, LT1017
	90μA Supply Current V–F, 0.05% Linearity (0V–5V to 0kHz–10kHz)	AN45	15	21	LT1017
	Charge Pump 1/V <sub>IN</sub> to Frequency (0V–5V to 10kHz–50Hz)	AN14	13	19	LTC1043, LT319A, LT1010, LT1056

## Converters (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
V/F (Continued)	Exponential to Frequency (0V–10V to 20Hz–20kHz)	AN14	15	21	LTC1043, LT318A, LT1056, LT1021-10
	Exponential Voltage-to-Frequency Converter	LT1055 DS	9	NA	LT1055, LM301A
	Fast Response Voltage-to-Frequency (1Hz–2.5MHz, 0V–5V)	AN14	4	5	LT319A, LTC1052, LT1056
	Low Power V/F Converter (0V–1V to 0kHz–1kHz)	LT1018 DS	7	NA	LT1018, LT1034-1.2
	Micropower V/F Converter (0V–5V to 0kHz–10kHz)	AN23	11	16	LT1017
	Micropower V/F Converter (0V–5V to 100Hz–1MHz)	DN38	1	1	LTC201A, LT1178, LT1004-2.5
		LTC201 DS	1	NA	
	Micropower V/F Converter, 0.02% Linearity (0V–5V to 0MHz–1MHz)	AN23	13	20	LTC201, LT1178
		LT1006 DS	10	NA	LT1006, LT1004-1.2, LT1004-2.5
	Offset Stabilizing V/F Converter	AN9	12	18	LTC1052
	Quartz Stabilized Voltage-to-Frequency (0V–10V to 0kHz–10kHz)	AN14	6	8	LTC1043, LT1056, LT1001, LT1011
	Quartz Stabilized, Voltage-to-Frequency (1Hz–30MHz, 0V–10V)	AN13	11	19	LT1002, LT1016
	Single 5V Voltage-to-Frequency Converter	LTC1040 DS	11	NA	LTC1040
	Single-Supply (0V–5V to 0kHz–5kHz)	AN50	7	8	LTC1043, LT1018
	Ultralinear Voltage-to-Frequency Converter (100kHz–1.1MHz)	AN14	7	10	LTC1043, LT1013
	Voltage-to-Frequency (0Hz–30kHz, 0V–3V)	AN3	11	12B	LTC1043, LT1009, LF356
		LTC1043 DS	9	NA	
	Voltage-to-Frequency (1Hz–1.25MHz, 0V–5V)	AN9	13	19	LTC1043, LTC1052
	Voltage-to-Frequency (1Hz–100MHz, 0V–10V: King Kong V/F)	AN14	2	1	LTC1043, LT1013, LTC1052

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### Converters (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
V/F (Continued)	Voltage-to-Frequency (1Hz–10MHz, 0V–10V)	AN13	9	16	LT318A, LT1011, LT1012, LT1016
		LT1016 DS	14	16	LT318A, LT1011, LT1012, LT1016, LM134, LT1034-1.2, LT1034-2.5
	Voltage-to-Frequency Converter (0Hz–10kHz)	LT1055 DS	1	NA	LT1056
	Voltage-to-Frequency Converter (10Hz–100kHz)	LT1011 DS	14	NA	LT1011, LT1009
	Voltage-to-Frequency Converter (10Hz–1MHz)	LT1022 DS	5	NA	LT1022, LT1011, LT1009
	Voltage-to-Frequency Converter (1Hz–1.25MHz)	LTC1052 DS	13	NA	LTC1052, LTC1043, LT1004-1.2
	Voltage-to-Frequency Converter (1Hz–10MHz)	AN47	54	121	LT1122, LT1016, LT1010, LT1006, LT137
	Voltage-to-Frequency Converter (1Hz–30MHz)	LTC1052 DS	14	NA	LTC1052, LTC1043, LT1004-1.2
	Voltage-to-Frequency Converter (5kHz–2MHz)	LT119A DS	7	NA	LT119A, LT1004-1.2
Voltage/Pulse Width	Voltage-Controlled Pulse-Width Generator	LT1016 DS	15	NA	LT1016, LM385

### Converters—Data

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
A/D	4-Digit (10,000 Count) A/D Converter	LT1011 DS	13	NA	LT1011, LF398, LM329
	Extending Resolution	AN50	7	7	LT1014/LT1079/LT1179, LT1004-1.2
A/D 8-Bits	0A-to-2A Battery-Current Monitor Draws Only 70µA	AN62	8	10	LTC1096, LT1178, LT1004-1.2

## Converters—Data (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>A/D 8-Bits (Continued)</b>	1kHz Sampling ADC Operates from 3V Lithium Coin Cell	LTM II:1	7	4a	LTC1098
	Two LTC1390 Cascadable, Serially Programmed, 8-Channel Multiplexers Provide 16 Analog Inputs	AN62	15	21	LTC1390, LTC1096
	3V Battery Powered, 10 $\mu$ W, 8-Bit A/D, Samples at 200Hz	LTC1096 DS	1	NA	LTC1096
	Battery-Powered Digital Thermometer Transmits Over RF Link	AN62	13	19	LTC1096, LT1004-1.2, LM134
	Cascading for 9-Bit Resolution	LTC1099 DS	13	NA	LTC1099
	Charge-Pump Powered, Floating A/D Conversion System	AN62	11	16	LTC1096, LT1004-1.2
		LTM II:1	10	8	
	Data-Acquisition Board	AN34	1–12	1–4	LTC1099
	Digitally Controlled Op Amp Offset Voltage Adjustment Circuit	LTM V:3	16	2	LTC1329-50, LT1006
	Digitally Controlled Power Supply Adjustment Circuit	LTM V:3	16	1	LTC1329-50, LT1107
	Floating 8-Bit Data-Acquisition System	LTC1096 DS	23	16	LTC1096
		AN52	4	4	
	Half-Flash 8-Bit A/D Digitizes Photodiodes	AN33	2	2	LTC1099, LT1022, LT1056, LT1019-2.5
	Interfacing a 3V-Powered LTC1196 to a 5V-Powered System	LTC1196/98 DS	18	6	LTC1196
	Interfacing the LTC1196 to the Altera EPM5064 PLD	LTC1196/98 DS	23	13	LTC1196
	Interfacing the LTC1198 to the TMS320C25 DSP	LTC1196 DS	24	15	LTC1198
	LTC1090 to Hitachi HD63705 Microcontroller Hardware Serial Interface	AN62	17	31	LTC1090 (LTC1290)
	LTC1090 to Intel 8051 Microcontroller Hardware Serial Interface	AN62	17	29	LTC1090 (LTC1290)

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Converters—Data (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>A/D 8-Bits (Continued)</b>	LTC1090 to Motorola MC68HC05C4 Microcontroller Hardware Serial Interface	AN62	17	30	LTC1090 (LTC1290)
	LTC1196 to Altera EPM5064 PLD Interface	AN62	19	39	LTC1196
	LTC1296 to Microcontroller Hardware Serial Interface	AN62	17	28	LTC1296
	Micropower	DN60	1	2	LTC1098
	Micropower Battery-Voltage Monitor	AN62	8	9	LTC1096
	Single 5V Supply, 1Msps, 8-Bit Sampling ADC	LTC1196/98 DS	1	NA	LTC1196
<b>A/D 10-Bits</b>	0–500°C Furnace Exhaust-Gas Temperature Measurement System with Low Supply Detection	AN62	11	15	LTC1091A, LTC1052, LT1019A-5, LT1025A
	1.5V Powered A/D (10-Bit, 100µs)	AN15	2	3	LT1018, LT1034-1.2
	10-Bit Serial Output A/D Converter	LT119A DS	6	NA	LT119A, LT1004-1.2
	2-Channel, 10-Bit Serial A/D	LTC1091 DS	1	NA	LTC1091
	A Quick Look Circuit for the LTC1090 10-Bit A/D System	LTC1090 DS	22	NA	LTC1090
	Auto Ranging an 8-Channel, 10-Bit A/D Converter	LTC221/222 DS	7	NA	LTC221/LTC222, LTC1090, LT1006, LT1027
	Auto-Zeroing A/D Offset Voltage	DN26	1–2	1–2	LTC1090
	Complete Temperature, Supply Voltage and Supply Current Monitor	LTC1392 DS	1	NA	LTC1392
	Current-Output Silicon Sensor Thermometer Driving 10-Bit A/D Converter	AN62	9	12	LTC1092, LT1019-2.5, LM134
	Data-Acquisition System Uses 4 Wires	DN1	1	1	LTC1090
	Fully Isolated A/D (10-Bit at 175V Iso)	AN11	12	14	LT1018
	Hitachi Synchronous SCI (HD63705) Interface	LTC1090 DS	15	NA	LTC1090
	Intel 8051 Interface	LTC1090 DS	16	NA	LTC1090
		LTC1091 DS	19	NA	LTC1091
	Interfacing LTC1090 to 8051	AN26A	1	1	LTC1090
	Interfacing LTC1090 to COP400	AN26F	1	1	LTC1090

## Converters—Data (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>A/D 10-Bits (Continued)</b>	Interfacing LTC1090 to COP800	AN26D	1	1	LTC1090
	Interfacing LTC1090 to HD63705V0	AN26C	1	1	LTC1090
	Interfacing LTC1090 to MC68HC05	AN26B	1	1	LTC1090
	Interfacing LTC1090 to TMS7000	AN26E	1	1	LTC1090
	Interfacing LTC1091 to 68HC05	AN26H	1	1	LTC1091
	Interfacing LTC1091 to 8051	AN26G	1	1	LTC1091
	Interfacing LTC1091 to COP800	AN26I	1	1	LTC1091
	Interfacing LTC1091 to HD6305V0	AN26L	1	1	LTC1091
	Interfacing LTC1091 to HD63705V0	AN26L	1	1	LTC1091
	Interfacing LTC1091/92 to TMS320C25	AN26N	1	1	LTC1091
	Isolated 10-Bit Data-Acquisition System	LTC1145/46 DS	10	NA	LTC1145, LTC1090, LT1111, LT1121-5
	LTC1091 to Intel 8051 Microcontroller Hardware Serial Interface	AN62	18	32	LTC1091 (LTC1291)
	LTC1091 to Motorola MC68HC05C4 Microcontroller Hardware Serial Interface	AN62	18	33	LTC1091 (LTC1291)
	LTC1092 10-Bit A/D Converter Receives Power and Transmits Data Over Two Transformer-Isolated Lines	AN62	14	20	LTC1092, LT1021-5
	LTC1094 A/D Converter RS232 Interface with LT1180 Dual Driver/Receiver	AN62	20	41	LTC1094, LT1180A, LT1021-5
	LTC1095 to Intel 8051 Microcontroller Hardware Serial Interface	AN62	18	34	LTC1095
	LTC1095 to Motorola MC68HC05C4 Microcontroller Hardware Serial Interface	AN62	18	35	LTC1095
	LTC1390 Typical Application	LTC1390 DS	1	NA	LTC1390, LTC1096
	LTC1392 Temperature/Voltage Measurement Application	DN106	2	3	LTC1392
	Micropower A/D (10-Bit, 100µs)	AN23	9	11	LT1017
	Micropower, Serial 10-Bit Data-Acquisition with 500V Optoisolated Communication	AN62	12	17	LTC1094, LT1021-5
	Motorola SPI (MC68HC05C4) Interface	LTC1090 DS	15	NA	LTC1090

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Converters—Data (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
A/D 10-Bits (Continued)	Motorola SPI (MC68HC05C4, MC68HC11) Interface	LTC1091–94 DS	18	NA	LTC1091
	Multiple LTC1094s Sharing One 3-Wire Serial Interface	AN62	19	38	LTC1094
	Multiple LTC1095s Sharing One 3-Wire Serial Interface	AN62	18	36	LTC1095
	National Microwire™ (COP420) Interface	LTC1090 DS	14	NA	LTC1090
	Simple, Fast A/D (10-Bit)	AN13	20	33	LT1016
	Sneak-A-Bit Circuit for the LTC1090: 11-Bit Resolution from a 10-Bit ADC	AN62	20	40	LTC1090, LT1021-5
	Sneak-A-Bit Code for 10-Bits Plus Sign	LTC1090 DS	22	NA	LTC1090, LT1021-5
	System Monitor for Relative Humidity, Supply Voltage and Ambient Temperature	LTC1392 DS	9	NA	LTC1392, LTC1043, LT1056 LM301A
	System Monitor for Two Supply Voltages and Ambient Temperature	LTC1392 DS	9	NA	LTC1392, LTC1430
	Thermistor-Based Temperature Measurement System	AN62	10	13	LTC1090, LT1006
	Weight Scale	AN62	6	7	LTC1092, LT1013
A/D 12-Bits	0°C–400°C Temperature-Measurement System	LTM II:1	20	1	LTC1292, LT1006, LT1027
	1.8μs, 12-Bit A/D SAR Converter	LT1016 DS	12	15	LT1016
	12-Bit A/D Converter	AN3	12	15	LT319A, LT1056, LTC1043A
		LT1057–58 DS	10	NA	LT1058, LTC1043
	12-Bit A/D Converter Interfaced to MC68HC11	AN67	47	61	LTC1291
	12-Bit Charge Balance A/D Converter	LT1055–56 DS	10	NA	LT1055, LT1001
	12-Bit DAC and LT1220 Op Amp Create Variable Reference Voltages, Enhancing LTC1410 ADC's Input Range	LTM V:4	22	7	LT1220, LTC8043, LTC1410
	12-Bit LTC1296 Data-Acquisition System Strain Gauge with Bridge-Driver Power Shutdown	AN62	16	23	LTC1296, LT1014

## Converters—Data (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>A/D 12-Bits (Continued)</b>	12-Bit, 500ksps ADC	LTM IV:1	4	3	LTC1278
	12-Bit, Single 5V Control System with Shutdown	LTC1257 DS	9	NA	LTC1257, LTC1297, LT1025A, LTC1050
	12-Bit, Single 5V Supply ADC Converts AC or DC inputs	LTM I:2	8	2	LTC1272
	12-Bit, Single 5V Temperature Control System with Shutdown	AN67	8	7	LTC1257, LTC1297, LTC1050, LT1025A
		LTM III:3	15	6	LTC1257, LTC1297, LT1025A
	12 $\mu$ W, SO8 Package, 12-Bit ADC Samples at 200Hz and Runs Off a 3V battery	LTC1285/88 DS	1	NA	LTC1285
	2 LTC1390 Multiplexers Expand the Input Capacity of the LTC1286 12-Bit DAC to 16 Channels	DN112	2	3	LTC1390, LTC1286
	2-Channel, Low Power A/D Converter	LT1366–69 DS	15	5	LT1368, LTC1288
	25 $\mu$ W, SO-8 package, 12-Bit ADC Samples at 200Hz and Runs Off a 5V Supply	LTC1286/98 DS	1	NA	LTC1286
	3V Powered, 12-Bit A/D	LTC1289 DS	1	NA	LTC1289, LT1079, LTC1044
	3V Powered, 12 $\mu$ W, 200Hz, 12-Bit ADC	LTC1285/88 DS	1	NA	LTC1285
	8085A and Z80 Interface	LTC1273/5/6 DS	19	19	LTC1273/LTC1275/LTC1276
	8085A and Z80 Interface	LTC1282 DS	20	22	LTC1282
	A “Quick Look” Circuit for the LTC1290	LTC1290 DS	24	NA	LTC1290
	A/D Converter (12-Bits, 7.5 $\mu$ s)	AN17	3	3	LT1021, LT1011A, LT1016
	Autoranging 8-Channel ADC	DN131	2	3	LTC1296, LTC1446
	Autoranging 8-Channel ADC with Shutdown	LTC1257 DS	9	NA	LTC1257, LTC1296
		LTM III:3	4	4	LTC1257, LTC1296
	Bipolar Offset and Full-Scale Adjust Circuit	LTC1279 DS	12	9c	LTC1279
		LTC1282 DS	14	12	LTC1282
	Buffered 2-Channel, Low-Power A/D	DN89	2	3	LTC1288, LT1366

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Converters—Data (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
A/D 12-Bits (Continued)	Complete 1.25MHz, 12-Bit Sampling A/D Converter	LTC1410 DS	1	NA	LTC1410
	Complete 100ps-resolution Delta-Time Circuit with “Bow” Correction	AN62	5	5	LTC1282, LM134
	Daisy Chaining Five LTC1390s	LTC1390 DS	7	NA	LTC1390, LTC1286
	Daisy Chaining Five LTC1391s	LTC1391 DS	7	NA	LTC1391, LTC1286
	Daisy Chaining Two LTC1390s for Expansion	LTC1390 DS	6	5	LTC1390, LTC1286
	Daisy Chaining Two LTC1391s for Expansion	LTC1391 DS	6	5	LTC1391, LTC1286
	Delta Time Measurement with the LTC1273	LTC1273/5/6 DS	22	26	LTC1273
	Delta Time Measurement with the LTC1282	LTC1282 DS	21	25	LTC1282
	Differential Temperature-Measurement System	LTM II:1	21	3	LTC1292, LT1027, LM134
	Digitally Linearized Platinum RTD Signal Conditioner	AN62	10	14	LTC1294, LT1101, LT1006, LT1027
	Driving $V_{REF}$ with an LT1006 Op Amp	LTC1282 DS	13	6	LTC1282, LT1006
		LTC1273/5/6 DS	12	6	LTC1275, LT1006
		LTC1279 DS	11	6	LTC1279, LT1006
		LTC1278 DS	11	6	LTC1278, LT1006
		LTC1274/77 DS	13	6	LTC1274, LT1006
	Eight-Channel Data-Acquisition System Without a Buffer Amplifier	DN88	2	4	LTC1278
	Floating, 12-Bit Data-Acquisition System	AN52	3	2	LTC1292, LT1019-5
		LTM II:1	21	2	LTC1292, LT1019-5
	Full-Scale Adjust Circuit	LTC1274/77 DS	16	11a	LTC1274, LTC1277
		LTC1273/5/6 DS	13	10a	LTC1273/5/6
		LTC1279 DS	12	9a	LTC1279
		LTC1278 DS	12	9a	LTC1278

## Converters—Data (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>A/D 12-Bits (Continued)</b>	Full-Scale Adjust Circuit	LTC1282 DS	14	10	LTC1282
	Fully Differential 8-Channel, 12-Bit A/D System Using the LTC1390 and LTC1410	AN67	3	1	LTC1390, LTC1410
	High Speed Sampling	DN66	2	2	LTC1273, LTC1275, LTC1276, LTC1282
	Interfacing the LTC1290 to the 8051	AN36A	1	1	LTC1290
	Interfacing the LTC1290 to the COP400	AN36F	1	1	LTC1290
	Interfacing the LTC1290 to the COP800	AN36D	1	1	LTC1290
	Interfacing the LTC1290 to the MC68HC05	AN36B	1	1	LTC1290
	Interfacing the LTC1290 to the MC68HC11	AN36B	1	1	LTC1290
	Interfacing the LTC1290 to the Z-80 MPU	AN36O	1	1	LTC1290
	Interfacing the LTC1290 to TMS7742 MCU	AN36E	1	1	LTC1290
	Interfacing the LTC1390 with the LTC1257 for Demultiplex Operation	LTC1390 DS	8	NA	LTC1390, LTC1257
	Interfacing the LTC1391 with the LTC1257 for Demultiplex Operation	LTC1391 DS	8	NA	LTC1391, LTC1257
	Isolated 4–20mA Current Loop	LTM V:3	31	4	LTC1453, LT1121-3.3, LT1077
	LT574A Bipolar Input Connection	LT574A DS	6	4	LT574A
	LT574A Unipolar Input Connection	LT574A DS	6	3	LT574A
	LTC1272/LTC1273/LTC1275/LTC1276 to 8085A/Z80 Microprocessor Hardware Parallel Interface	AN62	21	43	LTC1272/LTC1273/LTC1275/LTC1276
	LTC1272/LTC1273/LTC1275/LTC1276 to MC68000 Microprocessor Hardware Parallel Interface	AN62	21	44	LTC1272/LTC1273/LTC1275/LTC1276
	LTC1272/LTC1273/LTC1275/LTC1276 to TMS32010 DSP Processor Parallel Interface	AN62	22	46	LTC1272/LTC1273/LTC1275/LTC1276
	LTC1273 Offset and Full-Scale Adjust Circuit	LTC1273/5/6 DS	14	10b	LTC1273
	LTC1274 Typical Circuit	LTC1274/77 DS	14	9	LTC1274

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Converters—Data (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>A/D 12-Bits (Continued)</b>	LTC1275/76 Offset and Full-Scale Adjust Circuit	LTC1273/75/76 DS	14	10c	LTC1275/LTC1276
	LTC1278 Bipolar Offset and Full-Scale Adjust Circuit	LTC1278 DS	12	9c	LTC1278
	LTC1278 to TMS320C25 DSP Processor Parallel Interface	AN62	22	47	LTC1278
	LTC1278 Unipolar Offset and Full-Scale Adjust Circuit	LTC1278 DS	12	9b	LTC1278
	LTC1282 to TMS320C25 DSP Processor Parallel Interface	AN62	22	45	LTC1282
	LTC1290 to IBM PC Serial Port Interface	AN62	21	42	LTC1290, LT1021-5
		DN35	1	1	LTC1290, LT1021-5
	LTC1297 Data-Acquisition System Micropower Battery-Current Monitor	AN62	9	11	LTC1297, LT1121, LTC1047
	LTC1298 Digitizes Resistive Touchscreen X- and Y-Axis Voltages	DN116	2	3	LTC1298
	LTC1390 Expands the Input Capacity of the 12-Bit LTC1286 DAC to 8-Channels	DN112	1	1	LTC1390, LTC1286
	3V, 8-Channel, 12-Bit A/D Converter	LTC1391 DS	1	NA	LTC1391, LTC1285
	MC68000 Interface	LTC1273/5/6 DS	19	18	LTC1273/5/6
		LTC1282 DS	20	21	LTC1282
	Micropower A/D (12-Bit, 300µs)	AN23	7	9	LT1018, LTC1044
	Micropower Battery Current Monitor Using the LTC1297 12-Bit Data-Acquisition System	AN67	9	8	LTC1297, LTC1047, LT1121
	Micropower Battery-Current Monitor Using the LTC1297	LTM III:1	16	1	LTC1297, LT1121, LT1047
	Micropower Battery-Voltage Monitor	LTC1286/98 DS	23	15	LTC1286
	Multiple LTC1290s Sharing One 3-Wire Serial Interface	AN62	19	37	LTC1290
	Multiplexed, 8-Channel, Data-Acquisition System	LTM IV:1	5	4	LTC1257

## Converters—Data (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>A/D 12-Bits (Continued)</b>	MUXing the LTC1275 with the CD4051	LTC1273/5/6 DS	20	21	LTC1275
	MUXing the LTC1282 with the CD4051	LTC1282 DS	21	24	LTC1282
	No-Glue Serial Interface Simplifies Connection to Microcontrollers	DN116	2	2	LTC1286
	Offset and Full-Scale Adjust Circuit	LTC1410 DS	11	10	LTC1410
	Optoisolated Temperature Monitor	AN62	13	18	LTC1292, LTC1050, LT1019-2.5, LT1025A
		LTC1292/97 DS	23	31	LTC1292, LT1019-2.5, LT1025A, LTC1050
	Plugging the LTC1272 into an AD7572 Socket	LTC1272 DS	18–19	22–23	LTC1272
	Power Supply Grounding Practice	LTC1279 DS	13	10	LTC1279
	“Quick Look” Circuit for the LTC1286	LTC1286/98 DS	23	13	LTC1286
	“Quick Look” Circuit for the LTC1297	LTC1292/97 DS	22	28	LTC1297
	SAR Converter (12-Bit, 5 $\mu$ s)	AN13	19	31	LT318A, LT1016
	Several LTC1290s Sharing One 3-Wire Serial Interface	LTC1290 DS	17	5	LTC1290
	Single 3V Supply, 140ksps, 12-Bit Sampling A/D Converter	LTC1282 DS	1	NA	LTC1282
	Single 5V Supply, 10mW, 100kHz, 12-Bit ADC	LTC1274/77 DS	1	NA	LTC1277
	Single 5V Supply, 300ksps, 12-Bit Sampling A/D Converter	LTC1273/5/6 DS	1	NA	LTC1273
	Single 5V Supply, 3 $\mu$ s, 12-Bit Sampling ADC	LTC1272 DS	17	21	LTC1272
	Single 5V Supply, 500kHz, 12-Bit Sampling A/D Converter	LTC1278 DS	1	NA	LTC1278-5
	Single 5V Supply, 600kHz, 12-Bit Sampling A/D Converter	LTC1279 DS	1	NA	LTC1279
	12-Bit, 8-Channel, Sampling Data-Acquisition System	LTC1290 DS	1	NA	LTC1290

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Converters—Data (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>A/D 12-Bits (Continued)</b>	Small, 12-Bit, Differential-Input LTC1292 Data-Acquisition System Occupies Only 0.35in <sup>2</sup>	AN62	15	22	LTC1292, LT1027
	Smallest Possible 12-Bit ADC Configuration	LTM IV:1	14	4	LTC1286
	Sneak-A-Bit Circuit	LTC1290 DS	25	NA	LTC1290, LT1021-5
	Successive Approximation A/D Converter (12-Bits, 1.8μs)	AN17	6	9	LT1021, LT1016
	Successive Approximation A/D Converter (12-Bits, 10μs)	LT1011 DS	1	NA	LT1021, LT1011A
		AN17	1	1	LT1011A, LM329
	Supplying a 2.5V Reference to the LTC1274	LTC1274/77 DS	13	7	LTC1274, LT1019A-2.5
	Supplying a 2.5V Reference to the LTC1278 with the LT1019A-2.5	LTC1278 DS	11	7	LTC1278, LT1019A-2.5
	Supplying a 2.5V Reference Voltage to the LTC1275 with the LT1019A-2.5	LTC1273/75/76 DS	13	7	LTC1275, LT1019-2.5
	Supplying a 2.5V Reference Voltage to the LTC1279 with the LT1019A-2.5	LT1279 DS	11	7	LTC1279, LT1019A-2.5
	Supplying a 2.5V Reference Voltage to the LTC1282 with the LT1019A-2.5	LTC1282 DS	13	7	LTC1282, LT1019A-2.5
	The LTC1278 Undersamples the 455kHz Carrier to Recover the 5kHz Modulating Signal	DN88	2	2	LTC1278
	Tiny LTC1286 12-Bit Differential-Input Data-Acquisition System with LT1019-2.5 Reference	AN62	17	27	LTC1286, LT1019-2.5
	TMS32010 Interface	LTC1273/5/6 DS	20	20	LTC1273/LTC1275/LTC1276
		LTC1282 DS	20	23	LTC1282
	TMS320C25 Interface	LTC1273/5/6 DS	19	17	LTC1273/LTC1275/LTC1276
		LTC1282 DS	19	20	LTC1282
	Two LTC1257 12-Bit Voltage Output DACs Set the Input Span of an LTC1296 12-Bit, 8-Channel ADC	LTM V:3	27	3	LTC1257, LTC1296

## Converters—Data (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>A/D 12-Bits (Continued)</b>	2-Channel, 12-Bit, Self-Calibrating Data-Acquisition System	LTC221/222 DS	1	NA	LTC221/222, LT1006, LT1027, LTC1292
	Ultralow Full-Scale Drift LTC1273 3V A/D Converter	AN62	16	26	LTC1273, LT1019A-2.5
	Unipolar Offset and Full-Scale Adjust Circuit	LTC1274/77 DS	16	11b	LTC1274/LTC1277
		LTC1279 DS	12	9b	LTC1279
		LTC1282 DS	14	11	LTC1282
	Using Two LTC1257 12-Bit Voltage Output DACs to Set the Input Span of the 12-Bit, 8-Channel LTC1296	AN67	5	3	LTC1296, LTC1257
	Using the LT1019-2.5 as an External Reference	LTC1410 DS	11	8b	LTC1410, LT1019-2.5
<b>A/D 14-Bits</b>	8-Channel, 14-Bit A/D Converter	LTC221/222 DS	7	NA	LTC221/LTC222, LTC1290, LT1027
<b>A/D 16-Bits</b>	16-Bit Analog to Digital Converter	LTC1052 DS	18	NA	LTC1052, LTC1043, LT1009
	Analog to Digital (16-Bits)	AN9	16	25	LTC1043, LTC1052
<b>Acquisition</b>	12-Bit Data-Acquisition Systems Communicate with Microprocessors Over 4 Wires	DN22	1	1	LTC1290
	12-Bit, Differential Input Data-Acquisition System	LTC1292/97 DS	1	NA	LTC1297, LT1027
	2-Channel, 12-Bit Data-Acquisition System	LTC1291 DS	1	NA	LTC1291
	Closed Loop Control with the LTC1090	DN13	2	2	LTC1092, LT1013
	Data-Acquisition System Showing Sample and Hold Synchronizing Circuitry	DN2	1	1	LTC1090
	Hardware and Software Interface to Intel 8051	LTC1291 DS	12	NA	LTC1291
	Hardware and Software Interface to Motorola MC68HC11	LTC1291 DS	11	NA	LTC1291
	Hardware and Software Interface to Intel 8051 Processor	LTC1292/97 DS	12	5	LTC1292/LTC1297
	Hardware and Software Interface to Motorola MC68HC11	LTC1292/97 DS	11	4	LTC1297

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Converters—Data (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Acquisition (Continued)</b>	LTC1283 3V, Single-Supply, 10-Bit Data-Acquisition System	LTC1283 DS	1	NA	LTC1283
	Micropower Temperature and Voltage Measurement Sensor	AN67	45	59	LTC1392
	Multiplexed Input Data-Acquisition	LT1102 DS	8	NA	LT1102
	New Data-Acquisition System Communicates with Microprocessors Over 4 Wires	DN1	1	1	LTC1090
	Optoisolated, Multichannel Data-Acquisition System (10-Bit, 500V Iso)	DN10	2	1	LTC1090, LT1021-5
	PC-Based Data-Acquisition	AN34	3	2	LTC1099, LT1019-5
	“Quick Look” Circuit for the LTC1283	LTC1283 DS	22	NA	LTC1283
	“Quick Look” Circuit for the LTC1291	LTC1291 DS	19	NA	LTC1291
	“Quick Look” Circuit for the LTC1292	LTC1292/97 DS	21	26	LTC1292
	Sneak-A-Bit Circuit	LTC1283 DS	22	NA	LTC1283
	Two-Wire Isolated and Powered 10-Bit Data-Acquisition System	DN19	2	1	LTC1092, LT1021-5
	Autoranging 8-Channel, 12-Bit Data-Acquisition System	AN62	7	8	LTC1257, LTC1296
<b>D/A 8-Bits</b>	LTC1329 Digitally Controls the Output of a Power Supply	AN67	7	5	LTC1329-50, LT1107
	LTC1329 Used to Null Op Amp's Offset Voltage	AN67	7	6	LTC1329-50, LT1006
<b>D/A 12-Bits</b>	12-Bit DAC and LT1220 Op Amp Create Variable Reference Voltages, Enhancing LTC1410 ADC's Input Range	LTM V:4	22	7	LT1220, LTC8043, LTC1410
	12-Bit DACs with Daisy-Chained Outputs	LTC1257 DS	1	NA	LTC1257
	12-Bit, 3V to 5V, Voltage Output DAC	LTC1451–53 DS	10	NA	LTC1451–53
	12-Bit, Single 5V Control System with Shutdown	LTC1257 DS	9	NA	LTC1257, LTC1297, LT1025A, LTC1050
	12-Bit, Single 5V Temperature Control System with Shutdown	AN67	8	7	LTC1257, LTC1297, LTC1050, LT1025A

## Converters—Data (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>D/A 12-Bits (Continued)</b>	2-Quadrant Multiplying DAC Has Less Than 0.5LSB (typ) Total Unadjusted Error	LTC7541A DS	1	NA	LTC7541A, LT1097
	2nd Order Active Lowpass Filter Placed Between LTC1390 Multiplexer and LTC1286 12-Bit DAC	DN112	2	4	LT1366, LTC1390, LTC1286
	Autoranging 8-Channel ADC with Shutdown	LTC1257 DS	9	NA	LTC1257, LTC1296
	Bipolar (4-Quadrant Multiplying) DAC	LTC7543/8143 DS	7	NA	LTC7543/LTC8143, LT1112
		LTC8043 DS	4	NA	LTC8043, LT1112
	CMOS DAC with Low Drift Full-Scale Trimming	LT1236 DS	9	NA	LT1236-10, LTC7543, LT1007
	Computer Controlled 4–20mA Current Loop	AN67	6	4	LTC1453, LT1121-3.3, LT1077
	DAC I-to-V Converter	LT1358/59 DS	1	NA	LT1358
		LT1357 DS	1	NA	LT1357
	DAC with External Reference	LTC1257 DS	8	NA	LTC1257, LT1021-10
	DACs with Daisy-Chained Control Outputs	LTC1451–53 DS	1	NA	LTC1451
	Digitally Programmable Current Source	LTC1451–53 DS	10	NA	LTC1451, LT1077
	Driving the LTC1257 with Optoisolators	LTC1257 DS	10	NA	LTC1257, LT1021-5
	Easy Stand-Alone Application for the LTC1446 or LTC1446L	DN131	2	2	LTC1446/LTC1446L
	Filtering $V_{REF}$ and $V_{OUT}$	LTC1257 DS	8	NA	LTC1257
	Isolated 4–20mA Current Loop	LTM V:3	31	4	LTC1453, LT1121-3.3, LT1077
	Isolated 4mA–20mA Process Controller with 3.3V Minimum Loop Voltage	LTC1451–53 DS	9	NA	LTC1453, LT1121-3.3, LT1077
	Low Power Triple DAC	LTC8043 DS	6	NA	LTC1043, LT1179, LT1004-1.2
	LTC1392 Temperature and Voltage Measurement Circuit	LTM V:2	12	5	LTC1392

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Converters—Data (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>D/A 12-Bits (Continued)</b>	LTC1453 Operating on a Single 2.7V to 5V Supply	DN96	1	2	LTC1453
	Multiplying DAC with Easy 3-Wire Serial Interface	LTC7543/8143 DS	1	NA	LTC7543/LTC8143, LT1097
	Optoisolated, Digitally Controlled, 4mA to 20mA Process Controller with 3.3V Minimum Loop Voltage	DN96	2	3	LTC1453, LT1121-3.3, LT1077
	Single 5V, 12-Bit Temperature Control System with Shutdown	AN62	6	6	LTC1257, LT1025A, LTC1297, LTC1050
	SO-8 Multiplying DAC with Easy 3-Wire Serial Interface	LTC8043 DS	1	NA	LTC8043, LT1097
	Two LTC1257 12-Bit Voltage Output DACs Set the Input Span of an LTC1296 12-Bit, 8-Channel ADC	LTM V:3	27	3	LTC1297, LTC1257
	Unipolar (2-Quadrant Multiplying) DAC	LTC7541A DS	4	NA	LTC7541A, LT1097
		LTC7543/8143 DS	6	NA	LTC7543/LTC8143, LT1097
		LTC8043 DS	4	NA	LTC8043, LT1097
	Using 2 LTC1257 12-Bit Voltage Output DACs to Set the Input Span of the 12-Bit, 8-Channel LTC1296	AN67	5	3	LTC1257, LTC1296
	Wide Swing, Bipolar Output, 12-Bit DAC	LTC1451–53 DS	11	NA	LTC1451, LT1077
	Wide-Swing Bipolar DAC with Digitally Controlled Offset	DN131	2	4	LTC1446, LT1077
<b>Discussion</b>	Overvoltage Protection for MUX	LTC1290 DS	23	NA	LTC1290
<b>Infrared Data Communications</b>	IrDA™-SIR 4ppm Data Receiver	LTM V:2	9	2	LT1319
<b>Low Power</b>	3V Powered, 12-Bit Data-Acquisition System	LT1289 DS	1	NA	LTC1289, LTC1097, LTC1044
	LTC1282 3V A/D Converter with Full-Scale Adjust	AN62	16	24	LTC1282, LT1006
	Ultralow Full-Scale Drift LTC1282 3V A/D Converter	AN62	16	25	LTC1282, LT1019A-2.5

## Converters—Data (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Micropower	3V Battery Powered, 10 $\mu$ W, 8-Bit A/D, Sample at 200Hz	LTC1096 DS	1	NA	LTC1096
Voltage to Bits	LTC1392 Temperature and Voltage Measurement Circuit	LTM V:2	12	5	LTC1392

## Current

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Sensing	18ns Circuit Breaker with Voltage Programmable Trip Point	AN47	66	144	LT1016, LT1193
	5V/1A Electronic Circuit Breaker with 1ms Trip Delay	LTC1153 DS	1	NA	LTC1153
		AN53	15	31	LTC1153
	Circuit Breaker (12ns)	AN13	24	40	LT1016
	Circuit Breaker (700ns)	AN1	3	3	LT1005
	Dual 2A Circuit Breaker with Auto-Reset	LTC1155 DS	9	NA	LTC1155
	Fast High-Side, High Current Limit	AN30	44	89	LT1072CN8, LT317AH
	Ground Current-Sense Amplifier	LT1213/14 DS	16	NA	LT1213
	Hall-Effect Stabilized Current Transformer	AN61	19	24	LT1228
	High-Side Current Sense Amplifier	AN66	78	154	LT1366
	High-Side Power Supply Current Sensing	LTC1152 DS	8	NA	LTC1152, LT1097
	In-Line Current Limiter	LM134 DS	11	NA	LM334
	Positive Supply Rail Current Sense	LT1366–69 DS	1	NA	LT1366
	Precision Current Sensing in Supply Rails	LTC203 DS	11	NA	LTC203
		LTC1043 DS	15	NA	LTC1043
		AN3	13	18	LTC1043

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Current (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Sink	1A Voltage-Controlled Current Sink	LT1211/12 DS	16	NA	LT1211
	Precision Current Sink	LT1001 DS	8	NA	LT1001
Source	1A Voltage-Controlled Current Source	LT1211/12 DS	16	NA	LT1211
	2-Terminal Current Regulator	LM10 DS	11	NA	LM10
	2-Terminal Current Source	LT1077 DS	10	NA	LT1007, LT1034-1.2
	20mA Positive Current Source	LM129 DS	1	NA	LM329, LT1001
	Basic 2-Terminal Current Source	LM134 DS	8	NA	LM334
	Bidirection Current Source	AN16	19	48	LT1012, LT1010
	Bilateral Current Source	LM108 DS	6	NA	LM108
	Controlled Gain Voltage-to-Current Converter (Current Source)	LT1251/56 DS	16	NA	LT1256, LT1363
	Current Regulator	LT137 DS	7	NA	LT337A
		LT1033 DS	6	NA	LT1033
	Differential Voltage-to-Current Converter	LTC1051/53 DS	12	NA	LTC1053
	Digitally Programmable Current Source	LTC1451-53 DS	10	NA	LTC1451, LT1077
	Fast, Differential Input Current Source	LT1022 DS	6	NA	LT1022
	Fast, Precise, Voltage Controlled Current Source with Grounded Load	AN47	65	140	LT1190, LT1194
	FET Cascoding for Low Capacitance and/or Ultrahigh Output Impedance	LM134 DS	11	NA	LM334
	Ground-Referenced Current Source	LT1004 DS	5	NA	LT1004, LT1007
	High Power, Wideband, Voltage Controlled Current Source	AN47	65	142	LT1190, LT1194
	High Precision, Low Temperature Coefficient Current Source	LM134 DS	10	NA	LM334, LT1004-1.2
	High-Side Current Source	LT1366-69 DS	17	7	LT1366, LT1004-1.2
	Higher Output Current	LM134 DS	8	NA	LM334

## Current (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Source (Continued)	Low Temperature Coefficient, 2-Terminal Current Source	LT1004 DS	6	NA	LT1004-1.2, LM334
	Micropower Bias	LM134 DS	9	NA	LM334
	Precision 10nA Current Source	LM134 DS	10	NA	LM334, LT1008
	Precision Current Source	LT1001 DS	8	NA	LT1001
	Precision Current Source (1 $\mu$ A)	LT1019 DS	7	NA	LT1019-2.5, LT1012
		LT1021 DS	12	NA	LT1021-7, LT1001
	Topside Current Source	LTM IV:3	15	5	LT1366
		AN66	78	153	LT1366
	Voltage Controlled Current Source	AN16	20	49	LT1010
	Voltage Controlled Current Source with Compensating Temperature Coefficient	AN67	82	134	LT1006
	Voltage Controlled Current Source with Ground Referred Input and Output	LT1013 DS	17	NA	LT1013, LTC1043
		AN3	13	17	LT1013, LTC1043
	Voltage Programmable Current Source	LT1102 DS	8	NA	LT1006, LT1102
		AN45	5	8	LT1006, LT1102
	Voltage Programmable Current Source is Simple and Precise	DN40	2	4	LT1006, LT1102
	Voltage Controlled Current Source with a Compensating Temperature Coefficient	LTM II:3	16	3	LT1006
	Zero Temperature Coefficient Current Source	LM134 DS	8	NA	LM334

## Current Loop

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Receiver	4mA–20mA Loop Receiver	LT1101 DS	11	NA	LT1101, LT1004-1.2

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### Current Loop (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Transmitter	2-Wire 0°C to 100°C Temperature Transducer with 4mA–20mA Output	LTC1040 DS	11	NA	LTC1040, LT1019-5, LM134
	4mA–20mA Current Loop Transmitter	AN11	9	10	LT1013, LT1004-1.2
		LT1013 DS	14	NA	LT1013, LT1004-1.2
	4mA–20mA Floating Output for Current Loop Transmitter	AN11	10	11	LT1013
		LT1013 DS	14	NA	LT1013, LT1004-1.2
	Digitally Controlled 4mA–20mA Current Loop Generator	AN31	6	11	LT1072, LT1006
	Fully Floating 4mA–20mA Current Loop Transmitter	AN45	6	10	LT1078, LT1006, LT1004-1.2

**Data-Acquisition (see Converters—Data, Acquisition)**

**DC/DC (see Regulators—Switching)**

**Detectors (see Signal Conditioning)**

### Digital Help Circuits

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Additional Feature Circuits	Battery Detectors Sense Removal of Main Battery	AN51	17	24	LT1173
	Battery Discharge Monitor	LTC1150 DS	11	NA	LTC1150
	Logic System DC Isolation	LTC1045 DS	11	NA	LTC1045
	Pushbutton Reset for LTC694-3.3/LTC695-3.3	LTC694/5-3.3 DS	14	13	LTC694-3.3/LTC695-3.3
Battery Backup	Battery Backup Monitor with Optional Test Load	LTC694/5-3.3 DS	12	10	LTC695-3.3
		LTC692/93 DS	12	10	LTC693

## Digital Help Circuits (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Battery Backup (Continued)</b>	Capacitor Backup with 74HC4016 Switch	LTC694/5-3.3 DS	14	NA	LTC695-3.3
<b>EEPROM</b>	EEPROM Pulse Generator	LT1013 DS	12	NA	LT1013, LT1004
	EEPROM VPP Pulse Generator	AN31	5	9	LT1072, LT1006, LT1010
<b>EPROM</b>	VPP Generator for EPROMs—No Trim Required	LT1004 DS	7	NA	LT1004, LM301A
<b>Flash Memory</b>	2V Powered Flash-Memory VPP Generator	LT1109A DS	6	NA	LT1109A-12
	3.3V Powered Flash-Memory VPP Generator	LT1109A DS	6	NA	LT1109A-12
	All Surface Mount Flash Memory VPP Generator	AN52	13	18	LT1109-12
		DN58	1	1	LT1109-12
		LT1109 DS	1	NA	LT1109-12
		LT1110 DS	14	NA	LT1110-12
		LT1109A DS	1	NA	LT1109A-12
	Alternative Scheme Allows 12V from VPP1/VPP2 to Provide Power when LT1106 is in Shutdown Mode	LT1106 DS	8	NA	LT1106
	Basic Flash Memory VPP Programming Voltage Supply	AN31	1	1	LT1072
		DN17	1	1	
	Flash Memory VPP Generator Delivers 12V	AN51	19	26	LT1173
	High Power, High Repetition Rate VPP Pulse Generator	AN31	3	7	LT1072, LT1006, LT1004
	High Repetition Rate VPP Programming Supply	AN31	2	4	LT1072, LT1006, LT1010, LT1004
		DN17	2	3	
	LTC1262 Typical Application (Flash-Memory Programming Supply)	LTC1262 DS	1	NA	LTC1262
	Paralleling LTC1262s	LTC1262 DS	6	NA	LTC1262
	VPP Handshake Circuit	AN31	4	8	LT1018, LT1004

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Digital Help Circuits (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Notebook Computer	4-Cell NiCd Computer Power Management Systems	LTC1156 DS	1	NA	LTC1156
		AN53	11	23	LTC1156, LT1431
	Bidirectional Battery Switch	AN53	3	7	LTC1154
	Logic-Controlled Battery Switch	LTC1255 DS	11	NA	LTC1255
		LTC1157 DS	7	NA	LTC1157
		LTC1153 DS	12	NA	LTC1153
	LT1521's 12 $\mu$ A Standby Current Eliminates the Need for a Separate Memory Backup Supply	DN121	1	1	LT1521-5, LTC1477
Supply Monitor	Slow Turn-On Power Switch	LTC1154 DS	9	3	LTC1154
	10 $\Omega$ /0.1 $\mu$ F Combination Eliminates Inductive Overshoot and Prevents Spurious Resets During Battery Replacement	LTC694/5-3.3 DS	10	4	LTC694-3.3/LTC695-3.3
		LTC692/93 DS	10	4	LTC692/LTC693
	5V Power Supply Monitor	LT1017 DS	6	NA	LT1017, LT1034
	6V Battery Level Indicator	LM10 DS	12	NA	LM10
	AC-DC Dropout Detector	AN31	7	14	LT1018, LT1004
	Battery Backup Monitor with Optional Test Load	LTC694/5-3.3 DS	12	10	LTC695-3.3
		LTC692/93 DS	12	10	LTC693
	Battery Voltage Sensing Circuit	LT1005 DS	10	NA	LT1005
		LT1035 DS	10	NA	LT1035
	Capacitor Backup with 74HC4016 Switch	LTC694/5-3.3 DS	14	NA	LTC695-3.3
	Charging an External Battery Through V <sub>OUT</sub>	LTC692/93 DS	9	3	LTC692/LTC693
		LTC694/5-3.3 DS	9	3	LTC694.3.3/LTC695-3.3
	Delay on Power Up	LT1017 DS	8	NA	LT1017, LT1018
	Lead-Acid Low Battery Detector	LT1004 DS	7	NA	LT1004-1.2

## Digital Help Circuits (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Supply Monitor (Continued)</b>	Data-Acquisition System Battery-Current Monitor	AN62	9	11	LTC1297, LT1121, LTC1047, LT1004
	LTC692/93/95 Typical Application	LTC692/93 DS	1	NA	LTC692/LTC693, LT1086-5
		LTC694/5-3.3 DS	1	NA	LTC695-3.3, LT1129-3.3
	Micropower Battery Current Monitor Using the LTC1297 12-Bit Data-Acquisition System	AN67	9	8	LTC1297, LTC1047, LT1121, LT1004
	Microprocessor Supervisory Circuit	LTC1232 DS	1–8	NA	LTC1232
		LTC690 DS	1–16	NA	LTC690/LTC691/LTC694/LTC695
	Monitoring Regulated DC Supply with the Power-Fail Comparator	LTC692/93 DS	11	9	LTC692/LTC693, LT1086-5
		LTC694/5-3.3 DS	11	9	LTC694-3.3/LTC695-3.3, LT1129-3.3
	Monitoring Unregulated DC Supply with the Power-Fail Comparator	LTC692/93 DS	11	8	LTC692/LTC693, LT1086-5
		LTC694/5-3.3 DS	11	8	LTC694-3.3/LTC695-3.3, LT1129-3.3
	Power Supply Monitor	DN20	2	4	LTC1045
		LT1018 DS	7	NA	LT1018, LT1004-1.2
	TTL Power Supply Monitor	LTC1042 DS	6	NA	LTC1042, LT1004-2.5
	Typical Nonvolatile CMOS RAM Application	LTC694/5-3.3 DS	11	6	LTC695-3.3
		LTC692/93 DS	11	6	LTC693
	Using BATT ON to Drive an External PNP Transistor	LTC692/93 DS	9	2	LTC693
		LTC694/5-3.3 DS	9	2	LTC695-3.3
	Write Protect for Additional RAM	LTC694/5-3.3 DS	15	NA	LTC695-3.3

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### Digital Help Circuits (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Supply Monitor (Continued)	Write Protect for RAM	LTC694/5-3.3 DS	11	7	LTC694-3.3
		LTC692/93 DS	11	7	LTC692
Watchdog Timer	LTC692/93/95 Typical Application	LTC692/93 DS	1	NA	LTC692/LTC693, LT1086-5
		LTC694/5-3.3 DS	1	NA	LTC695-3.3, LT1129-3.3
	Watchdog Timer	AN31	10	22	LT1018

### Distortion Measurements

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Discussion	Understanding Distortion Measurements	AN43	44	NA	NA

### Drift

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Discussion	Minimizing Thermal EMFs	AN9	2	2-4	NA

### Drivers

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Capacitor	Slew Rate Reduction for Large Capacitive Loads	AN53	3	5	LTC1154, LT1121-5

## Drivers (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
CCD	CCD Clock Driver	DN132	2	3	LT1207
High-Side	18V–28V High-Side Driver	AN53	4	8	LTC1155
	2-Cell to 3.3V, 5V and 12V High-Side Switch/Converter with 0.01µA Standby Current	LTC1163/65 DS	7	NA	LTC1163/LTC1165, LT1109, LT1173
	2-Cell, Triple High-Side Switch	LTC1163/65 DS	1	NA	LTC1163/LTC1165
	Dual High-Side 3.3V Switch	AN53	12	26	LTC1157
		LTC1157 DS	1	NA	LTC1157
	High-Side Driver with Reverse Battery Protection	AN53	9	19	LTC1154
	Laptop Computer Power-Bus Switching	LTM I:2	7	2	LTC1155
	LTC1157 Used to Switch Two 3.3V Loads	LTM II:3	13	3	LTC1157
	Mixed-Voltage, High- and Low-Side Switches	LTC1163/65 DS	8	NA	LTC1163/LTC1165
	Ultralow Drop, Triple 3.3V High-Side Switch	LTC1163/65 DS	7	NA	LTC1163/LTC1165
High-Side, Isolated	300V Isolated High-Side Driver	LTC1145/46 DS	9	NA	LTC1145
	Fully Isolated, Quad High-Side Switch	AN66	85	165	LT1161
		LTM IV:1	21	1	LT1161
	Isolated High-Side Driver	LTM IV:1	25	1	LTC1146A
		AN66	79	155	LTC1146A
		LTC1177-5 DS	1	NA	LTC1177-5/LTC1177-12
		LTC1177-5 DS	6	NA	LTC1177-5/LT1177-12
Lamp	12V Lamp Driver/Circuit Breaker	AN53	8	17	LTC1154
		LTC1154 DS	9	4	LTC1154
	12V Lamp Driver/Circuit Breaker with Auto-Reset	LTC1153 DS	12	NA	LTC1153
	High Current Lamp Driver with Short-Circuit Protection	LT1158 DS	20	18	LT1158

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Drivers (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Low-Side	Mixed-Voltage High- and Low-Side Switches	LTC1163/65 DS	8	NA	LTC1163/65
Motor	DC Motor Driver with Stall-Current Circuit Breaker, Thermal-Overload Shutdown and 10 $\mu$ A Standby Current	LTC1153 DS	14	NA	LTC1153
Power MOSFET	200W Class D, 10Hz to 1kHz Amplifier	LT1160 DS	13	6	LT1162, LT1015, LT1016, LT1058
Relay	Relay Driver with Overcurrent Protection	LTC1154 DS	12	NA	LTC1154
		LTC1153 DS	12	NA	LTC1153
	Solid-State Relay	LTC1177 DS	7	NA	LTC1177-5/LTC1177-12
Solenoid	Driving Inductive Loads	LT1188 DS	6	NA	LT1188
		LTC1153 DS	8	2	LTC1153
		LTC1154 DS	8	2	LTC1154
	High-Side Solenoid Driver with Overcurrent Protection	LTC1255 DS	1	NA	LTC1255

**Drivers/Receivers (see Interface Circuits)**

**Fiber Optics (see Signal Conditioning, Photodiode)**

Filters—Active RC					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Allpass	3.58MHz Phase Shifter	LT1251 DS	19	NA	LT1256/LT1253
Bandpass	Bandpass Filter with Adjustable Q	LTM V:2	31	1	LT1228
		AN67	28	30	LT1228
	100kHz, 4th Order Butterworth Filter	LT1354 DS	1	NA	LT1354
		LT1355/56 DS	1	NA	LT1355

## Filters—Active RC (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Lowpass	100kHz, 4th Order Butterworth Filter (Sallen-Key)	LT1355/56 DS	11	NA	LT1355
		LT1354 DS	1	NA	LT1354
	1kHz, 4th Order Butterworth Filter	AN67	32	37	LT1367
	1kHz, 4th Order Butterworth Lowpass Filter	LTM IV:3	16	7	LT1367
	1MHz, 2nd Order Butterworth Filter	LT1224 DS	7	NA	LT1224
	1MHz, 4th Order Butterworth Filter	LT1360 DS	11	NA	LT1360
		LT1361/62 DS	11	NA	LT1361
	200kHz, 4th Order Butterworth Filter	LT1358/59 DS	11	NA	LT1358
		LT1357 DS	11	NA	LT1357
	2MHz, 4th Order Butterworth Filter	LT1364/65 DS	11	NA	LT1364
		LT1363 DS	11	NA	LT1363
	2nd Order Butterworth Filter (to 100kHz)	LT1200 DS	7	NA	LT1200
	2nd Order Active Lowpass Filter Placed Between LTC1390 Multiplexer and LTC1286 12-Bit A/D	DN112	2	4	LT1366, LTC1390, LTC1286
	3rd Order Sallen and Key Lowpass Filter	LTM V:2	32	1	LT1007
	4th Order Butterworth Filter (to 100kHz)	LT1201 DS	1	NA	LT1201
	4th Order Butterworth Filter (to 1MHz)	LT1208 DS	1	NA	LT1208
	DC Accurate, 18-Bit, 4th Order Antialiasing Bessel (Linear-Phase) 100Hz, Lowpass	LTC1051 DS	15	NA	LTC1051
	DC Accurate, 3rd Order, 100Hz, Butterworth Antialiasing Filter	LTC1051 DS	15	NA	LTC1051
	Precision, Fast Settling, Lowpass Filter	LT1008 DS	10	NA	LT1008, LT311A
	Sallen and Key Lowpass Filter	AN67	22	25	LT1007
	Single-Supply, 3-Pole, 1MHz Butterworth Filter	LT1213/14 DS	1	NA	LT1213
	Single-Supply, 100kHz, 4th Order Butterworth Lowpass Filter	LT1211/12 DS	16	NA	LT1212

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### Filters—Active RC (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Lowpass (Continued)	Single-Supply, 1kHz, 4th Order Butterworth	DN89	2	2	LT1367
State-Variable	Four-Pole, 1kHz, 3.3V Single-Supply, State-Variable Filter	LT1366–69 DS	17	8	LT1367
	State-Variable Filter with Adjustable Frequency and Q	LT1251/56 DS	20	NA	LT1256, LT1252
	Variable Lowpass, Highpass and Allpass Filter	LT1251/56 DS	18	NA	LT1256, LT1252

### Filters

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Discussion	Application Considerations for an Instrumentation Lowpass Filter	AN20	1–12	(1–27)	LTC1062
	Complex Data-Acquisition System, Few Components	DN24	1	NA	LTC1062, LTC1069, LT1007
	Design of Bandpass Filters	AN27A	NA	NA	NA
	Level Shifting the Input T <sup>2</sup> L Clock	LTC1064-1 DS	5	3	LTC1064-1
	Level Shifting the Input T <sup>2</sup> L Clock	LTC1064-2 DS	8	4	LTC1064-2
	Protecting the IC from Power Supply Reversal	LTC1064-1 DS	5	3	LTC1064-1
		LTC1064-2 DS	7	2	LTC1064-2
	Square Wave to Sine Wave Converter	AN40	23	NA	LTC1064-1
	Switched Capacitor LPF for Antialiasing Applications	DN16	1	NA	LTC1064-1
	Take the Mystery out of the Switched Capacitor Filter	AN40	NA	NA	NA

## Filters (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Discussion (Continued)	Using Schottky Diodes to Protect the IC	LTC1064-1 DS	5	1	LTC1064-1
Resonant Element	Crystal Filter	AN47	48	109	LT1221
	LC Bandpass Filter with Adjustable Q	LTM V:2	31	1	LT1228
		AN67	28	30	
	Piezo-Ceramic Based Filter	AN47	48	106, 108	LT1190

## Filters—Switched Capacitor

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Allpass	Allpass Network Configuration Using the LTC1064	AN56	10	B2	LTC1064, LT1056
Bandpass	10Hz–100Hz, 10Hz–1kHz and 400Hz–10kHz Bandpass Filter	DN24	2	2	LTC1064, LTC1062, LT1007
	10kHz–100kHz Bandpass Filter	DN37	2	2	LTC1064, LT1122, LT1064-4
	1kHz Tone Detector with Gain of 10	LTM V:2	25	3	LTC1164-8, LT1013, LTC1040
		AN67	26	29	LTC1164-8, LT1013, LTC1040
	4th Order Butterworth BPF, $f_0 = 2\text{kHz}$	AN27A	1–2	1–3	LTC1060/LTC1061/LTC1064
	6th Order Elliptic Bandpass Filter Centered Around 2600Hz	LTC1061 DS	10–11	12–13	LTC1061
	6th Order, Clock-Tunable, 0.5dB Ripple Chebyshev BPF	LTC1061 DS	1	NA	LTC1061
	8th Order Bandpass (to 100kHz)	LTC1264 DS	15	NA	LTC1264
	8th Order Bessel Bandpass (to 250kHz)	LTC1264 DS	15	NA	LTC1264
	8th Order Chebyshev BPF at 10.2kHz	AN27A	15	15	LTC1064
	Bandpass with 2 Notches (–60dB Stopband)	LTC1064 DS	12	NA	LTC1064
	C Message Filter	LTC1064 DS	12	NA	LTC1064

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## Filters—Switched Capacitor (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Bandpass (Continued)</b>	Cascading Identical Sections 4th Order BPF at 150Hz	AN27A	4	4	LTC1060
	Clock Sweepable Pseudobandpass Filters	AN24	4	5	LTC1062
	Dual 4th Order Bandpass (to 250kHz)	LTC1264 DS	13	NA	LTC1264
	High Frequency, Clock-Tunable Bandpass Filter	LTC1043 DS	13	NA	LTC1043, LT1056
	Linear-Phase, 8th Order Bandpass Filter	LTM III:3	28	1	LTC1264
	Mode 2/4th Order BPF at 150Hz	AN27A	5	6	LTC1060
	Quad Bandpass Filter	LTC1064 DS	11	NA	LTC1064, LT1056
	Single 5V, Gain of 1000 4th Order Bandpass Filter	LTC1060 DS	1	NA	LTC1060
	Single-Supply, 8th Order Bandpass Filter	AN67	37	46	LTC1264
	Single-Supply, Clock-Tunable, 8th Order Bandpass Filter	LTM IV:1	20	1	LTC1264
	Tone Detector and Average Value Circuit	LTC1164-8 DS	9	NA	LTC1164-8, LT1413
	Tone Detector—Detecting a Signal Buried in Wideband Noise	LTC1164-8 DS	10	NA	LTC1164-8, LT1413, LTC1040
	Ultranarrow 1kHz Bandpass Filter	LTC1164-8 DS	1	NA	LTC1164-8, LT1006
	Ultranarrow 1kHz Bandpass Filter with Adjustable Gain	AN67	30	33	LTC1164-8
		LTM IV:3	6	2	LTC1164-8, LT1006
	Wide Range 2nd Order Bandpass/Notch Filter with Q = 10	LTC1059 DS	1	NA	LTC1059
	Wideband (2:1) Bandpass	LTC1064 DS	11	NA	LTC1064
	Wideband, DC-Accurate BPF	DN9	2	2	LTC1062, LTC1050
	Linear-Phase, 8th Order Bandpass Filter	AN67	39	49	LTC1264
<b>Low Power</b>	8th Order Lowpass Butterworth	LTC1164 DS	12	11	LTC1164, LT1056
	8th Order Lowpass Elliptic Filter	LTC1164 DS	14	13	LTC1164, LT1006
	8th Order Lowpass, Single-Supply, Elliptic-Bessel Filter	LTC1164 DS	13	12	LTC1164, LT1006

## Filters—Switched Capacitor (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Low Power (Continued)	9th Order Lowpass Elliptic Filter	LTC1164 DS	15	15	LTC1164, LT1006
	Dual 5th Order Linear-Phase Filter with Stopband Notch	LTC1164 DS	1	NA	LTC1164
Lowpass	100Hz, 50Hz, 25Hz 5th Order DC Accurate LP Filter	LTC1062 DS	9	NA	LTC1062
	100kHz 7th Order Butterworth or Bessel Lowpass Filter with Rail-to-Rail Input and Output	LTM V:4	23	1	LTC1063/LTC1065, LT1366
	100kHz Elliptic Lowpass Filter with Input Antialiasing and Output Clock Feedthrough Filters	LTC1066-1 DS	16	NA	LTC1066-1
	10Hz DC Accurate Bessel LPF	DN9	1	1	LTC1062, LTC1050
	16th Order Butterworth Lowpass Filter	LTM II:2	18	1	LTC1164-5
	20Hz 5th Order Butterworth Lowpass Filter	LTC1062 DS	1	NA	LTC1062
	20Hz Bessel Lowpass Filter with 60Hz Notch	LTM V:4	24	5	LTC1065, LT1366
	5th Order Lowpass Filter	LTC1062 DS	10	NA	LTC1062
	5th Order Lowpass Filter with a 60Hz Notch	LTC1062 DS	11	NA	LTC1062, LT1013
	6th Order Butterworth Lowpass Filter Cutoff to 45kHz	LTC1061 DS	7	5	LTC1061
	6th Order Chebyshev Filter Using 3 Different Modes for Speed Optimization	LTC1061 DS	8	8	LTC1061
	7th Order 100Hz Lowpass Filter with Continuous Filtering, Output Buffering	LTC1062 DS	10	NA	LTC1062, LTC1052
	7th Order Lowpass Elliptic Filter	LTC1061 DS	11–12	16, 19	LTC1061, LT1056
	8Hz 5th Order Butterworth LPF	DN7	1	1	LTC1062
	8th Order Bessel to 95kHz	LTC1064-3 DS	1–8	NA	LTC1064-3
	8th Order Bessel with 65:1 $f_{CLK}/f_0$ Ratio	LTC1064 DS	14	NA	LTC1064
	8th Order Butterworth to 140kHz	LTC1064-2 DS	1–8	NA	LTC1064-2
	8th Order Cauer 40kHz LPF	DN16	2	3	LTC1064-1
	8th Order Cauer Cutoff up to 100kHz	LTC1064 DS	1	NA	LTC1064

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### Filters—Switched Capacitor (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Lowpass (Continued)</b>	8th Order Cauer to 100kHz	LTC1064-4 DS	1–8	NA	LTC1064-4
	8th Order Chebychev, up to 100kHz, Ripple 0.1dB	LTC1064 DS	13	NA	LTC1064
	8th Order, Clock-Sweepable Lowpass Butterworth Filter	LTC1064-2 DS	1	NA	LTC1064-2
	8th Order Elliptic (to 150kHz)	LTC1264 DS	14	NA	LTC1264
	8th Order Elliptic Antialiasing Filter	LTC1064-1 DS	1	NA	LTC1064-1
	8th Order Elliptic Lowpass Filter with 2-Pole Butterworth Input Antialiasing Filter	LTM IV:2	14	7	LTC1066-1
	8th Order Lowpass Butterworth	LTC1164 DS	12	11	LTC1164, LT1056
	8th Order Lowpass Elliptic Filter	LTC1164 DS	14	13	LTC1164, LT1006
	8th Order Lowpass, Single-Supply Elliptic-Bessel Filter	LTC1164 DS	13	12	LTC1164, LT1006
	9th Order Lowpass Elliptic Filter	LTC1164 DS	15	15	LTC1164, LT1006
	Adding a 2-Pole Butterworth Input Antialiasing Filter to 8th Order Elliptic Lowpass Filter	AN67	37	45	LTC1066-1
	Buffering the Filter Output	LTC1064-1 DS	6	4	LTC1064-1
	Cascading Two LTC1062s	AN20	7	12	LTC1062
	Cascading Two LTC1062s Using the First LTC1062s Buffered Output	AN20	7	13	LTC1062
	Clock-Tunable, DC-Accurate, 800Hz to 80kHz Elliptic Lowpass Filter	LTC1066-1 DS	1	NA	LTC1066-1
	DC Accurate, Clock-Tunable 10th Order Butterworth	LTC1063 DS	11	NA	LTC1063
	DC Accurate, Clock-Tunable 5th Order Butterworth	LTC1063 DS	1–12	NA	LTC1063
	DC-Accurate Lowpass Filter with Input Antialiasing	LTC1066-1 DS	14	NA	LTC1066-1

## Filters—Switched Capacitor (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Lowpass (Continued)	DC-Accurate, 10Hz to 100kHz, 8th Order Elliptic Lowpass Filter	LTM IV:2	13	4	LTC1066-1
		AN67	35	41	
	DC-Accurate, Clock-Tunable Lowpass Filter with Input Antialiasing	LTM IV:2	25	2	LTC1066-1, LTC1045, LTC202
		AN67	34	40	
		LTC1066-1 DS	15	NA	
	DC-Accurate, Programmable-Cutoff, 5th Order Butterworth Lowpass Filter	LTM II:3	22	1	LTC1063, LT1007
	Dual 4th Order Bessel Lowpass (to 400kHz)	LTC1264 DS	13	NA	LTC1264
	Dual 4th Order Bessel to 140kHz	LTC1064 DS	14	NA	LTC1064
	Dual 5th Order Chebychev, 50/100kHz Cutoff	LTC1064 DS	15	NA	LTC1064
	Dual 5th Order Elliptic/Bessel	LTC1064-1 DS	7	NA	LTC1064-1, LT1056
	Dual-Supply Operation, DC-Accurate, 10Hz–100kHz, Clock-Tunable 8th Order Elliptic Lowpass Filter	LTC1066-1 DS	13	NA	LTC1066-1
	Filtering AC Signals from High DC Voltages	LTC1062 DS	7	NA	LTC1062
	Low Frequency, 5Hz Filter	AN20	11	23	LTC1062
	Low Offset, 12th Order, Maximum Flat Lowpass Filter	AN20	8	15	LTC1062, LTC1051
	Low Power, 16th Order Butterworth Lowpass	AN52	10	12	LTC1164-5
	Low Power, 8th Order Elliptic Lowpass	LTC1164-6 DS	10	NA	LTC1164-6, LT1006
	Lowpass Filter with a 60Hz Notch	AN20	10	21	LTC1062, LT1013
	Output Buffer Eliminates Clock Feedthrough	LTC1064-1 DS	7	NA	LTC1064-1, LT1056
	Programmable Cutoff, Fifth Order Butterworth Lowpass	AN52	11	15	LTC1063, LT1007
	RC to Eliminate Clock Feedthrough and Improve HF Attenuation Floor	AN20	4	6	LTC1062, LTC1050
	Setting the LTC1065 Internal Clock with an External RC	LTM IV:1	11	3	LTC1065

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## Filters—Switched Capacitor (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Lowpass (Continued)</b>	Simple Cascading Technique—LTC1062	LTC1062 DS	9	NA	LTC1062, LTC1052
	Single 5V, 5mA, 16th Order Butterworth Lowpass	LTC1164-5 DS	11	NA	LTC1164-5
	Single 5V, 5mA, 16th Order Elliptic Lowpass	LTC1164-6 DS	11	NA	LTC1164-6
	Single 5V Operation, DC-Accurate, 10Hz to 36kHz, Clock-Tunable, 8th Order Elliptic Lowpass Filter	LTC1066-1 DS	13	NA	LTC1066-1
	Single-Supply LTC1062	AN20	4	7	LTC1062
	Single-Supply Operation	LTC1064-2 DS	7	3	LTC1064-2
		LTC1064-1 DS	5	2	LTC1064-1
	The LTC1063 Operating as a Clock-Sweepable Lowpass Filter	LTM II:2	17	6a	LTC1063
	Transitional Elliptic/Bessel 10th Order	LTC1064-1 DS	6	NA	LTC1064-1, LT1056
	Typical Configuration for Dynamic Range Measurement	LTM IV:1	12	7	LTC1065, LT1022
	Using a Multiplexer to Obtain Four Different Cutoff Frequencies	AN24	8	14	LTC1062, LT311
	Using an Input Divider to Accommodate High Voltages	AN24	7	12	LTC1062
<b>Lowpass, Linear-Phase</b>	Using the LTC1062 with Op Amps Operating from $\pm 15V$ Power Supply	AN24	7	13	LTC1062, LT1013
	Low Noise, 8th Order, Group-Delay Equalized Filter (to 100kHz)	LTC1064-7 DS	1–12	NA	LTC1064-7
	3.4kHz Single 5V Supply Bessel Lowpass Filter	LTC1065 DS	1	NA	LTC1065
	80kHz Linear-Phase Lowpass Filter	LTC1064-7 DS	1	NA	LTC1064-7
	Adding an Input Antialiasing RC	LTC1065 DS	11	10	LTC1065
	Adjusting $V_{OS(OUT)}$ for $\pm 7.5V$ Operation	LTC1065 DS	12	NA	LTC1065, LT1009

## Filters—Switched Capacitor (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Lowpass, Linear-Phase (Continued)</b>	Cascading Two LTC1065's for Steeper Roll-Off	LTC1065 DS	11	NA	LTC1065
	Dual 5th Order Linear-Phase Filter with Stopband Notch	LTC1164 DS	1	NA	LTC1164
	Low Noise, 8th Order, Group-Delay Equalized Filter (to 250kHz)	LTC1264-7 DS	1–12	NA	LTC1264-7
	Low Power, 8th Order, Group-Delay Equalized Filter (to 20kHz)	LTC1164-7 DS	1–12	NA	LTC1164-7
	Sharing Clock for Multichannel Applications	LTC1065 DS	11	NA	LTC1065
	Single 5V Supply Operation	LTC1065 DS	12	NA	LTC1065
<b>Noise</b>	Bandpass Filters and Noise	AN40	19	NA	NA
	LTC1060 Wideband RMS Noise	LTC1060 DS	9	Table 2	LTC1060
	Noise in Switched Capacitor Filters	AN40	19	NA	NA
	Wideband RMS Noise	LTC1061 DS	14	Table 3	LTC1061
<b>Notch</b>	5th Order Lowpass Filter with a 60Hz Notch	LTC1062 DS	11	NA	LTC1062, LT1013
	60dB Notch Tunable 30kHz–90kHz	LTC1064 DS	15	NA	LTC1064, LT1056
	6th Order Bandreject Filter with 65dB Notch Depth	LTC1061 DS	11–12	16, 18	LTC1061, LT1056
	6th Order Elliptic Notch Centered at 2600Hz	LTC1061 DS	10–11	12, 13	LTC1061
	8th Order Notch (to 150kHz)	LTC1264 DS	14	NA	LTC1264
	Lowpass Filter with 60Hz Notch	AN20	10	21	LTC1062, LT1013
	Clock-Tunable Notch Filter	AN24	6	10	LTC1062
	Dual 4th Order Notch and Bandpass (to 150kHz)	LTC1264 DS	13	NA	LTC1264
	Using the LTC1062 to Create a Notch	AN20	9	18	LTC1062, LT1056
	Wide Range 2nd Order Bandpass/Notch Filter with Q = 10	LTC1059 DS	1	NA	LTC1059
<b>Output Buffer</b>	Buffering the Filter Output	LTC1064-1 DS	6	4	LTC1064-1, LT1022, LT318, LT1056
		LTC1064-2 DS	7	1	LTC1064-2, LT1006

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### Filters—Switched Capacitor (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Output Buffer (Continued)	Output Buffer Eliminates any Clock Feedthrough	LTC1064-1 DS	7	NA	LTC1064-1
		LTC1064-2 DS	8	5	LTC1064-2, LT1056
Output Offsets	Equivalent Input Offsets of LTC1061	LTC1061 DS	14	23	LTC1061
	LTC1060 Offsets	LTC1060 DS	19	Table 5	LTC1060
	Output DC Offsets, One 2nd Order Section	LTC1064 DS	3	Table 1	LTC1064
	Output Offsets for Modes 1, 1b, 2 and 3	LTC1061 DS	14	Table 4	LTC1061

**Flash Memory (see Digital Help Circuits; Memory, Flash)**

**Flow Measurement (see Signal Conditioning)**

### Function Generators

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Pulse	1.5V Powered 350ps Rise Time Pulse Generator	AN45	18	27	LT1073
		LT1073 DS	18	NA	
Ramp	Ramp Generator with Variable Reset Level	LF198 DS	10	NA	LF398, LT1004-1.2
	Staircase Generator	LF198 DS	12	NA	LF398, LT1004-1.2
Tri-Wave	Precise Tri-Wave Generator	LT1018 DS	6	NA	LT1018, LT1013, LT1009-2.5

**Fuse, Electronic (see Current, Sensing)**

**Gas Sensor (see Signal Conditioning)**

## Ground Planes

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Discussion	About Ground Planes	AN13	29	NA	NA
		AN47	24	NA	NA

## Hot Swap

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
	"Hot Swap" Circuit Using LTC1477 and LTC699	LTM V:3	32	1	LTC1477, LTC699

## Inductance

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
DC/DC	Inductance Selection for Flyback Converters	AN29	38	D1	LT1070
Equivalent	Generating Negative Output Impedance	LM134 DS	11	NA	LM134

## Instrumentation Amplifiers (see Amplifiers, Instrumentation)

## Interface Circuits

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
ADSL	Twisted-Pair Driver ADSL	DN132	1	1	LT1210
AppleTalk® / LocalTalk®	AppleTalk Transceiver with ≥25k ESD Protection	LTC1320 DS	7	NA	LTC1320

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Interface Circuits (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
AppleTalk/ LocalTalk (Continued)	AppleTalk/LocalTalk Implemented with LTC1323CS-16 and LTC1334 Transceivers	LTC1334 DS	14	19	LTC1334, LTC1323
	IR LocalTalk Infrared Receiver	DN118	2	2	LT1319
	LocalTalk Implemented Using LTC1320 and LTC1335 Transceivers	LTC1321/22/35 DS	15	15	LTC1320, LTC1335
	LocalTalk/AppleTalk Interface	LTM IV:1	33	4	LTC1335
	LTC1323 Typical Application (AppleTalk Interface)	LTC1323 DS	1	NA	LTC1323
	PhoneNet® Application	DN85	2	4	LTC1491
		DN85	2	3	LTC1323
	Single 5V Supply AppleTalk Interface	LTC1320 DS	6	NA	LTC1320, LTC1046/LT1054
	Single-Supply LocalTalk Port	DN85	1	1	LTC1323
	Switched Negative Supply AppleTalk Transceiver	LTC1320 DS	7	NA	LTC1320
	Typical Application (DCE)	LTC1318 DS	1	NA	LTC1318
	Typical LocalTalk Connection	LTC1320 DS	1	NA	LTC1320
	Typical LocalTalk Connection for Low EMI	LTC1324 DS	1	NA	LTC1324
Coax	Coax Cable Driver/Receiver	LTC1045 DS	10	NA	LTC1045
DSP (Parallel)	LTC1272/LTC1273/LTC1275/LTC1276 to TMS32010 DSP Processor Parallel Interface	AN62	22	46	LTC1272/LTC1273/LTC1275/LTC1276
	LTC1278 to TMS320C25 DSP Processor	AN62	22	47	LTC1278
	LTC1282 to TMS320C25 DSP Processor Parallel Interface	AN62	22	45	LTC1282
EIA562 and RS485	EIA562 and RS485 Interfaces with $\pm 5V$ Supplies	LTC1321/22/35 DS	14	13	LTC1321/LTC1322/LTC1335
HDSL	Bridge Driver for HDSL	DN132	2	2	LT1207
	LT1206 Used as a Differential HDSL Transformer Driver	LTM V:1	27	4a	LT1206
	LT1206 Used as a Single-Ended HDSL Transformer Driver	LTM V:1	28	4b	LT1206
	LTC1278 HDSL Circuit with Programmable Gain	LTM V:1	28	5	LTC1287

## Interface Circuits (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
High Speed	High Speed Dual Line Receiver	LT1015 DS	1–2	NA	LT1015
	LTC1520 in a Backplane Application	DN129	2	2	LTC1520
Level Translator	ECL to CMOS from Single 5V Supply	LTC1045 DS	14	NA	LTC1045
	ECL to CMOS/TTL Logic	LTC1045 DS	7	NA	LTC1045
	EIA562/RS232 to RS422 Level Translator	LTM IV:1	33	6	LTC1332/LTC1335
	High Voltage CMOS ( $V_{CC} = 15V$ ) to TTL/ CMOS ( $V_{CC} = 5V$ )	LTC1045 DS	8	NA	LTC1045
	Logic Ground Isolation	LTC1045 DS	9	NA	LTC1045
	RS232 to RS485 Level Translator with Hysteresis	LTC1485 DS	10	NA	LTC1485
	RS422 to RS562 Converter	LTC1320 DS	6	NA	LTC1320
	TTL/CMOS Logic Levels to $\pm 5V$ Analog Switch Driver	LTC1045 DS	8	NA	LTC1045
		DN20	1	NA	NA
	Typical EIA562/RS232 to RS422 Level Translator	LTC1321/22/35 DS	18	22	LTC1322/LTC1335
	Typical RS232/EIA562 to RS422 Level Translator	LTC1334 DS	11	17	LTC1334
Light-to-Digital	IrDA-SIR/4PPM Data Receiver	LTM V:2	9	2	LT1319
Microcontroller (Serial)	LTC1090 to Hitachi HD63705 Microcontroller Hardware Serial Interface	AN62	17	31	LTC1090/LTC1290
	LTC1090 to Intel 8051 Microcontroller Hardware Serial Interface	AN62	17	29	LTC1090/LTC1290
	LTC1090 to Motorola MC68HC05C4 Microcontroller Hardware Serial Interface	AN62	17	30	LTC1090/LTC1290
	LTC1091 to Intel 8051 Microcontroller Hardware Serial Interface	AN62	18	32	LTC1091/LTC1291
	LTC1091 to Motorola MC68HC05C4 Microcontroller Hardware Serial Interface	AN62	18	33	LTC1091/LTC1291
	LTC1095 to Intel 8051 Microcontroller Hardware Serial Interface	AN62	18	34	LTC1095

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Interface Circuits (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Microprocessor (Parallel)</b>	LTC1095 to Motorola MC68HC05C4 Microcontroller Hardware Serial Interface	AN62	18	35	LTC1095
	LTC1296 to Microcontroller Hardware Serial Interface	AN62	17	28	LTC1296
	No-Glue Serial Interface Simplifies Connection to Microcontrollers	DN116	2	2	LTC1286
	LTC1272/LTC1273/LTC1275/LTC1276 to 8085A/Z80 Microprocessor Hardware Parallel Interface	AN62	21	43	LTC1272/LTC1273/LTC1275/LTC1276
	LTC1272/LTC1273/LTC1275/LTC1276 to MC68000 Microprocessor Hardware Parallel Interface	AN62	21	44	LTC1272/LTC1273/LTC1275/LTC1276
<b>Microprocessor (Serial)</b>	12-Bit A/D Converter Interfaced to MC68HC11	AN67	47	61	LTC1291
<b>Mixed Mode</b>	LTC1334 Typical Application	LTC1334 DS	1	NA	LTC1334
	RS232 and RS485 Interfaces with 5V, $\pm 12V$ Supplies	LTC1321/22/35 DS	14	14	LTC1321/LTC1322
	RS232/RS485 Interfaces	LTC1334 DS	11	11	LTC1334
	RS485 and RS232 Interfaces	LTM IV:1	33	2–3	LTC1332, LTC1335
	Typical LTC1322 Application (RS485 and EIA562 Interfaces)	LTC1321/22/35 DS	1	NA	LTC1322
<b>Multiprotocol</b>	Multiprotocol Interface	LTC1334 DS	12	12	LTC1334
<b>Ribbon Cable</b>	Flat Ribbon Cable Driver/Receiver	LTC1045 DS	1	NA	LTC1045
<b>RS232/EIA562</b>	2 Drivers/2 Receivers (EIA562) with Shutdown and Driver Disable	LTC1385 DS	1	NA	LTC1385
	2 Drivers/2 Receivers (RS232) with Shutdown	LTC1382 DS	1	NA	LTC1382
	2 Drivers/2 Receivers (RS232) with Shutdown and Receiver Enable	LTC1384 DS	1	NA	LTC1384
	2500V Isolated 5-Driver/5-Receiver RS232 Transceiver	DN27	2	2	LT1130, LT1072
	3 Drivers/5 Receivers (EIA562) with Shutdown	LTC1327 DS	1	NA	LTC1327
	3 Drivers/5 Receivers with Shutdown	LTC1348 DS	1	NA	LTC1348

## Interface Circuits (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>RS232/EIA562 (Continued)</b>	3 Drivers/5 Receivers (RS232) with Shutdown	LTC1337 DS	1	NA	LTC1337
	3.3V Powered Flash Memory VPP Supply and RS232 Interface	DN75	2	4	LT1109A-12, LT1332
	3.3V Powered RS232 Driver/Receiver	LT1331 DS	1	NA	LT1331
	5 Drivers/3 Receivers with Shutdown	LTC1338 DS	1	NA	LTC1338
	5V Powered RS232 Driver/Receiver	DN4	2	3	LT1080
	5V Powered RS232 Driver/Receiver with Shutdown	LT1080 DS	1–8	NA	LT1080
	5V Powered RS232 Driver/Receiver with Shutdown and Small Capacitors	LT1180 DS	1–8	NA	LTC1180, LTC1181
	5V RS232 Transceiver with 3V Logic Interface	LT1330 DS	1	NA	LT1330
	Data-Rate Evaluation Circuit	LTC1348 DS	7	5	LTC1348
	Design Considerations for RS232 Interfaces	DN27	1–2	NA	NA
	Extending the Applications of 5V Powered RS232 Transceiver	DN14	1–2	3–4	LT1080
	Fast Turn-On Transceiver with Automatic Shutdown Control	DN30	1	1	LT1180
	Isolated Low Power RS232 Receiver	AN67	19	21	LTC1145/LTC1146
	Isolated RS232 Driver/Receiver	LTC1145/46 DS	8	NA	LTC1145, LT1111, LT1121-5, LT1181A
		LT1381 DS	6	NA	LT1381, LT1111, LT1121-5, LTC1145
	Isolated Low Power RS232 Receiver	LTM III:1	4	3	LTC1145/LTC1146
	Keeping Alive One Receiver While in Shutdown	LT1330 DS	1–8	NA	LT1330
		LT1237 DS	1–8	NA	LT1237
		LT1331 DS	1–8	NA	LT1331
	LT1080 Driving an LT1039	LT1039 DS	5	NA	LT1039, LT1080
	LT1137A ESD Test Circuit	LTM V:3	21	3	LT1137A

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Interface Circuits (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>RS232/EIA562 (Continued)</b>	LT1237 Typical Application (RS232 Transceiver)	LT1237 DS	1	NA	LT1237
	LT1332 Powered from an LT1109A Micropower Switching Regulator Configured for Flash Memory	LT1332 DS	1	NA	LT1332, LT1109A-12
	LT1381 Operation Using 5V and 12V Power Supplies	LT1381 DS	7	NA	LT1381
	LT1381 Typical Application (RS232 Transceiver)	LT1381 DS	1	NA	LT1381
	LT1537 Driving Remotely Powered LTC1382	LT1537 DS	6	NA	LT1537, LTC1382
	LT1537 Typical Application	LT1537 DS	1	NA	LT1537
	LTC1094 A/D Converter RS232 Interface with LT1180 Dual Driver/Receiver	AN62	20	41	LTC1094, LT1180A, LT1021-5
	LTC1290 to IBM PC Serial Port	AN62	21	42	LTC1290, LT1021-5
	LTC1383 Typical Application (RS232 Transceiver)	LTC1383 DS	1	NA	LTC1383
	LTC1386 Typical Application (EIA/TIA562 Transceiver)	LTC1386 DS	1	NA	LTC1386
	Multiple LT1332s Powered from a Single Switching Regulator	LT1332 DS	7	1	LT1332, LT1172
	New Developments in RS232 Interfaces	DN4	1–2	NA	NA
	Operating Condition ESD Test Circuit	DN80	2	3	LT1331, LT1180A
	Operation with 5V and 12V Power Supplies	LT1180 DS	7	NA	LT1180
		LT1130 DS	9	NA	LT1130
		LT1341 DS	7	NA	LT1341
		LT1342 DS	7	NA	LT1342
		LTC1337 DS	6	NA	LTC1337
	Paralleling Power Supply Generator with Common Storage Capacitors	LT1130 DS	9	NA	LT1130
		LTC1383 DS	6	NA	LTC1383
		LTC1386 DS	6	NA	LTC1386

## Interface Circuits (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
RS232/EIA562 (Continued)	Quad Low Power Line Driver	LT1030 DS	1–4	1	LT1030
		LT1032 DS	1–8	NA	LT1032
	RS232 Driver/Receiver with Shutdown	LT1039 DS	1–8	NA	LT1039
	RS232 Interface Running on Both 3.3V and 5V Supplies	DN71	2	2	LT1330
	RS232 Receiver	LTC1045 DS	11	NA	LTC1045
		DN20	2	3	LTC1045
		LTC488/489 DS	8	NA	LTC488/LTC489
		LTC1485 DS	10	NA	LTC1485
	RS232 Transceiver with Charge Pump Power Supply Generator	LT1130 DS	1–12	NA	LT1130 series
	RS232 Transceivers Withstand 10kV ESD	DN64	1	1	LT1237
	Sharing a Receiver Line	LT1080 DS	6	NA	LT1080
	Sharing a Transmitter Line	LT1080 DS	6	NA	LT1080
		LT1039 DS	6	NA	LT1039
	Sharing Capacitors Between Two LT1381s	LT1381 DS	7	NA	LT1381
	Single-Supply RS232 Interface for Bipolar A/D Converters	DN29	1	1	LTC1094, LT1180, LT1021-5
	Switchable, 9-Pin DTE/DCE Data-Port Circuit	AN67	15	13	LT1137A, LT1138A
		LTM V:1	25	3a	LT1137A, LT1138A
	Transceiver	LT1039 DS	6	NA	LT1039
		LT1080 DS	6	NA	LT1080
	Typical Application Circuit for the LT1237 Under Digital Control	LTM II:3	10	10	LT1237
	Typical Application: 3 Drivers/5 Receivers with Shutdown	LTC1347 DS	1	NA	LTC1347
		LTC1348 DS	1	NA	LTC1348
		LTC1349 DS	1	NA	LTC1349
		LTC1350 DS	1	NA	LTC1350

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Interface Circuits (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
RS232/EIA562 (Continued)	Typical Cable Extension for RS232/EIA562 Interface	LTC1321/22/35 DS	18	23	LTC1322/LTC1335
		LTC1334 DS	13	18	LTC1334
	Typical Connection for EIA562 Interface	LTC1321/22/35 DS	16	18	LTC1335
	Typical Connection for EIA562/RS232 Interface	LTC1321/22/35 DS	16	17	LTC1322
		LTC1334 DS	13	13	LTC1334
	Typical LT1341 Application (RS232 Interface)	LT1341 DS	1	NA	LT1341
	Typical LT1342 Application (RS232 interface)	LT1342 DS	1	NA	LT1342
	Typical Mouse Driving Application	LT1237 DS	7	NA	LT1237
		LTC1337 DS	7	NA	LTC1337
		LT1341 DS	6	NA	LT1341
		LT1342 DS	7	NA	LT1342
		LT1537 DS	7	NA	LT1537
RS485/RS422	3.3V RS485 Network	LTC1480 DS	1	NA	LTC1480
	AC Coupled Termination	AN67	21	24	NA
		LTC1485 DS	9	13	LTC1485
	DC Coupled Termination	AN67	21	23	NA
	Differential Bus Transceiver	LTC485 DS	1–12	NA	LTC485
	Differential Driver and Receiver Pair	LTC487 DS	1	NA	LTC487, LTC489
		LTC490 DS	1–8	NA	LTC490
	ESD Protection with TransZorbs®	LTC488/489 DS	8	11	LTC488/LTC489
	Forcing Zero When All Drivers Are Off	LTC488/489 DS	7	10	LTC488/LTC489
		LTC1485 DS	9	14	LTC1485

## Interface Circuits (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
RS485/RS422 (Continued)	Typical Application (RS485 Transceiver)	LTC1481 DS	1	NA	LTC1481
		LTC1483 DS	1	NA	LTC1483
	LTC1485 Typical Application	LTC1485 DS	1	NA	LTC1485
	LTC1487 Typical Application	LTC1487 DS	1	NA	LTC1487
	LTC1518 Typical Application	DN129	2	3	LTC1518/LTC1519
	LTC488/LTC489 AC-Coupled Termination	LTC488/489 DS	7	9	LTC488/LTC489
	LTC488/LTC489 Typical Applications	LTC488/489 DS	1	NA	LTC486, LTC487, LTC488, LTC489
	Multiple Transceivers on One Output Bus	DN102	2	3	LTC1481/LTC1483/LTC1487
	Quad, Low Power RS485 Driver	LTC486 DS	1–8	NA	LTC486
	RS422 Cable Repeater	LTM IV:1	33	5	LTC1322/LTC1335
	RS422/RS485 Receiver Interface	LTC1345 DS	10	9	LTC1345, LTC485
	RS485 Repeater	AN67	18	19	LTC485
		LTM IV:1	30	1	LTC485
	Typical Cable Repeater for RS422 Interface	LTC1334 DS	13	16	LTC1334
		LTC1321/22/35 DS	17	21	LTC1322/LTC1335
	Typical Connection for RS422 Interface	LTC1334 DS	13	15	LTC1334
		LTC1321/22/35 DS	17	20	LTC1322/LTC1335
	Typical Connection for RS485 Interface	LTC1334 DS	12	14	LTC1334
		LTC1321/22/35 DS	16	19	LTC1322/LTC1335
	Typical RS485 Network	LTC485 DS	10	NA	NA
		DN39	1	NA	LTC485
SCSI	Active Termination for SCSI-2 Bus	LTC491 DS	1–12	NA	LTC491
		AN52	6	7	LT1117
		DN34	2	3	LT1086

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Interface Circuits (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
SCSI (Continued)	Boulay Active Terminator	LTM V:3	5	2	LT1118
	LT1117 SCSI Active Termination	LTM I:1	13	1	LT1117
	LT1118 Typical Application	LTM V:3	6	3	LT1118-2.85
	SCSI Active Terminator	LT1118 DS	4	NA	LT1118-2.85
		LT1117 DS	1	NA	LT1117-2.85
	SCSI Passive Terminator	LTM V:3	5	1	NA
	SCSI Termination Power 1A Circuit Breaker with Autoreset and Ramped Turn-On	LTC1153 DS	12	NA	LTC1153
	SCSI Termination Power Circuitry	LTM II:2	9	4	LTC1153
	SCSI Termination Power Protector	LTC1154 DS	15	NA	LTC1154
		AN53	16	34	LTC1153, LT1117-2.85
	SCSI Termination Power with Short Circuit Protection	AN66	83	161	LTC1155, LT1117-2.85
		LTM I:2	7	3	LTC1155, LT1117-2.85
Termination, Active-Negation	Linear Active-Negation Voltage Source	LTM IV:2	19	3	LT1431
		AN67	16	17	LT1431
	Switching Active-Negation Termination	AN67	17	18	LT1431
		LTM IV:2	19	4	LT1431
Termination, GTL	1.2V, 5A GTL Terminator	LTM III:3	24	1	LT1087
	GTL 1.55V Terminator Provides 10A Max Current	AN67	13	11	LT1158, LT1215, LT1004-1.2
		LTM V:1	33	1	
	GTL Supply	LTM V:4	20	1	LTC1430
	GTL Termination Voltage Circuit	AN67	19	20	LT1087
V.35	Clock and Data Signals for V.35 Interface	LTC1345 DS	1	NA	LTC1345
	Complete, Single 5V V.35 Interface	LTC1345 DS	9	8	LTC1345, LT1134A
		DN94	2	4	
	Typical V.35 Implementation Using the LTC1345 and LTC1346	LTM V:3	23	2	LTC1345, LTC1346, LT1134A
		AN67	11	10	
	Y and Delta Termination Networks	LTC1345 DS	7	6	NA

Laptop Circuits					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Power Management	Lithium-Ion Backup System	LT1239 DS	1	NA	LT1239
	NiCd Backup System with 20mA Charge Current	LT1239 DS	12	NA	LT1239
	NiCd Backup System with 5mA Trickle Charge	LT1239 DS	12	NA	LT1239
Switching Regulator: See Regulators—Switching: Backlight					
VPP Generator	LTC1262 Typical Application	LTC1262 DS	1	NA	LTC1262

**LCD Bias Supply (see Regulators—Switching, LCD Bias)**

**Level Detector (see Signal Conditioning, Level)**

**Level Shift (see Comparators)**

**LVDT (see Signal Conditioning, Distance)**

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Memory					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Discussion	A Primer on Flash Memory	AN31	12	NA	NA
	Preventing Memory Destruction	AN31	14	NA	NA
EEPROM	EEPROM Pulse Generator	LT1013 DS	12	NA	LT1013, LT1004-1.2
	EEPROM VPP Pulse Generator	AN31	5	9	LT1072, LT1006, LT1010, LT1004-1.2
EPROMs	VPP Generator for EPROMs—No Trim Required	LT1004 DS	7	NA	LT1004-1.2, LM301A
Flash	12.7V to 17V In, 120mA VPP Generator for Use with Flyback Converter or Overwindings	DN97	2	NA	LT1121
	12V, 60mA Flash-Memory Programming Supply	LT1309 DS	1	NA	LT1309
		LT1106 DS	1	NA	LT1106
	2V to 12V/120mA Converter	LT1302 DS	14	NA	LT1302
	3.3V or 5V In, 60mA VPP Generator for PCMCIA with Bank Switching for Up to 4 Memory Chips	DN97	1	NA	LT1106
	3.3V Powered Flash-Memory VPP Supply and RS232 Interface	DN75	2	4	LT1109A-12, LT1332
	3.3V/5V In, 120mA/240mA VPP Generator	DN97	2	NA	LT1172
	84%–88% Efficient, 5V/3.3V In 60mA/120mA VPP Generator	DN97	2	NA	LT1301
	All Surface Mount Flash-Memory VPP Generator	LT1109 DS	1	NA	LT1109-12
		LT1109A DS	1	NA	LT1109A
	All Surface Mount, Minimum Component Count, 3.3V/5V In, 60mA/120mA VPP Generator	DN97	1	NA	LT1109-12
	Alternative Scheme Allows 12V from VPP1/VPP2 to Provide Power When LT1106 is in Shutdown	LT1106 DS	8	NA	LT1106
	Basic Flash-Memory VPP Programming Voltage Supply	AN31	1	1	LT1072
	Boost-Mode Switching Regulator for Flash-Memory VPP Programming	LTM II:3	17	1	LT1109A-12

## Memory (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Flash (Continued)</b>	Boost Mode Switching Regulator with Low $R_{ON}$ Pass Transistor for Flash-Memory Programming	AN66	65	132	LT1109A-12
	Flash-Memory Programmer	AN61	22	29	LT1109-12
	High Power, High Repetition Rate VPP Pulse Generator	AN31	3	7	LT1072, LT1006, LT1004-1.2
	High Repetition Rate VPP Programming Supply	AN31	2	4	LT1072, LT1006, LT1010, LT1004-1.2
	Inductorless 5V In, 30mA VPP Generator	DN97	1	NA	LTC1262
	Inductorless Flash-Memory VPP Generator	LTM IV:2	18	1	LTC1262
	Inductorless VPP Generator	AN66	64	130	LTC1262
	Inductorless, Charge-Pump 5V In, 60mA VPP Generator	DN97	1	NA	LTC1263
<b>RAM</b>	Typical Nonvolatile CMOS RAM Application	LTC694/5-3.3 DS	11	6	LTC695-3.3
	Write Protect for Additional RAM	LTC694/5-3.3 DS	15	NA	LTC695-3.3
	Write Protect for RAM	LTC694/5-3.3 DS	11	7	LTC694-3.3
<b>Save</b>	Memory Save on Power Down	AN31	8	16	LT1020, LT1086-5

## Methane Detector (see Signal Conditioning)

## Micropower

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
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	Micropower A/D (12-Bits, 300 $\mu$ s)	AN23	7	9	LTC1043, LT1018
<b>Comparator</b>	Refrigerator Alarm	LT1017 DS	1	NA	LT1017

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Micropower (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
DC/DC	Low Quiescent Current Flyback Regulator (150 $\mu$ A, 6V–12V)	AN29	9	12	LT1070, LT1017, LT1004-1.2
		DN11	2	2	LT1070, LT1017, LT1004-1.2
Discussion	Parasitic Effects of Test Equipment on Micropower Circuits	AN23	23	NA	NA
	Sampling Techniques and Components for Micropower Circuits	AN23	21	NA	NA
	Some Guidelines for Micropower Design	AN23	18–20	NA	NA
Instrumentation Amplifier	Micropower, Single-Supply Instrumentation Amplifier	LTC1047 DS	1	NA	LTC1047, LTC1043
	Precision, Micropower, Single-Supply Instrumentation Amplifier	LT1101 DS	1–12	NA	LT1101
Op Amp	Low Power, Chopper Stabilized Op Amp with Internal Capacitors (200 $\mu$ A)	LTC1049 DS	1–8	NA	LTC1049
Sample and Hold	Micropower Sample and Hold	AN23	10	14	LT1006
		LT1006 DS	1	NA	LT1006
Strain Gauge	Sampled Strain-Gauge Bridge Signal Conditioner	AN23	3	3	LT1021, LT1006
	Strobed Power Bridge Signal Conditioner	AN23	4	5	LT1054, LT1013
Temperature Sensor	Freezer Alarm	AN23	7	8	LTC1042
	Micropower Cold Junction Compensation for Thermocouples	LT1004 DS	1	NA	LT1004-1.2
	Micropower, Battery Operated, Remote Temperature Sensor	LT1101 DS	11	NA	LT1101, LM134-3, LT1004-1.2
	Platinum RTD Signal Conditioner with Curvature Correction (2°C–400°C)	AN23	1	1	LT1006/LT1078, LM334
		LT1006 DS	10	1	LT1006, LM334
	Thermistor Based current Loop Signal Conditioner (0°C–100°C)	AN23	5	6	LTC1040, LM134, LT1034-1.2
	Thermocouple Signal Conditioner with Cold Junction Compensation (0°C–60°C)	LT1006 DS	11	NA	LT1006, LT1034
		AN23	2	2	
	Wall-Type Thermostat	AN23	6	7	LTC1041
V/F	90 $\mu$ A Supply Current V/F	AN45	15	21	LT1017, LT1178, LT1004-2.5

## Micropower (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
V/F (Continued)	Micropower V/F Converter (0V–5V to 100Hz–1MHz)	DN38	1	1	LTC201A
		LTC201 DS	1	NA	LTC202, LT1178
	Micropower V/F Converter (10kHz)	AN23	11	16	LT1017, LT1004-1.2
	Micropower V/F Converter (1MHz)	AN23	13	20	LT1006, LT1004-1.2, LT1004-2.5
		LT1006 DS	10	NA	
	Ultralow Power 50°F to 100°F Thermostat	LTC1041 DS	1	NA	LTC1041
Voltage Reference	Low Input Voltage Reference Driver	LM134 DS	9	NA	LM334, LT1009
	Low Power V/F Converter	LT1018 DS	7	NA	LT1018, LT1034-1.2
	Micropower 5V Reference	LM134 DS	10	NA	LM334, LT1004-1.2
		LT1004 DS	7	NA	
	Self-Buffered Micropower Reference	LT1178 DS	1	NA	LT1178, LT1004-1.2
		DN23	1	1	LT1178, LT1034-1.2
Voltage Regulator	Buck Switching Regulator (5.8V–10V to 5V)	AN23	15	22	LT1017, LT1004-1.2
	Micropower Preregulated Linear Regulator	AN32	8	15	LT1020
	Micropower Regulator with Comparator and Shutdown	LT1120 DS	1–12	NA	LT1120
	Post Regulated Switching Regulator (6V–10V to 5V)	AN23	16	25	LT1020

## Models

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Macromodel	LT1013 Op Amp Spice Macromodel	DN12	1	1	NA
	LT1056 Macromodel	DN43	1–2	1	NA
	Questions and Answers on the Spice Macromodel Library	AN41	1–18	NA	NA

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### Models (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Macromodel (Continued)</b>	Spice Op Amp Macromodel for the LT1012	DN28	1–2	NA	NA
	Using the LTC Op Amp Macromodels	AN48	1–28	NA	NA

### Motor Control

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Driver</b>	10A Locked, Antiphase, Full-Bridge Motor Drive	AN66	91	172a	LT1158
		LTM II:1	5	4a	LT1158
	DC Motor Driver with Overcurrent and Overtemperature Protection	AN66	87	168	LTC1153
		LTM II:2	9	5	LTC1153
	DC Motor Driver with Stall-Current Circuit Breaking	LTC1153 DS	14	NA	LTC1153
	Driving a Supply-Referenced Motor	LT1160 DS	11	3	LT1160
	Full-Bridge Motor Control with the LT1162	LTM V:4	16	6	LT1162
	H-Bridge Motor Driver with Ground-Referenced Current Sensing	LTM III:1	19	1	LT1158
		AN66	90	171	LT1158
	LT1160 Typical Application	LT1160 DS	1	NA	LT1160
	LT1161-Based H-Bridge Motor Driver	LTM V:1	31	1	LT1161
		AN66	96	176	LT1161
<b>Speed</b>	10A Full Bridge Motor Control	LT1158 DS	19	17	LT1158
	A Simple Motor Tachometer Servo Loop	AN25	11	17	LT1070
	High Efficiency, 6-Cell NiCd Protected Motor Drive	LT1158 DS	18	15	LT1158
	High Efficiency Motor-Speed Controller	LT1011 DS	11	NA	LT1011
	Motor-Speed Controller	AN1	7	13	LT1005
		AN4	6	13	LT1010, LM301A
		LTC1041 DS	7	NA	LTC1041, LT1009

## Motor Control (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Speed (Continued)</b>	Motor-Speed Controller Needs No Tachometer	LF198 DS	14	NA	LF398, LT3524
	Motor-Speed Controller, No Tachometer Required	LT1013 DS	12	NA	LT1013
		AN11	8	8	LT1013
	Piezoelectric Fan Servo	AN4	7	14	LT1010, LM301A
	Potentiometer-Adjusted Open Loop Motor-Speed Control	LT1158 DS	17	14	LT1158
	Proportional Motor-Speed Controller	LT1035 DS	9	NA	LT1035
		LT1005 DS	9	NA	LT1005
	Tachless Motor-Speed Regulator	AN66	94	175	LT1170, LT1006
		LTM IV:3	29	2	LT1170, LT1006
<b>Stepper Motor Driver</b>	4-Phase Stepper Motor Driver with Overcurrent Protection	LTC1255 DS	15	NA	LTC1255
	4-Phase Stepper Motor Driver with Short Circuit Protection	LTC1156 DS	7	NA	LTC1156
	Power MOSFET Driver, Low Power Consumption, Stepper Motor Driver	LTC1045 DS	15	NA	LTC1045

## Multiplexers

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Analog</b>	Daisy Chaining Five LTC1390s	LTC1390 DS	7	NA	LTC1390, LTC1286
	Daisy Chaining Five LTC1391s	LTC1391 DS	7	NA	LTC1391, LTC1286
	Daisy Chaining Two LTC1390s for Expansion	LTC1390 DS	6	5	LTC1390, LTC1286
	Daisy Chaining Two LTC1391s for Expansion	LTC1391 DS	5	5	LTC1391, LTC1286
	Interfacing the LTC1390 with the LT1257 for Demultiplex Operation	LTC1390 DS	8	NA	LTC1390, LTC1257

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### Multiplexers (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Analog (Continued)</b>	Interfacing the LTC1391 with the LTC1451 for Demultiplex Operation	LTC1391 DS	6	NA	LTC1391, LTC1451
	LTC1390 Typical Application	LTC1390 DS	1	NA	LTC1390, LTC1096
	LTC1391 Typical Application	LTC1391 DS	1	NA	LTC1391, LTC1285
<b>Video</b>	16-to-1 Multiplexer	LT1203/05 DS	11	5	LT1205, LT1252
	4 × 4 Crosspoint	LT1203/05 DS	13	6	LT1205, LT1254
	4-Input Differential Receiver	LT1204 DS	17	NA	LT1204
	4-Input Twisted-Pair Driver/Receiver	LT1204 DS	18	NA	LT1204, LT1227, LT1193
	Fast Differential Multiplexer	AN57	10	16	LT1204
	Fast RGB MUX	AN67	66	97	LT1203, LT1205, LT1260
	High Speed RGB MUX	LT1203/05 DS	1	NA	LT1203, LT1205
	Picture-in-Picture Test Setup	AN67	67	99	LT1204
	RGB MUX	LT1203/05 DS	8	1	LT1203, LT1205, LT1260
	Typical Application—4-Input Video Multiplexer	LT1204 DS	1	NA	LT1204

### Noise

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>See Also Amplifiers, Noise</b>					
<b>Discussion</b>	Minimizing	AN9	3	NA	LTC1052
	Noise Calculation in Op Amps	DN15	1	NA	NA
	Symmetrical White Gaussian Noise	AN67	51	NA	NA
	Voltage Noise vs Current Noise	LT1028 DS	8	NA	LT1028/LT1128

## Noise (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Generator	Broadband Random Noise Generator	AN61	24	33	LT1226, LT1228, LT1006, LT1004
		LTM III:2	20	1	LT1226, LT1228, LT1006
		AN67	49	63	LT1226, LT1228, LT1006
	Broadband Random Noise Source with Zener Diode Noise Source	AN61	26	37	LT1226, LT1228, LT1013, LT1004
	Pseudorandom Code Generator	LTM III:2	22	5	LT1190, LT1116, LT1220
		AN67	52	67	LT1190, LT1116, LT1220
		AN56	7	12	LT1190, LT1116, LT1220
	Random Noise Generator with Selectable Bandwidth and RMS Voltage Regulation	DN70	1	1	LT1013, LT1226, LT1228
Meter	Noise Meter Buffer/Driver Section	AN67	42	54	LT1206
	Noise Meter Gain Stage, LT1206 Buffer/Driver Section, LT1088 RMS Detector Section	LTM V:3	28	1–3	LT1226, LT1192, LT1014, LT1088, LT1206
	RMS Detector Section	AN67	42	55	LT1014, LT1088
	RMS Noise Meter Gain Stage	AN67	41	53	LT1226, LT1192

## Op Amps (see Amplifiers)

## Oscillators

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Crystal	1.5V Powered Temperature-Compensated Crystal Oscillator	LT1073 DS	19	NA	LT1073, LT1017
	1.5V Temperature-Compensated Crystal Oscillator (3.5MHz)	AN15	6	9	LM10
	10MHz Quartz-Stabilized Sine Wave Oscillator	AN47	49	111	LT1191

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Oscillators (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Crystal (Continued)	20MHz Quartz-Stabilized Sine Wave Oscillator with Electronic AGC	AN47	50	112	LT1191, LT1006
	3.58MHz Oscillator	LT1227 DS	11	NA	LT1227
	Crystal Oscillator (10MHz–25MHz)	AN12	3	4	LT1016
		LT1016 DS	1	NA	LT1016
		AN31	11	24B	LT1016
	Crystal Stabilized Relaxation Oscillator	AN12	2	2	LT1011
		LT1011 DS	10	NA	LT1011
	Gate Oscillators	AN12	2	1	NA
	Low Distortion, Crystal Stabilized Oscillator	LT1057 DS	8	NA	LT1057
	Low Frequency Crystal Oscillator Clock	AN31	11	25	LT1018
	Oscillator (1MHz–10MHz)	LT1016 DS	14	NA	LT1016
		AN12	3	4A	LT1016
		AN31	11	24A	LT1016
	Ovenized Oscillator	AN12	3	5	LT1001, LT1005
	Quartz-Stabilized, Low Distortion	AN45	12	18	LT1122, LT1006, LT1010,
	Temperature-Compensated Crystal Oscillator	LT1013 DS	18	NA	LT1013, LT1009
	Temperature-Compensated Crystal Oscillator, TXCO	AN12	4	6	LT1005, LT1055, LT319A
		AN3	15	21	LT1009, LTC1043, LT1056
	Temperature-Compensated, 1.5V Powered	AN45	14	20	LT1073, LT1017
	Voltage-Controlled Crystal Oscillator (VCXO)	AN12	5	8	NA
Discussion	Quartz Crystal	AN12	8	NA	NA
	Wien Bridge	AN43	43	C2	LT1037
Half Sine Wave	A Half Sine Reference Generator	AN35	29	E3	LT1016, LT1086-5
Pulsed	1.5V Temperature-Compensated Crystal Oscillator	AN15	6	9	LM10
	Bridge Oscillator	AN43	27	32	LT1056

## Oscillators (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Pulsed (Continued)</b>	Crystal Oscillator (10MHz–25MHz)	LT1016 DS	1	NA	LT1016
		AN12	3	4B	LT1016
	Crystal Stabilized Relaxation Oscillator	AN12	2	2	LT1011
		LT1011 DS	10	NA	LT1011
		LT311A DS	6	NA	LT311A
	Gate Oscillators	AN12	2	1	NA
	Low Frequency Square Wave Generator	LM101 DS	5	NA	LM101A
	Oscillator (1MHz–10MHz)	AN12	3	4A	LT1016
		LT1006 DS	10	NA	LT1016
	Ovenized Oscillator	AN12	3	5	LT1001, LT1005
	Phase Shift Oscillator	LT1032 DS	7	NA	LT1032
	Reset Stabilized Oscillator	AN12	6	13	LT1011, LT1055
	Single-Supply Crystal Oscillator 10MHz–15MHz	LT1116 DS	6	2	LT1116
	Stable RC Oscillator	LT1016 DS	14	NA	LT1016
		AN12	7	15	LT1011
		LT1011 DS	12	NA	LT1011
	Temperature-Compensated Crystal Oscillator	LT1013 DS	18	NA	LT1013, LT1009
	Temperature-Compensated Crystal Oscillator, TXCO	AN12	4	6	LT319A, LT1005, LT1055
		AN3	15	21	LTC1043, LT1009
<b>Sine Wave</b>	10MHz Quartz-Stabilized Sine Wave Oscillator	AN47	49	111	LT1191
	20MHz Quartz-Stabilized Sine Wave Oscillator—Electronic AGC	AN47	50	112	LT1191, LT1006
	Bridge-Based Crystal Oscillator	AN43	27	33	LT1056
	Common Mode Suppression for Quartz Oscillator Lowers Distortion	AN43	28	37	LT1057
	Crystal Oscillator with Lamp Added for Gain Stabilization	AN43	28	35	LT1056
	Low Distortion Sine Wave	AN5	8	12	LT1037

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Oscillators (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Sine Wave (Continued)	Low Distortion, Crystal-Stabilized Oscillator	LT1057 DS	8	NA	LT1057
	Multirange Wien Bridge Based Oscillator	AN43	29	40	LT1037
	Quartz-Stabilized Oscillator with 9ppm Distortion	LT1122 DS	8	NA	LT1122, LT1010, LT1004
	Sine Wave Output VCO (1Hz–100kHz)	AN14	10	14	LT1056, LT1011
	Super Low Distortion Variable Sine Wave Oscillator	LT1028 DS	14	NA	LT1028, LT1055, LT1004-2.5
	Ultralow THD Oscillator (5ppm Distortion)	LT1115 DS	12	6	LT1115, LT1006, LT1010, LT1022, LT1004
	Ultrapure Sine Wave Generator	LT1022 DS	7	NA	LT1022
		LT1037 DS	1	NA	LT1037
	Varactor-Tuned 1MHz–10MHz Wien Bridge Oscillator	AN47	51	114	LT1006, LT1191, LT1172
	Voltage-Controlled Sine Wave Oscillator	AN12	5	8	NA
	Voltage-Controlled Sine Wave Oscillator (1Hz–1MHz)	AN13	13	21	LT318A, LT1009, LT1012, LT1016
	Wein Bridge Sine Wave Oscillator	LM101 DS	1	NA	LM107
	Wien Bridge Oscillator with Photocell Stabilization	AN43	32	47	LT1006, LT1009, LT1115, LT1010, LT1022
	Wien Bridge Sine Wave Oscillator	LT1225 DS	7	NA	LT1225
		AN43	29	39	LT1037
	Wien Bridge with 3ppm Distortion	AN43	33	48	LT1006, LT1009, LT1010, LT1022, LT1115
	Wien Bridge with FET Stabilization	AN43	31	45	LT1115, LT1055, LT1004-1.2
		AN43	30	43	LT1115, LT1055, LT1004-1.2
Synchronized	High Noise Immunity Line Synchronization Circuit	AN31	12	26	LT1011
	Synchronized Oscillator	AN12	6	11	LT1055
V/F: See Converters, V/F					

## Oscillators (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
VCO	1Hz–1MHz Sine Wave Output	AN47	53	118	LT1016, LT1097, LT1122, LT1150
	Sine Wave Output Voltage to Frequency (1Hz–100kHz)	AN14	10	14	LT1056, LT1011
		LT1055 DS	11	NA	LT1056, LT1011
	Voltage-Controlled Crystal Oscillator	LT319A DS	5	NA	LT319A
	Voltage-Controlled Crystal Oscillator (VCXO)	AN12	5	8	NA
	Voltage-Controlled Sine Wave Oscillator (1Hz–1MHz)	AN13	13	21	LT318A, LT1012, LT1016, LT1056

## Oscilloscope

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Discussion	About Oscilloscopes	AN47	20	NA	NA
	Considerations for High Speed Work	AN13	8	NA	NA
	Evaluating Oscilloscope Overload Performance	AN10	6	NA	NA
	Measuring Equipment Response	AN13	30	NA	NA
	Probes and Oscilloscopes	AN13	27	NA	NA

## Ott Process

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Thermal	High Thermal Resistance Die Attach	AN22	4	NA	LT1088

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PC Card (Formerly PCMCIA)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Card Slot Power Management	Dual Slot, Protected PCMCIA Power Management System	LTC1472 DS	12	NA	LTC1472, LT1301
	Dual, Protected PCMCIA Power Management System Powered by System 12V Supply	LTC1472 DS	15	NA	LTC1472
	Single Slot, Protected PCMCIA Power Management System Powered from 3.3V or 5V	LTC1472 DS	13	NA	LTC1472, LT1301
	Single, Protected PCMCIA Power Management System Using the LT1121 Powered from Auxiliary Winding	LTC1472 DS	14	NA	LTC1472, LT1121
Driver/Regulator	Deriving 14V Power from a 3.3V Auxiliary Winding	AN60	7	8	LTC1148-3.3/LTC1142, LT1312
	Deriving 14V Power from a 3.3V Winding	LTM IV:3	4	3	LT1312, LTC1148-3.3, LTC1142
	Deriving 14V Power from a 5V Auxiliary Winding	AN60	5	6	LTC1148-5/LTC1142, LT1312
	Local 12V to 13.75V Boost Regulator for Use with the LT1312	AN60	7	10	LT1111, LT1312
	Local 5V to 13.75V Boost Regulator for Use with the LT1312	AN60	7	9	LT1172, LT1312
	LTC1314 and LT1301 PCMCIA Card Slot Configuration	AN60	9	12	LTC1314, LT1301
	LTC1314 PCMCIA Card Slot Configuration with LT1121 Linear Regulator	AN60	11	15	LT1121, LTC1314
	Typical Dual PCMCIA Socket Application Using the LTC1315 and the LT1301	AN60	11	16	LTC1315, LT1301
	Typical Dual PCMCIA Socket Application with the LTC1471 and LT1313	AN60	8	11	LTC1148-5/LTC1142, LT1313, LTC1471
	Typical Single-Socket PCMCIA Power-Management System	LTM IV:3	3	1	LT1312, LTC1165
V <sub>CC</sub> and V <sub>PP</sub> Switching	Dual Slot PCMCIA Controller with SafeSlot™ Current-Limit Protection	LTC1470 DS	7	NA	LTC1470, LT1313
	Dual-Slot PCMCIA Controller	LTC1471 DS	7	NA	LTC1471, LTC1313

## PC Card (Formerly PCMCIA) (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>V<sub>CC</sub> and VPP Switching, Protected</b>	PCMCIA V <sub>CC</sub> and VPP Switch Matrix with 3.3V/5V Boost Regulator	LTM V:1	22	1	LTC1472, LT1301
	Single-Slot PCMCIA Controller with SafeSlot Current-Limit Protection	LTC1470 DS	10	NA	LTC1470, LT1312
	Typical LTC1472 Application with LT1301 3.3V/5V Boost Regulator	AN60	3	2	LTC1472, LT1301
	Typical LTC1472 PCMCIA V <sub>CC</sub> and VPP Switch Matrix Application	DN93	1	1	LTC1472, LT1301
	Direct Interface to "365" Type PCMCIA Controller	LTC1472 DS	10	2	LTC1472
	Direct Interface to Industry Standard PCMCIA Controller and LT1301 Step-Up Switching Regulator	LTC1472 DS	9	1	LTC1472, LT1301
	Direct Interface with CL-PD6720 PCMCIA Controller	LTC1470 DS	6	1	LTC1470
	Protected PCMCIA V <sub>CC</sub> and VPP Card Driver	LTC1472 DS	1	NA	LTC1472
<b>V<sub>CC</sub> Controller</b>	Direct Interface to "365" Type PCMCIA Controller	LTC1470 DS	7	2	LTC1470
<b>V<sub>CC</sub> Switch/ Switch Matrix</b>	3.3V PCMCIA Card Power Switching	LTM III:1	22	1	LTC1157, LT1017
	Direct Interface with CL-PD6710 PCMCIA Controller	LTC1471 DS	6	1	LTC1471
	Dual Slot 3.3V/5V PCMCIA Controller with SafeSlot Current Limit	LTC1471 DS	10	NA	LTC1471
	PCMCIA Card 3.3V/5V V <sub>CC</sub> Switch	LTC1163/65 DS	6	NA	LTC1165
	PCMCIA Card 5V/3.3V Switch	DN76	1	1	LTC1165
	PCMCIA Card Power Switching	AN66	81	158	LTC1157, LT1017
	PCMCIA Dual-Slot 3.3V/5V V <sub>CC</sub> Switch Matrix	LTC1471 DS	1	NA	LTC1471
	PCMCIA Single-Slot 5V/3.3V V <sub>CC</sub> Switch	LTC1470 DS	10	NA	LTC1470, LT1312
	Typical LTC1470 Application with the LT1312 VPP Driver/Regulator	AN60	5	5	LTC1470, LT1312

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PC Card (Formerly PCMCIA) (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
V <sub>CC</sub> Switch/ Switch Matrix, Protected	PCMCIA V <sub>CC</sub> Switching Matrix with LT1312 VPP Drive/Regulator	LTM V:1	23	2	LTC1470, LT1312
VPP Switch/ Regulator	0V, 3.3V, 5V, and 12V Programmable VPP Generator for PCMCIA	LTM IV:1	19	1	LT1107
	12V, 60mA Flash-Memory Programming Supply	LT1106 DS	1	NA	LT1106
	24V-Input PCMCIA VPP Switch/Regulator	LTM IV:2	23	1–2	LT1121A
	All Surface Mount, Programmable 0V, 3.3V, 5V and 12V VPP Generator for PCMCIA	AN66	92	173	LT1107
	Alternative Scheme Allows 12V from VPP1/ VPP2 to Provide Power when LT1106 is in Shutdown	LT1106 DS	8	NA	LT1106
	Current-Limited Linear Regulator VPP Power Management Circuit	DN76	2	3	LT1121
	Deriving 14V Power (for the LT1312) from the Auxiliary Winding on the LTC1142HV Regulator	LT1312 DS	7	1	LT1312, LTC1142HV
	Deriving Auxiliary 14V Power (for the LT1312) from an LTC1142 3.3V Regulator	LT1312 DS	8	3	LT1312, LTC1142
	Direct Interface with “365” Type PCMCIA Controller	LTC1470 DS	7	2	LTC1470
	Dual-Slot PCMCIA Driver/Regulator Powered from Auxiliary Winding on 5V Inductor of LTC1142 regulator	LT1313 DS	10	NA	LT1313, LTC1148
	Dual-Slot PCMCIA Interface to “365 Type” Controller	LT1313 DS	9	NA	LT1313, LTC1157
	Dual-Slot PCMCIA Interface to CL-PD6720	LT1313 DS	8	NA	LT1313, LTC1165
	Local 12V to 15V Boost Regulator for Line-Operated Applications	LT1312 DS	9	5	LT1312, LT1111CS8
	Local 5V to 15V Boost Regulator for Line-Operated Applications	LT1312 DS	9	4	LT1312, LT1172
	PCMCIA Card Socket VPP Switch/Regulator	LTC1163/65 DS	7	NA	LTC1163, LT1109
	PCMCIA Switch Matrix with Boost Regulator	LTM IV:3	5	4	LTC1314, LT1301

## PC Card (Formerly PCMCIA) (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>VPP Switch/ Regulator (Continued)</b>	PCMCIA Switch Matrix with Linear Regulator	LTM IV:3	5	5	LTC1314, LT1121
	Single Slot Interface to "365 Type" Controller	LT1312 DS	11	NA	LT1312, LTC1157CS8
	Single Slot Interface to CL-PD6710	LT1312 DS	11	NA	LT1312
	Step-Up Regulator VPP Power Management Circuit	DN76	2	2	LTC1157, LT1107
	Typical PCMCIA Dual-Slot VPP Driver	LT1313 DS	1	NA	LT1313
	Typical PCMCIA Single-Slot VPP Driver	LT1312 DS	1	NA	LT1312

## Peak Detectors

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Fast</b>	Closed-Loop Peak Detector	DN61	1	1	LT1190
		LTM II:3	3	3	LT1190
		AN67	75	118	LT1190
	Fast Pulse Detector	DN61	2	5	LT1190
		LT1195 DS	1	NA	LT1195
	Open-Loop, High Speed Peak Detector	DN61	1	3	LT1190
		AN67	76	120	LT1190
		LTM II:3	4	5	LT1190
<b>Negative</b>	Negative Peak Detector	LT1011 DS	12	NA	LT1011, LT1008
		LT311A DS	7	NA	LT311A, LT1008
<b>Positive</b>	Positive Peak Detector	LT1011 DS	12	NA	LT1011, LT1008
		LT311A DS	7	NA	LT311A, LT1008

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Phase-Locked Loops					
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Discussion	Unique Applications for the LTC1062 Lowpass Filter	AN24	1	1	LTC1062
Filter—Switched Capacitor	DC Accurate Filter Eases PLL Design	DN7	1	1–2	LTC1062

**Photodiode (see Signal Conditioning, Photodiode)**

**Platinum RTD (see Signal Conditioning—Temperature, Platinum RTD)**

**Power Actuators (see Drivers)**

Power Management					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Battery Monitor	0A to 2A Battery-Current Monitor Draws Only 70 $\mu$ A	AN62	8	10	LT1004, LTC1096, LT1178
	LTC1297 Data-Acquisition System Battery-Current Monitor	AN62	10	11	LTC1297, LT1121, LTC1047, LT1004
	Micropower Battery-Voltage Monitor	AN62	8	9	LTC1096
Notebook Computer	Four-Cell NiCd Notebook Power-Management System	LTM II:1	13	1	LTC1156, LT1431
	Laptop Computer Power Bus Switching	AN66	82	160	LTC1155
	Monitoring Regulated Power Supply with the Power Supply Comparator	LTC694/5-3.3 DS	11	8	LTC694-3.3/LTC695-3.3, LT1129-3.3
	Using the LTC695-3.3 BATT ON to Drive External PNP Transistor	LTC694/5-3.3 DS	9	2	LTC695-3.3
Supply Switching	0.85A Protected Switch	LTC1477/78 DS	7	NA	LTC1477
	1.5A Protected Switch	LTC1477/78 DS	6	NA	LTC1477

Power Management (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Supply Switching (Continued)	2-Cell to 3.3V, 5V and 12V High-Side Switch/ Converter with 0.01 $\mu$ A Standby Current	LTC1163/65 DS	7	NA	LTC1163/LTC1165, LT1109, LT1173
	2-Cell, Triple High-Side Switch	LTC1163/65 DS	1	NA	LTC1163/LTC1165
	2A Protected Switch	LTC1477/78 DS	6	NA	LTC1477
	2A Protected Switch Driving a Capacitive Load	LTC1477/78 DS	7	NA	LTC1477
	3.3V/5V Supply Switching Circuit	LTM V:3	25	1	LTC1470, LT1011
	3.3V/5V Switchover Circuit	AN66	84	163	LTC1470, LT1011
	5V to 3.3V Selector Switch with Slope Control and 0.01 $\mu$ A Standby Current	LTC1477/78 DS	7	NA	LTC1478
	Adding Short-Circuit Protection to an LT1301 Step-Up Switching Regulator	LTC1477/78 DS	7	NA	LTC1477, LT1301
	Battery Backup Monitor with Optional Test Load	LTC694/5-3.3 DS	12	10	LTC695-3.3
	Hot Swap Circuit	AN66	88	169	LTC1477, LTC699
	Isolated High-Side Switch	LTC1177 DS	1	NA	LTC1177
	Isolated High-Side Switch with Foldback Current Limit	LTC1177 DS	5	NA	LTC1177
	Logic Controlled Battery Switch with Reverse Battery Protection, Ramped Turn-On and 10 $\mu$ A Standby Current	LTC1153 DS	12	NA	LTC1153
	LTC1157 Used to Switch Two 3.3V Loads	AN66	82	159	LTC1157
	LTC695-3.3 Typical Application	LTC694/5-3.3 DS	1	NA	LTC695-3.3, LT1129-3.3
	Using LTC695-3.3 BATT ON to Drive External PNP Transistor	LTC694/5-3.3 DS	9	2	LTC695-3.3

**Power Supplies (see Regulators—Linear; Regulators, Switching)**

**Power Supply Supervisory Circuits (see Digital Help Circuits)**

**Preamplifiers (see Amplifiers)**

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### Pressure Measurement (see Signal Conditioning, Pressure)

Probes					
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Discussion	ABCs of Probes	AN47	69	NA	NA
	Probes and Probing Techniques	AN47	16	NA	NA
Fast	Ultrafast, High Impedance	AN47	96	E1	NA
High Impedance	High Impedance Buffer	AN23	24	C2	LT1010, LT1022
Oscilloscope	About Probes and Oscilloscopes	AN13	27	NA	NA

Programming					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
C Language	A "C" Cruise Through Data Acquisition	AN34	1-9	NA	NA

Pulse Detector					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Fast	Fast Pulse Detector	LTM II:3	4	7	LT1190

## Pulse Generator

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
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		AN45	18	27	LT1073
General	Triggered 250ps Rise-Time Pulse Generator	AN61	21	26	LT1182
	Current Calibrator for Probe Trimming and Accuracy	DN101	2	3	LT1010, LT1097, LT1122, LT1029

## Pulse Width Modulator

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	PWM with Soft Start	LT1246/47 DS	10	NA	LT1246/LT1247
	PWM with Adjustable Clamp Level and Soft Start	LT1246/47 DS	10	NA	LT1246/LT1247
	PWM with Slope Compensation at I <sub>SENSE</sub> Pin	LT1246/47 DS	11	NA	LT1246/LT1247
	PWM with Slope Compensation at the Error Amp	LT1246/47 DS	11	NA	LT1246/LT1247

## Radio Station

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
AM	Complete AM Radio Station	AN47	52	116	LT1007, LT1190, LT1194
	AM Modulator with DC Output Nulling Circuit	LT1251/56 DS	15	NA	LT1256, LT1077

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## Reference—AC

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## Reference— Current

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Sink	Precision Current Sink	LT1001 DS	8	NA	LT1001
Source	Precision Current Source	LT1001 DS	8	NA	LT1001
	Precision Current Source (1 $\mu$ A)	LT1019 DS	7	NA	LT1019-2.5, LT1012

## Reference—Voltage

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
2-Terminal	1.235V Micropower Reference	LT1004 DS	6	NA	LT1004
		AN42	10	44	LT1004
	1.24V Out Micropower, Current Boosted Reference (100mA)	AN42	11	52	LT1077
	$\pm$ 1.25V Reference	AN42	10	43	LT1009
	1.2V Out Micropower Reference with Wide Input Voltage Range	AN42	11	46	LT1004-1.2, LM334
	10V Buffered Reference Using a Single-Supply	LM129 DS	3	NA	LM329, LT1001
		OP07 DS	1	NA	LM129A, OP07
	2.5V Out Micropower Reference with Wide Input Voltage Range	AN42	11	48	LT1004-2.5
	2.5V Reference	AN42	11	47	LT1004-2.5
	6.9V Reference	LM129 DS	3	NA	LM329

## Reference—Voltage (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>2-Terminal (Continued)</b>	Low Noise Reference	LT1004 DS	6	NA	LT1004-1.2
<b>3-Terminal</b>	2.5V Reference, $\pm 5\%$ Trim Range	AN42	5	4	LT1009
		LT1009 DS	1	NA	LT1009
		LM136 DS	1	NA	LM336-2.5
	Low Noise 2.5V Buffered Reference	LT1009 DS	4	NA	LT1009
		LM136 DS	4	NA	LM336-2.5
	Split $\pm 2.5\text{V}$ References	LT1029 DS	4	NA	LT1029, LT1001
	Switchable $\pm 1.25\text{V}$ Bipolar Reference	LM136 DS	4	NA	LM336-2.5
		LT1009 DS	4	NA	LT1009
	Trimming Output to 5.120V	AN42	6	9	LT1029
		LT1029 DS	4	NA	LT1029
	Wide Supply Range	LM136 DS	4	NA	LM334, LM336-2.5
	Wide Supply Range, Adjustable Reference	LT1009 DS	4	NA	LT1009, LM334
		AN42	11	49	LT1009, LM334
<b>Current Boost</b>	1.24V Out, Micropower, Current Boosted Reference (100mA)	AN42	11	52	LT1077, LT1004-1.2
	Boosted Output Current 10V Reference	LT1236 DS	9	NA	LT1236
	Boosted Output Current with No Current Limit	AN42	12	54	LT1031
		LT1021 DS	11	NA	LT1021
		LT1031 DS	8	NA	LT1031
	Handling Higher Load Currents	LT1027 DS	6	2	LT1027
	Output Current Boost with Current Limit	LT1031 DS	8	NA	LT1031
		LT1019 DS	7	NA	LT1019
		LT1021 DS	11	NA	LT1021
	Precision High Current Reference (1.5A)	AN42	12	57	LT317AH, LT1001
<b>Discussion</b>	Application Hints for Ultraprecision Reference	L TZ1000 DS	4	NA	L TZ1000

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Reference—Voltage (Continued)					
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<b>Discussion (Continued)</b>	Effects of Air Movement on Low Frequency Noise	LT1021 DS	10	NA	LT1021
	Heat Mode Reduces Temperature Drift to <2ppm/°C	LT1019 DS	1	NA	LT1019
	Output Trimming	LT1019 DS	5	NA	LT1019
	Trimming Output Voltage	LT1021 DS	8	NA	LT1021
<b>Dual Output</b>	Dual-Output Reference Operates on Two AA Cells	LTM II:3	12	3	LT1004, LT1112
<b>General</b>	Battery-Powered LT1004-2.5 2.5V Voltage Reference	AN62	22	49	LT1004-2.5
	LT1034-2.5 2.5V Voltage Reference	AN62	22	48	LT1034-2.5
	LT1431 2.5V Voltage Reference (8-Pin Package)	AN62	23	51	LT1431
	LT1431Z 2.5V Voltage Reference (3-Pin Package)	AN62	23	50	LT1431Z
	LT1431Z 5V Voltage Reference (8-Pin Package)	AN62	23	52	LT1431Z
<b>High Voltage</b>	Ultraprecision Variable Voltage Reference	AN6	6	7	LT1002/ LM301, LM399A
<b>Low Noise</b>	2-Pole Lowpass Filtered Reference	LT1021 DS	14	NA	LT1021, LT1001
		LT1031 DS	10	NA	LT1031, LT1001
	Low Noise Reference	LTZ1000 DS	1	NA	LTZ1000, LT1006
		LT1004 DS	6	NA	LT1004-1.2
<b>Micropower</b>	1.235V Micropower Reference	LT1004 DS	6	NA	LT1004-1.2
		AN42	10	44, 45	LT1004-1.2
	2.5V Micropower Reference	AN42	11	47	LT1004-2.5
		LT1004 DS	6	NA	LT1004-2.5
	Micropower 5V Reference	LM134 DS	10	NA	LM334, LT1004-1.2
	Self-Buffered Micropower Reference	LT1178 DS	1	NA	LT1178, LT1004-1.2
		DN23	1	1	LT1178, LT1034-1.2
		AN42	11	51	LT1178, LT1004-1.2

## Reference—Voltage (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
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		LT1021 DS	1	NA	LT1021
		LT1031 DS	8	NA	LT1031
	CMOS DAC with Low Drift Full-Scale Timing	LT1021 DS	14	NA	LT1021-10, LT1007
	Negative 10V Reference for CMOS DAC	LT580 DS	1	NA	LT581, LT1007
		LT1019 DS	7	NA	LT1019-10, LT1007
	Negative Series Reference	LT1021 DS	11	NA	LT1021-10
		LT1019 DS	8	NA	LT1019
		AN42	9	37	LT1019
		LT1236 DS	8	NA	LT1236-10
	Negative Shunt Reference Driven by Current Source	LT1031 DS	11	NA	LT1031, LM334
		AN42	9	35	LT1031
		LT1021 DS	14	NA	LT1021-10, LM334
		LT1236 DS	10	NA	LT1236-10, LM334
	Negative Voltage Reference	LTZ1000 DS	5	NW	LTZ1000, LT1013
		AN42	16	68	LTZ1000, LT1013
	Ultraprecision Voltage Inverter	AN3	14	20	LTC1043, LT1004-1.2
Precision	±10V Reference	LT1236 DS	9	NA	LT1236-10
	10.24V Reference	LT1236 DS	9	NA	LT1236-10
	10V Buffered Reference	LM199 DS	1	NA	LT1012
		AN42	18	73	LM399, LT1012
	10V Reference with Full Trim Range	LT1236 DS	8	NA	LT1236-10
	10V Reference with Restricted Trim Range for Improved Resolution	LT1236 DS	8	NA	LT1236A-10
	2-Pole Lowpass Filtered Reference	LT1236 DS	10	NA	LT1236, LT1001
	6.95V Reference	LM199 DS	4	NA	LM399
		AN42	19	74	LM399
	Buffered Reference for A/D Converters	LT1012 DS	10	NA	LT1012

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## Reference—Voltage (Continued)

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	Handling Higher Currents	LT1236 DS	9	NA	LT1236-10
	Operating 5V Reference from 5V Supply	LT1021 DS	15	NA	LT1021-5
		LT1236 DS	9	NA	LT1236-5
	Portable Calibrator	LM199 DS	4	NA	LM399, LT1001AC
	Precision $\pm 10V$ Reference	LT1002 DS	11	NA	LT1002, LM129A
	Precision DAC Reference with System TC Trim	LT1021 DS	15	NA	LT1021-10
		LT1031 DS	11	NA	LT1031
		LT1236 DS	10	NA	LT1236-10
	Restricted Trim Range for Improved Resolution	LT1021 DS	13	NA	LT1021C-10
	Standard Cell Replacement	LM199 DS	4	NA	LM399, LT1001AC
<b>Shunt</b>	2.5V Reference (LT1431)	AN42	6	10	LT1431Z
		LT1431 DS	6	NA	LT1431
	2.5V Reference (LT1431Z)	AN42	6	11	LT1431
		LT1431 DS	6	NA	LT1431Z
	5V Reference	LT1431 DS	6	NA	LT1431
		AN42	6	12	LT1431
	Programmable Reference with Adjustable Current Limit	LT1431 DS	6	NA	LT1431
		AN42	6	14	LT1431
<b>Standard Cell</b>	Saturated Standard Cell Amplifier	LT1012 DS	10	NA	LT1012
		LT1008 DS	9	NA	LT1008
		LT1097 DS	1	NA	LT1097
	Standard Grade Variable Voltage Reference	AN9	5	9	LTC1052
<b>Ultraprecision</b>	7V Positive Reference	AN42	16	67	LTZ1000, LT1013
		LTZ1000 DS	6	NA	LTZ1000, LT1013

## Reference—Voltage (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Ultraprecision (Continued)	Adjusting Temperature Coefficient in Unstabilized Applications	LTZ1000 DS	6	NA	LT1006, LTZ1000
	Averaging Reference Voltages for Lower Noise and Better Stability	LTZ1000 DS	5	NA	LTZ1000
	Low Noise Reference	LTZ1000 DS	1	NA	LTZ1000, LT1006
	Ultraprecision Variable Voltage Reference	LT1002 DS	14	NA	LT1002
		LT1001 DS	10	NA	LT1001
		AN6	6	7	LT1002

## Regulators—Linear

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	Bypass Circuit for 3.xxV and 5V Microprocessor Swaps Using High-Side Gate Driver	DN82	1	2	LT1085
	Bypass Circuit for 3.xxV and 5V Microprocessor Swaps with Transistor Buffer	DN82	1	1	LT1085, LTC1157
	Current Limited 1A Regulator	LT1020 DS	12	NA	LT1020
	Improved High Frequency Ripple Rejection	LT1185 DS	14	NA	LT1185
	Improving Ripple Rejection	LT138 DS	7	NA	LT338A
		LT1038 DS	8	NA	LT1038
	Low Temperature Coefficient Power Regulator	LT1009 DS	4	NA	LT1009, LT317A
	Pin-Switchable 3.3V/5V Regulator Configuration	AN58	3	2	(see text)
	Pin-Switchable 3.3V/5V Regulator Configuration with LTC1157	AN58	3	3	LT1157 and linear regulator (see text)

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Regulators—Linear (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Additional Feature Circuits (Continued)	Regulator with Reference	LT117HV DS	1	NA	LT317
		LT117 DS	1	NA	LT317
	Remote Sensing	LT138 DS	7	NA	LT338A, LM301A
		AN2	8	13	LT350A
	Voltage Regulator Run from 110VAC or 220VAC	AN2	8	14	LT1086, LT1011
Adjustable	0V to 5V Regulator	LM10 DS	10	NA	LM10
	1.2V–25V Adjustable Regulator	LT138 DS	7	NA	LT338A
		LT1038 DS	8	NA	LT1038
		LT117 DS	7	NA	LT317A
	Adjustable 4.75V to 5.25V In, 3.38V/4A Out Regulator Circuit	DN87	2	3	LT1585CT
	Adjustable Regulator 0V–10V at 5A	LT1003 DS	4	NA	LT1003C, LM301A
Battery Circuits	Battery Backup Regulator	AN23	18	31	LT1020
	High Current Battery Splitter (150mA)	AN16	21	52	LT1010
		AN8	2	5	LT1010
	Low Voltage Regulator	LM10 DS	10	NA	LM10
Control Circuits	Automatic Light Control	LT1038 DS	10	NA	LT1038
		LT138 DS	8	NA	LT338A
	Lamp Flasher	LT138 DS	8	NA	LT1038
		LT1038 DS	10	NA	LT1038
	Optocoupled Output Control	LT1035 DS	9	NA	LT1005
		LT1005 DS	25	NA	LT1035
	Protected High Current Lamp Driver	LT1038 DS	10	NA	LT1038
		LT138 DS	8	NA	LT338A
Current	Adjustable Current Limiter	LT150 DS	7	NA	LT350A

Regulators—Linear (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Digital System Support	21V Programming Supply for UV PROM/EEPROM	LT117A DS	7	NA	LT317A
	2816 EEPROM Supply Programmer for Read/Write Control	LT117A DS	7	NA	LT317AH
	5V Power Supply Monitor with $\pm 500\text{mV}$ Window and 50mV Hysteresis	LT1431 DS	9	NA	LT1431
	Battery Backup Regulator	LT1020 DS	11	NA	LT1020
	Delay Power Up	LT1035 DS	9	NA	LT1035
		LT1005 DS	25	NA	LT1005
		LT1036 DS	6	NA	LT1036
	Fast Turn-Off, Delayed Turn-On	AN1	2	2B	LT1005
		LT1005 DS	24	NA	LT1005
		LT1036 DS	6	NA	LT1036
	First-On, First-Off Sequencing	LT1036 DS	7	NA	LT1036
		LT1035 DS	8	NA	LT1035
		LT1005 DS	24	NA	LT1005
	First-On, Last-Off Sequencing	LT1036 DS	7	NA	LT1036
		LT1005 DS	24	NA	LT1005
		LT1035 DS	8	NA	LT1035
	Logic Controlled 3A Low Side Switch with Fault Protection	LT1185 DS	14	NA	LT1185
	Logic Output on Dropout	LT1020 DS	12	NA	LT1020
	Low Input Voltage Monitor Tracks Dropout Characteristic	LT1185 DS	13	NA	LT1185, LT1006
	LT1020 Shutdown	AN23	18	30	LT1020
	Memory Save on Power Down	LT1035 DS	10	NA	LT1035
		LT1005 DS	26	NA	LT1005, LM311
		AN1	4	6	LT1005
		AN31	8	16	LT1020, LT1086-5

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Regulators—Linear (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
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		LT1005 DS	24	NA	LT1005
		LT1035 DS	8	NA	LT1035
	Push-On, Push-Off	LT1035 DS	9	NA	LT1035
		LT1005 DS	25	NA	LT1005
	Regulator with Logic Output on Dropout	AN23	17	28	LT1020
	Regulator with Output Shutdown on Dropout	LT1020 DS	11	NA	LT1020
		AN23	17	29	LT1020
	Regulator with Output Voltage Monitor	LT1020 DS	9	NA	LT1020
Discussion	Time Delayed Start-Up	LT1185 DS	13	NA	LT1185
	5V to 3.3V Regulator with Multiple Bypassing	AN58	5	4	LT1085-3.3
	Achieving Low Dropout	AN32	10	NA	NA
	Avoiding Ground Loops	LT1003 DS	5	NA	LT1003
	Bypass Capacitors	LT1003 DS	5	NA	LT1003
		LT1038 DS	5	NA	LT1038
	Bypassing the Adjustment Pin	LT1033 DS	5	NA	LT1033
	Linear Power Supplies—Past, Present and Future	AN11	15	NA	NA
	Load Regulation	LT1083 DS	9	NA	LT1083
		LT1038 DS	6	NA	LT1038
	Output Voltage	LT1033 DS	4	NA	LT1033
	Proper Connection of Divider Resistors	LT1033 DS	5	NA	LT1033
	Protection Diodes	LT1038 DS	5	NA	LT1038
	Raw Supply, Transformer, Diode and Capacitor Selection	LT1003 DS	6	NA	LT1003
	Resistor Table	LT1033 DS	7	NA	LT1033
	Ripple Rejection	LT1083 DS	9	NA	LT1083

Regulators—Linear (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Discussion (Continued)	Table of 1/2% and 1% Standard Resistance Values	LT117 DS	6	NA	NA
	Thermal Considerations	LT1083 DS	10	NA	LT1083
Floating	Floating Regulator	LM10 DS	11	NA	LM10
High Current	Regulator with Current and Thermal Protection (8.5V to 5V, 12A)	AN2	2	2	LT1005
	Regulator with Current and Thermal Protection (8.5V to 5V, 10A)	LT1005 DS	11	NA	LT1005
	Variable Regulator (10A)	LT1038 DS	7	NA	LT1038, LM301A, LT1011
High Voltage	High Voltage Regulator	LM10 DS	12	NA	LM10
	High Voltage Regulator (100V)	AN2	6	11	LT317AT
	High Voltage Regulator (2kV)	AN2	7	11A	LT137A
Low Dropout	10A Regulator with 400mV Dropout	AN32	6	11	LT1072, LT1013
	1A Low Dropout Regulator	LT1020 DS	10	NA	LT1020
	2.5V Micropower Supply	LT1580 DS	1	NA	LT1580-2.5
	2.5V/6A Regulator	LT1580 DS	10	NA	LT1580
	3-Cell to 3.3V Ultralow Drop Regulator with Two Ramped Switches	LTC1163/65 DS	8	NA	LTC1163/LTC1165, LT1431
	3-Cell to 3.3V Ultralow Voltage Drop Regulator	LTC1157 DS	8	NA	LTC1157, LT1431
	3.3V to 2.5V Converter with Shutdown Capability	LTM V:3	8	4	LT1580
	3.3V to 2.5V DC/DC Converter with Shutdown Capability	LTM V:2	14	4	LT1580
	3.3V to 2.5V/6A Regulator	LTM V:2	13	1	LT1580
	3.3V, 7A/4.6A/3A Regulator	LT1584/85/87 DS	1	NA	LT1584-3.3/LT1585-3.3/LT1587-3.3
	3.3V/150mA Converter	AN58	6	8	LT1121-3.3
	3.3V/700mA Converter	AN58	6	9	LT1129-3.3
	4-Cell to 5V Extremely Low Voltage Drop Regulator	LTC1154 DS	12	NA	LTC1154
		LTC1156 DS	5	NA	LTC1156, LT1431

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Regulators—Linear (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Low Dropout (Continued)	4-Cell to 5V Low Dropout Regulator with Auto-Reset	LTC1153 DS	13	NA	LTC1153, LT1431
	4-Cell to 5V Regulator with 2A Current Limit, Autoreset, Ramped Turn-On and 10 $\mu$ A Standby Current	LTC1153 DS	13	NA	LTC1153, LT1431
	5V Battery-Powered Supply with Shutdown	LT1521 DS	1	NA	LT1521-5
	5V In, 3.3V/700mA Out, Low Dropout Regulator	DN74	1	1	LT1129-3.3
	5V Low Dropout Regulator	LT1123 DS	1	NA	LT1123
		DN44	1	NA	LT1123
	5V Supply with Shutdown	LT1529 DS	1	NA	LT1529-5
	5V to 3.3V/1.5A (or 3.3V/3A) Converter	AN58	7	11	LT1085-3.3/LT1086-3.3
	5V to 3.3V/125mA Converter	AN58	6	7	LT1020/LT1120
	5V to 3.3V/5A (or 3.3V/7.5A) Converter	AN58	7	12	LT1083/LT1084
	5V to 3.3V/800mA Converter	AN58	6	10	LT1117-3.3
	5V Ultralow Dropout Regulator	LTM I:1	14	1	LT1123
	5V, 3A Regulator with 3.5A Current Limit	LT1185 DS	1	NA	LT1185
	5V/3A Extremely Low Drop Regulator	AN66	83	162	LTC1155, LT1431
	5V/3A Extremely Low Voltage-Drop Regulator	LTM I:2	7	4	LTC1155, LT1431
	>4V In, 3.3V/700mA Out Supply with Shutdown	DN91	1	NA	LT1129-3.3
	A Simple Ultralow Dropout Regulator	DN32	1	2	LT1431, LT1006
	Active Output Pulldown During Shutdown	LT1175-5	7	2	LT1175
	Adjustable Low Dropout Regulator with Kelvin Sense Inputs	LT1087 DS	1–8	NA	LT1087
	Auxiliary +12V Low Dropout Regulator for Switching Supply	LT1185 DS	12	NA	LT1185
	Basic Adjustable Regulator	LT1584/85/ 87 DS	10	3	LT1584
	Battery-Powered 3.3V/150mA Supply	DN91	1	NA	LT1121-3.3

Regulators—Linear (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Low Dropout (Continued)	Connection for Best Load Regulation	LT1584/85/ 87 DS	10	4-5	LT1584
	Dual Regulators Power Pentium® Processor or Upgrade CPU	LT1580 DS	12	NA	LT1580, LT1587, LT1006
	FET Low Dropout 5V Regulator with Current Limit	LT1431 DS	7	NA	LT1431
	GTL Termination Voltage Circuit	AN67	19	20	LT1087
	Guaranteed LT1584/LT1431 Circuit for Intel 90MHz and 100MHz Pentium Processors	LT1584/85/ 87 DS	12	NA	LT1584, LT1431S
	High Efficiency Negative Voltage Regulation	DN21	1	1	LT1086
		DN21	1	2	LT1086
	Low Dropout 5V Regulator	LT1013 DS	17	NA	LTC1044, LT1013
		AN8	3	6	LTC1044, LT1013
		LTC1044 DS	11	16	LTC1044, LT1013
	Low Dropout Regulator for 6V Battery	LT1013 DS	18	NA	LT1013, LT1004-1.2
	Low Parts-Count Linear Supply	AN63	4	3	LT1584CT
	LT1118-2.85 Typical Application	LT1118 DS	1	NA	LT1118-2.85
	LT1121 Micropower Low Dropout Regulator	AN51	5	6	LT1121
	LT1123 Low Dropout Voltage	LT1123 DS	5	NA	LT1123
		AN51	4	4	LT1123
	LT1175 –5V/500mA Regulator	LTM V:1	13	1a	LT1175-5
	LT1175 –6V/500mA Regulator	LTM V:1	13	1b	LT1175-ADJ
	LT1521 Adjustable Operation	LT1521 DS	9	NA	LT1521
	LT1521 Kelvin Sense Connection	LT1521 DS	8	1	LT1521
	LT1521's 12µA Standby Current Eliminates the Need for a Separate Memory Backup Supply	DN121	1	1	LT1521-5, LTC1477
	LT1528 Adjustable Operation	LT1528 DS	7	2	LT1528
	LT1528 Kelvin Sense Connection	LT1528 DS	7	1	LT1528

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Regulators—Linear (Continued)					
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Low Dropout (Continued)	LT1529 Adjustable Operation	LT1529 DS	8	2	LT1529
	LT1529 Kelvin Sense Connection	LT1529 DS	7	1	LT1529-5
	LT1580 3.3V to 2.5/6A Converter	LTM V:3	7	1	LT1580
	LT1580 Conventional Load Sensing	LT1580 DS	7	1	LT1580
	LT1580 Delivers 2.5V from 3.3V at Up to 6A	DN119	2	1	LT1580
	LT1580 Remote Load Sensing	LT1580 DS	7	2	LT1580
	LT1585 Linear Regulator Optimized for Desktop Pentium Applications	DN91	1	NA	LT1585
	Microprocessor Supply with Shutdown	LT1528 DS	1	NA	LT1528
	Minimum Parts Count LT1585 Adjustable Circuit for Intel 90MHz Pentium Processor	LT1584/85/87 DS	11	NA	LT1585CT
	Optional Clamp Diodes Protect Against Input Crowbar Circuits	LT1580 DS	9	6	LT1580
	PNP Low Dropout 5V Regulator	LT1431 DS	7	NA	LT1431
	Power Supply with Battery Backup	LTM II:2	15	6	LT1121-5
	Precision 3.6V/1A Low Dropout Regulator	LT1366–69 DS	16	6	LT1366, LT1004-1.2
		DN89	1	1	LT1366
	Recommended LT1587-3.45 Circuit for Intel 486 DX4 OverDrive <sup>®</sup> Microprocessor	LT1584/58/87 DS	11	NA	LT1587-3.45
	Remote, Fully Kelvin Sensed Output (4-Wire)	LT1087 DS	6	NA	LT1087
	Remote Load Regulation Compensation (2-Wire)	LT1087 DS	7	NA	LT1087
	Setting Output Voltage for the LT1580	LT1580 DS	8	5	LT1580
	Typical LT1157 Adjustable Connection	LT1175 DS	6	1	LT1175-5
	Typical LT1175 Connection	LT1175 DS	1	NA	LT1175
	Ultralow Dropout 5V Regulator	AN66	66	135	LT1123
Low Noise	Low Noise Voltage Regulator	LT1028 DS	14	NA	LT1028, LT317A, LT1021-10
	Low Noise Wireless Communications Supply (5V/200mA)	AN66	65	134	LT1021-5

Regulators—Linear (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Low Noise (Continued)	Ultralow Noise 5V, 200mA Supply	LTM IV:2	26	1	LT1021-5
Micropower	1.2V Regulator with 1.8V Minimum Input	LM134 DS	9	NA	LM134
	3.3V to 2.5V/6A Converter	AN66	67	137	LT1580
Microprocessor Power	3.3V to 2.5V/6A Converter with Shutdown	AN66	68	140	LT1580
	Linear Regulator Responds to Fast Load Transients	AN66	69	143	LT1585
Multioutput	Dual Output $\pm 5V$ 150mA Regulator	LT1020 DS	10	NA	LT1020
	Dual Output Regulator	LT1020 DS	10	NA	LT1020
Negative	High Stability Negative Regulator	LT1033 DS	6	NA	LT1033, LM329B
	Negative Regulator	LT137 DS	1	NA	LT137A
		LM10 DS	11	NA	LM10
		LT1017 DS	6	NA	LT1017/LT1018
Paralleling	5V to 3.3V/10A Converter Using Paralleled LT1087s	AN58	7	13	LT1087
	Parallel Regulators for High Current (5V at 8A)	LT138A DS	1	NA	LT338A, LT350A
	Parallel Regulators for High Current (5V at 15A)	AN2	1	1	LT1083
	Paralleling Devices for Higher Current	LT1087 DS	7	NA	LT1087
	Paralleling Regulators	LT1038 DS	6	NA	LT1038-ADJ
Positive	5V Regulator	LT1020 DS	9	NA	LT1020
	Standard Fixed 5V Regulator	LT1003 DS	1	NA	LT1003
Precision	Dual Regulator Supply for Pentium or Upgrade Processor	DN122	1	2	LT1580, LT1587, LT1006
	High Precision Linear Regulator	AN63	4	4	LT1584, LT1431

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Regulators—Linear (Continued)					
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Precision (Continued)	High Stability Regulator	LT137 DS	7	NA	LT337, LM329B
		LT1033 DS	6	NA	LT1033, LM329B
		LT1004 DS	5	NA	LT1004-2.5, LT338A
	Precision High Current Reference	LT150A DS	7	NA	LT350A, LT1001, LT1009
	Precision Power Supply with Two Outputs	LT1001 DS	10	NA	LT1001, LM399, LT301A
		LT1002 DS	14	NA	LT1002, LT301A, LM399
Preregulator	Dual Preregulated Supply (90VAC–130VAC to $\pm 12$ V)	AN30	30	47	LT1086, LT1011, LT1004-2.5
		LT1086 DS	13	NA	LT1086, LT1011, LT1004-2.5
	High Current Low Dissipation Preregulated Linear Regulator (0V–35V, 0A–10A)	AN2	4	7	LT1038
		LT1038 DS	7	NA	LT1083, LT1011
		LT1083 DS	11	NA	LT1083, LT1011
	High Power Linear Regulator with Switching Preregulator	AN29	25	46	LT1011, LT1083, LM301A
		LT1083 DS	13	NA	LT1011, LT1083, LM301A
	Linear Regulator with Switching Preregulator (28V to Adj.)	AN2	3	5	LT350A, LT1018
	Low Dissipation Regulator (10V–20V to 5V)	LT1035 DS	11	NA	LT1035, LT1010
	Low Dissipation Regulator	LT1036 DS	7	NA	LT1010, LT1036, LT1004-2.5
	Micropower Postregulated Switching Regulator (6V–10V to 5V)	AN23	16	25	LT1020
	Micropower Preregulated Linear Regulator (6V–10V to 5V)	AN32	8	15	LT1020
	Preregulated Low Dropout Regulator (7V–20V to 5V, 7.5A)	AN32	4	8A	LT1083-5, LT1018
	SCR Preregulator (90VAC–140VAC to 15V)	AN32	3	5	LT1086, LT1018
	Switching Preregulated Linear Regulator (9V to 5V)	AN8	5	11	LT1013
		LT1013 DS	13	NA	LT1013
	Switching Preregulator for Wide Input Voltage Range (7.5V–30V to 5V)	LT1020 DS	14	NA	LT1020
	Ultralow Dropout Linear Regulator with Preregulator	AN32	7	13	LT1013, LT1018

Regulators—Linear (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Protection Circuits	Crowbar Overvoltage Protection Circuit	AN31	9	18	LT1018
	Crowbar Protection	LT1003 DS	5	NA	LT1003
		LT123 DS	6	NA	LT123A
	Fast Electronic Circuit Breaker	LT1035 DS	10	NA	LT1035
		AN1	3	3	LT1005
		LT1005 DS	26	NA	LT1005
	Foldback Current Limiting	LT1185 DS	12	NA	LT1185
	High Input Voltage Detection	AN1	3	5	LT1005
		LT1005 DS	25	NA	LT1005
		LT1035 DS	9	NA	LT1035
	Latchoff for $V_{OUT} < 4.7V$	LT1035 DS	8	NA	LT1035
		LT1005 DS	24	NA	LT1005
	Latchoff When Output Shorts	LT1036 DS	6	NA	LT1036
		AN1	2	2C	LT1005
		LT1005 DS	9	NA	LT1005
	Line Dropout Detector	AN1	5	8	LT1005
		LT1005 DS	27	NA	LT1005
		LT1036 DS	7	NA	LT1036, LT1011
	Thermal Cutoff at High Ambient Temperatures	LT1035 DS	8	NA	LT1035
		LT1005 DS	24	NA	LT1005
		AN1	6	10	LT1005
Shunt	Shunt Regulator	LM10 DS	11	NA	LM10
Supply Splitter	5V Supply Splitter	LTM V:3	6	4	LT1118-2.5
	LT1118-2.5 Supply Splitter	DN115	1	1b	LT1118-2.5
	Power Supply Splitter	LT1118 DS	4	NA	LT1118-2.5
	Split Supply Application in which Shutdown Pins Can Be Commanded in Parallel Using Positive Logic	DN121	2	2	LT1521-5, LT1175-5

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Regulators—Linear (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Supply Splitter (Continued)	Split Supply Saves Power and Holds Bias Point DC Resistance to Less than $0.025\Omega$	DN121	2	4	LT1521-5, LT1118-2.5
Tracking	Dual Tracking 3A Supply	LT1033 DS	6	NA	LT150A, LT1033
		LT137 DS	7	NA	LT317A, LT337A
	Multiple Tracking Regulators	LT137 DS	7	NA	LT317A
		LT1033 DS	6	NA	LT1033

Regulators—Switching					
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Adjustable	High Efficiency Adjustable Regulator with $5.5V < V_{OUT} < 13V$	LTC1159	12	6	LTC1159
Backlight	“Hot” Cathode Fluorescent Lamps	AN49	7	A1	NA
	20W CCFL Power Supply	AN55	37	H1	LT1170
		LT1371 DS	14	NA	LT1371
	3.6V to 5.5V In, 4mA CCFL Power Supply	AN65	37	40	LT1172
	88% Efficient CCFL Power Supply	AN65	33	35	LT1172
		AN55	4	6	LT1172
	90% Efficient CCFL Supply	LT1373 DS	11	NA	LT1373
		LT1372/77 DS	11	NA	LT1372/LT1377
	90% Efficient Floating CCFL Configuration with Dual Polarity LCD Contrast	LT1182–84 DS	1	NA	LT1182
		LTM IV:3	11	2	LT1182
	90% Efficient Grounded CCFL Configuration with Dual-Polarity LCD Contrast	LTM IV:3	12	3	LT1182
	90% Efficient Grounded CCFL Configuration with Negative Polarity LCD Contrast	LT1182–84 DS	20	NA	LT1183
	91% Efficient CCFL Power Supply for 5mA Loads with Shutdown and Dimming Inputs	AN55	5	8	LT1172
	91% Efficient CCFL Supply for 5mA Loads, with Shutdown and Dimming Inputs	AN65	34	37	LT1372/LT1377
	92% Efficient CCFL Supply for 10mA Loads, with Shutdown and Dimming Inputs	AN55	5	9	LT1172
		AN65	35	38	LT1372/1377
	9V–15V In, 25W CCFL Power Supply	AN65	39	44	LT1170
	A Lot of Cut-Off Ears and No Van Goghs (Some Not-So-Great Ideas)	AN55	39	J1–J8	NA
	An Inherently Synchronous CCFL Power Supply Eliminates Phase Jitter	AN55	20	34	(Generic)
	Backlight CCFL Supply	LT1572 DS	11	NA	LT1572
	Backlight Efficiency Measurements	AN49	10	NA	NA

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Regulators—Switching (Continued)					
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<b>Backlight (Continued)</b>	CCFL Power Supply for Floating-Lamp Configuration Operates on 2.7V	DN133	2	2	LT1513
	CCFL Power Supply for Grounded Lamp Configuration Operates on 2.7V	DN133	1	1	LT1513
	Cold Cathode Fluorescent Lamp (CCFL) Power Supply	AN45	21	36	LT1072
		AN49	2	2	LT1172
		DN52	2	3	LT1072
		LTM II:2	3	1	LT1172
	Dual-Transformer CCFL Supply	AN65	112	I2	LT1184
	Floating CCFL with Potentiometer Control of Lamp Current	LT1182–84 DS	21	NA	LT1184F
	Floating-Lamp CCFL Drive Circuit with Low Parts Count, Open Bulb Protection, and Shutdown	AN65	42	49	LT1184F
	Floating-Lamp CCFL Supply with Bipolar Output Contrast Supply	AN65	43	50	LT1182
	Floating-Lamp CCFL Supply with Internal DAC for Microprocessor Control of Lamp Current	AN65	44	51	LT1186
	Floating-Lamp CCFL Supply	DN99	1	1	LT1182
	High Power CCFL Supply for Desktop Computer Applications	AN65	111	I1	LT1184
	High Power, Multilamp Display, Floating-Lamp CCFL Supply	AN65	47	54	LT1269
	LCD Display Contrast Power Supply	DN47	2	4	LT1172
	Low Power CCFL Power Supply	AN49	5	5	LT1173
		AN55	8	11	LT1173
	Low Power CCFL Supply Controls Lamp Current Over a 1 $\mu$ A–1mA Range	AN65	37	41	LT1173
	Low Thermometer CCFL Power Supply Using Micropower, Precision, Topside-Sensing Amplifier	AN55	18	29	LT1172, LT1077

## Regulators—Switching (Continued)

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<b>Backlight (Continued)</b>	Low Thermometer, Floating-Lamp CCFL Power Supply	AN55	17	28	LT1172
	Low Voltage CCFL Power Supply	LT1301 DS	9	NA	LT1301
	Low Voltage Input, 4mA CCFL Power Supply	AN55	8	10	LT1172
	Low Current CCFL Power Supply	LTM II:2	5	4	LT1173
	LT1172 CCFL Supply with Open-Lamp Protection	AN65	94	E2	LT1172
	LT1183 Grounded-Lamp CCFL Supply with Negative-Output LCD Contrast Supply	AN65	117	J6	LT1183
	LT1184 CCFL Supply, Illustrating Open Lamp Protection	AN65	93	E1	LT1184F
	LT1184F Floating CCFL with Potentiometer Control of Lamp Current	LT1182–84 DS	21	NA	LT1184F
	LT1186 Floating CCFL System Using an Intel 80C31 Microcontroller	LTM V:4	7	2	LT1186
	Modification to Limit Output Voltage of CCFL Power Supply	AN55	34	E1	LT1172
	Options for Shutdown and Intensity Control of CCFL Power Supply	AN55	35	F1	LT1172
	Practical Floating-Lamp CCFL Drive Circuit	AN65	41	48	LT1172
	The Thermometer Effect	AN49	15	NA	NA
	Two-Tube CCFL	AN49	4	4	NA
	Up to 90% Efficient Floating CCFL Supply with SPI Control of Lamp Current	LTM V:4	6	1	LT1186
<b>Boost</b>	100kHz Boost Converter (5V to 12V)	LT1170 DS	1	NA	LT1170
	12V Step-Up Regulator with 1A Circuit Breaker, Breaker Status Feedback and Ramped Output	LTC1153 DS	13	NA	LT1070, LTC1153
	12V Step-Up Regulator with Soft Start, Autoreset Circuit Breaker, Status Feedback and 10µA Standby	LTC1153 DS	13	NA	LT1070, LTC1153
	2-Cell to 3.3V/5V Step-Up Converter	LT1300 DS	1	NA	LT1300

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Regulators—Switching (Continued)					
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Boost (Continued)	2-Cell to 5V/200mA Step-Up Converter with Automatic Output Disconnect	LT1300 DS	8	NA	LT1300
		LT1301 DS	8	NA	LT1301
	200mA Output Converter (1.5V to 5V)	AN29	15	23	LT1070, LT1018
		AN30	7	6	LT1070, LT1018
	200mA Output, 1.5V-to-5V Converter	LTM III:1	17	1	LT1170, LT1073
	2V to 5V/110mA Converter	LT1109A DS	6	NA	LT1109A-12
	3.3V/5V to 12V Step-Up Converter	LT1301 DS	1	1	LT1301
	5V to 12V Boost Converter	LT1371 DS	1	NA	LT1371
		LT1372/77 DS	1	NA	LT1372/LT1377
		LT1572 DS	1	NA	LT1572
	5V to 12V/110mA Converter with Shutdown to 0V at Output	LT1109A DS	6	NA	LT1109A-12
	5V to 12V/350mA Boost Converter	AN66	25	38	LT1372/LT1377
	5V to 12V/3A Converter	LTM V:2	26	1	LTC1147
	5V to 12V/500mA High Efficiency Boost Regulator	LTC1266 DS	19	12	LTC1266
	5V to 12V Boost Converter	LT1373 DS	1	NA	LT1373
	90V DC/DC Converter	AN45	19	29	LT1072
	Adding Short-Circuit Protection to an LT1301 Step-Up Switching Regulator	LTC1477/78 DS	7	NA	LTC1477, LT1301
	Basic Flash EEPROM VPP Pulse Generator (5V to 12.75V or 12.00V)	AN30	43	87	LT1072
		DN17	1	1	LT1072
	Boost Converter (1.5V to 5V)	LT1018 DS	7	NA	LT1018, LT1004-1.2
		AN15	7	13	LT1018, LT1004-1.2
		AN30	8	9	LT1018, LT1004-1.2
	Boost Converter (15V to 90V)	LT1082 DS	10	NA	LT1082

## Regulators—Switching (Continued)

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Boost (Continued)	Boost Converter (5V to 12V)	AN19	17	18	LT1070
		AN30	5	1	LT1070
		AN46	1	1	LT1070
	Boost Converter (5V to 12V/0.5A)	LT1269/71 DS	4	NA	LT1271
	Boost Converter (5V to 12V/250mA)	LT1072 DS	1	NA	LT1072
	Boost Regulator (5V to 12V/1.5A)	LT1268 DS	4	NA	LT1268CT
	Boost Regulator with 5.3V $\pm 1\%$ /3.75A	LT1268 DS	1	NA	LT1268
	Current Boosted Boost Converter (16V–24V to 28V)	LT1070 DS	9	NA	LT1070
		AN30	5	3	LT1070
		AN19	44	NA	LT1070
	4-Cell to 5V/200mA Converter	LT1301 DS	8	NA	LT1301
	High Repetition Rate VPP Pulse Generator (5V to 12.75V or 12.00V)	AN30	43	88	LT1072, LT1006, LT1010, LT1004-1.2
		DN17	2	3	LT1072, LT1006, LT1010, LT1004-1.2
	Local 12V to 13.75V Regulator for Use with the LT1312	AN60	7	10	LT1111, LT1312
	Local 5V to 13.75V Boost Regulator for Use with the LT1312	AN60	7	9	LT1172, LT1312
	Low Noise Converter (5V to $\pm 15$ V)	AN30	11	14	LT1054, LT1086, LT337A
		AN29	2	1	LT1054, LT1086, LT337A
	Low Quiescent Current Boost Regulator (150 $\mu$ A, 6V to 12V)	AN29	9	12	LT1070, LT1017
	Low Quiescent Current Flyback Regulator (150 $\mu$ A, 6V to 12V)	DN11	2	2	LT1070, LT1017, LT1004-1.2
		AN30	6	5	LT1070, LT1017, LT1004-1.2
	Low Voltage Circuit Provides Constant Output Voltage as Battery Discharges	DN41	1	1	LT1270
	LT1372 2.7–11V In, 12V Out Boost Converter	LTM IV:3	20	4	LT1372
	LT1372 Dual-Output ( $\pm 15$ V) Flyback Converter with Overvoltage Protection	AN66	26	41	LT1372

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## Regulators—Switching (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Boost (Continued)	LT1372 Positive-to-Negative Converter (2.7V to 16V In, -5V Out) with Direct Feedback	AN66	26	40	LT1372
	LT1377-Based 1MHz 8V–30V In, 5V/1A Out Boost Converter	LTM V:3	24	1	LT1377
	LTC1147-Based 5V to 12V/3A Converter	AN66	24	37	LTC1147
	LT1372 Boost Converter (2.7V to 11V In, 12V/350mA Out)	DN125	1	1	LT1372
	Negative Boost Converter (-5V In, -9V/175mA Out)	LTC1174 DS	13	NA	LTC1174-3.3
	Negative Boost Converter (-5V to -15V to -15V)	LT1074 DS	14	21	LT1074
		AN44	33	21	LT1074
	Negative Boost Regulator	LT1072 DS	11	NA	LT1072
	Negative Boost Regulator (-15V to -28V)	AN19	42	31	LT1070
		LT1070 DS	11	NA	LT1070
		AN30	5	4	LT1070
	Regulated Up Converter (5V to 10V)	LT1018 DS	7	NA	LT1018
		AN30	8	8	LT1018, LT1004-1.2
	Single Cell to 5V Supply	DN123	2	3	LT1300, LTC1444
	Single Cell Up Converter (1.5V to 5V)	AN30	8	11	LM10
		AN8	8	18	LM10
	Single Inductor Dual Output Converter (5V to $\pm 15V$ )	AN30	13	16	LT1072, LT1054
		AN30	10	13	LT1018
		AN29	6	6	LT1018, LT1004-1.2
	Single-Inductor, Dual-Polarity Regulator (6V to $\pm 15V$ )	LT1013 DS	17	NA	LT1013, LT1004-1.2
		AN8	10	22	LT1013, LT1004-1.2
		AN30	9	12	LT1013, LT1004-1.2
	Single Li-Ion Cell to 5V Converter	LT1371 DS	13	NA	LT1371
	Single Li-Ion Cell to 5V Converter/Switch with Load Connect Below 2.7V	LTC1477/78 DS	7	NA	LTC1477, LT1304CS8-5

## Regulators—Switching (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Boost (Continued)	Typical LTC1472 PCMCIA $V_{CC}$ and VPP Switch Matrix Application	AN60	3	2	LTC1472, LT1301
	Ultralow Noise Sine Wave Drive (5V to $\pm 15V$ )	AN30	12	15	LT1006, LT1010, LT1013, LT1009-2.5, LT1021
		AN29	4	4	LT1006, LT1010, LT1013
	Up Converter (1.5V to 5V)	AN30	8	10	LM10
	Up Converter (6V to 15V)	AN8	9	20	LT1013, LT1004-1.2
		LT1013 DS	18	NA	
		AN30	7	7	
	Voltage Boosted Boost Converter (15V to 100V)	AN30	8	2	LT1070
		AN19	41	30	
		LT1070 DS	9	NA	
Buck	“Current Boosted” Step-Down Regulator (20V–30V to 5V)	AN44	25	18	LT1074
		AN35	5	12	LT1074
		LT1074 DS	13	NA	LT1074HV
	12V to 5V Buck Converter with Foldback Current Limit	LT1431 DS	8	NA	LT1431, LT1089
	12V–36V to 5V/5A Step-Down Regulator	LTM III:2	25	1	LTC1149-5
	1MHz, 8V–30V to 5V/1A Converter	AN66	10	11	LT1377
	2.5mm High 5V to 3.3V/500mA Converter	LTM V:1	11	8	LTC1265-3.3
		AN66	23	34	
	2.5mm Max Height 5V to 3.3V/500mA Converter	LTC1265 DS	15	NA	LTC1265-3.3
	2.5V/2A Regulator (3.5V to 12V In)	LTC1147 DS	15	11	LTC1147L
	250kHz High Efficiency 12V In, 5V/2A Output Regulator	LTC1149 DS	17	13	LTC1149-5
	25W High Efficiency Regulator (12V to 36V In, 5V/2.5A Out) Using N-Channel MOSFET Switches	LTC1149 DS	19	16	LTC1149-5
	3.3V Regulator with Capacitive Charge Pump for EXT $V_{CC}$	LTC1267 DS	11	5b	LTC1267

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Regulators—Switching (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Buck (Continued)</b>	3.3V Regulator with Inductive Boost Circuit for EXT <sub>VCC</sub>	LTC1267 DS	11	5a	LTC1267
	3.3V/1.25A Low Dropout, High Efficiency Regulator (3.5V to 12V In)	LTC1147 DS	14	8	LTC1147-3.3
	3.3V/2A Output, High Efficiency Regulator	LTC1147 DS	15	12	LTC1147-3.3
	4V to 12V In, 3.3V/1A Out, Surface Mount Regulator	DN98	2	4	LTC1265-3.3
	4V to 14V In, 5V/1A Regulator	LTC1148 DS	19	16	LTC1148
	50 Watt, High Efficiency 40V In, 5V Out Switching Regulator	LTM V:4	15	4	LT1160, LT1846
	5:1 Input Range (4V to 20V) High Efficiency 3.3V/2.5A Regulator	LTC1159 DS	16	11	LTC1159
		LTC1159 DS	16	11	LTC1159-3.3
	5V High Current Step-Down (30V–60V to 5.1V/12A)	DN59	1	1	LT1241
	5V In, 3.3V/150mA Out, Surface Mount DC/DC Converter	DN98	1	1	LTC1574-3.3
	5V In, 3.3V/2A Out, 94% Efficiency Synchronous Buck Regulator	DN74	1	2	LT1148-3.3
	5V In, 3.3V/2A Low Dropout, High Efficiency Regulator	LTC1148 DS	17	13	LTC1148L-3.3
	5V to 3.3V/10A Converter	LTC1430 DS	1	NA	LTC1430
		LTC1262 DS	6	NA	LTC1262, LTC1148-3.3
	5V to 3.3V/0.5A Converter	AN58	8	16A	LTC1147-3.3
	5V to 3.3V/10A DC/DC Converter for Pentium-Class Microprocessor	LTM V:2	20	5	LTC1430
	5V to 3.3V/10A Switching Regulator	AN58	1	22A	LT1158, LT1431
	5V to 3.3V/15A High Efficiency Switching Regulator	LTM III:2	23	1	LT1158, LT1431
	5V to 3.3V/175mA Converter	AN58	7	14A	LTC1174-3.3
	5V to 3.3V/1A Buck Converter with Surface Mount Technology	AN58	9	17A	LTC1147-3.3
	5V to 3.3V/1A Converter	LTM III:2	9	2	LTC1147-3.3

## Regulators—Switching (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Buck (Continued)</b>	5V to 3.3V/425mA Converter	AN58	8	15A	LTC1174-3.3
	5V to 3.3V/5A Buck Converter	AN58	12	20A	LTC1148-3.3
	5V to 3.3V/7A High Efficiency Switching Regulator	AN58	13	21A	LT1158, LT1431
	5V/10A High Efficiency Step-Down Switching Regulator	LTM II:1	4	2	LT1158, LT3525
	5V/1A High Efficiency Regulator with Extended Input Voltage Range (5.2V to 18V)	LTC1148 DS	16	10	LTC1148HV-5
	6.5V to 18V In, Triple Output (3.3V/2A, 5V/2A, 12V/150mA) High Efficiency Power Supply	DN78	2	2	LTC1142, LT1121
	6V to 24V In, 3.3V/0–3A and 5V/0–3A Out, High Efficiency Surface Mount Supply	DN77	2	3	LTC1149
	6V to 25V In, 5V/1.25A Out Buck Converter	LT1375/76 DS	1	NA	LT1376-5
	8 to 24V In, 5V/0–3A and 3.3V/0–5A Out, High Efficiency Supply	DN72	2	2	LTC1149
	87% Efficient 48V to 5V DC/DC Converter	LTM III:1	12	7	LTC1149-5
	90% Efficiency, 40V to 5V/10A Low Dropout, Voltage Mode Switching Regulator	LT1160 DS	12	4	LT1160, LT3526
	90% Efficiency, Low Dropout Current Mode Switching Regulator	LT1160 DS	12	5	LT1160, LT1846
	90% Efficient Positive Buck with Synchronous Switch (9.5V–14.5V to 5V)	AN30	16	22	LT1072
		AN29	18	32	LT1072
	9V to 5V/175mA Converter	AN66	35	61	LTC1174-5
	9V to 5V/425mA Converter	AN66	35	63	LTC1174-5
	A Practical Step-Down Regulator Using the LT1074 (10V–60V to 5V)	AN35	2	3	LT1074
		AN46	3	5	
		AN44	18	15	
	A Simple Loop Reduces Quiescent Current to 150μA (12V to 5V)	AN35	7	16	LT1074, LT1017

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Regulators—Switching (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Buck (Continued)	Adding Synchronous Switching to a Step-Down Switching Regulator	LT1160 DS	11	2	LT1160
	Adjustable 0V–5V/1.5A Power Supply	LTM IV:1	23	1	LT1076, LT1006
	Adjustable Linear Postregulator Maintains Efficiency (35V to 1.2V–28)	AN35	7	15	LT1006, LT1085, LT1074
	Adjustable Voltage Regulator with Precision Adjustable Current Limit	LT1510 DS	16	NA	LT1510
	All N-Channel 3.3V/5A Regulator with Drivers Powered from Separate Power $V_{IN}$ Supply	AN66	6	4a	LTC1266-3.3
	All N-Channel 3.3V/5A Regulator with External Power $V_{IN}$	LTM V:1	4	3a	LTC1266-3.3
	All N-Channel 4V to 14V In, 3.3V/5A Out Regulator with Drivers Powered from External $V_{IN}$	DN103	2	2a	LTC1266
	All N-Channel 5V to 3.3V/10A High Efficiency Regulator	LTC1266 DS	19	14	LTC1266-3.3
	All N-Channel 5V to 3.3V/10A Regulator	LTM V:1	5	4a	LTC1266-3.3
	All N-Channel, 5V to 2.5V/5A High Efficiency Regulator	LTC1266 DS	19	15	LTC1266
	All N-Channel, 5V to 3.3V/5A Converter with Drivers Powered from External PWR $V_{IN}$ Supply	LTC1266 DS	18	13	LTC1266-3.3
	All N-Channel, 5V/8A High Efficiency Regulator (Burst Mode™ Suppressed)	LTC1148 DS	20	18	LTC1148HV-5
	All N-Channel, Single Supply 5V to 3.3V/10A Regulator	AN66	6	5a	LTC1266-3.3
	All Surface Mount, 5.2V to 14V In, 3.3V/1A and 5V/2A Out Converter	LTC1143 DS	15	10	LTC1143
	All Surface Mount, 5.2V to 14V In, 3.3V/2A and 5V/2A Out Converter	LTC1143 DS	15	11	LTC1143
	Basic Positive Buck Converter	LT1074 DS	1	NA	LT1074
		LT1176 DS	1	NA	LT1176-5
	Buck Regulator, 1A (8V–30V to 5V)	LT3524 DS	1	NA	LT3524
		AN30	18	25	LT3524

## Regulators—Switching (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Buck (Continued)</b>	Capacitive Charge Pump for EXTVcc	LTC1159 DS	11	5b	LTC1159-3.3
	Coupled Inductor Provides Positive and Negative Outputs (28V to 15V, -5V)	AN35	3	8	LT1074, LT1086
	Dual Regulator with 5.2V to 18V In, and 3.6V/2A and 5V/2A Outputs	LTC1142 DS	17	11	LTC1142-ADJ
	Floating Input, Low Saturation Loss Buck Regulator	DN21	2	3	LT1070
	Gate Drive Using 5 and 12V Supplies	LTM V:2	19	2b	LTC1430
	Gate Drive Using 5V Supply	LTM V:2	19	2a	LTC1430
	More Sophisticated Loop Gives Better Regulation while Maintaining 150μA Quiescent Current (12V to 5V)	AN35	8	18	LT1074, LT1017
	High Current, Low Dissipation, Preregulated Linear Regulator (0V–35V, 0A–10A)	LT1083 DS	11	NA	LM301A, LT1011, LT1083, LT1004-1.2
		AN30	33	52	LT1011, LT1083, LT317AH, LT1004-2.5
		AN2	4	7	LT1011, LT1038
	High Current, Positive Buck with Bootstrapped NMOS Gate drive (15V–35V to 5V)	AN30	44	89	LT1072, LT317A
	High Current Supply for Standard 3.3V CPUs	AN63	3	1	LTC1266
	High Current, High Efficiency 15V to 40V In, 5V/10A Output Regulator	LTC1159 DS	16	12	LTC1159-5
	High Efficiency 15V to 40V In, 12V/5A Output Regulator	LTC1159 DS	17	13	LTC1159
	High Efficiency 24V In, 12V/3A Output Regulator	LTC1149 DS	19	17	LTC1149
	High Efficiency 3.3V Regulator with Burst Mode Operation	AN51	3	3	LT1271, LT1269, LT1432
	High Efficiency 48V In, 5V/2A Output Regulator	LTC1149 DS	18	14	LTC1149
	High Efficiency 4V–12V In, 3.3V/425mA Out Regulator	LTC1574 DS	7	NA	LTC1574-5
	High Efficiency 5.2V to 18V In, Dual 3.3V/2A and 5V/2A Out Converter	LTC1142 DS	1	NA	LTC1142

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Regulators—Switching (Continued)					
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Buck (Continued)	High Efficiency 5.5V to 25V In, 3.3V/3A and 5V/3A Out Regulator	DN114	2	2	LTC1267
	High Efficiency 50W DC/DC Converter	DN59	2	3	LT3525, LT1158
	High Efficiency 5V Buck Converter	AN66	20	29	LT1271, LT1432
	High Efficiency 5V or 12V In, 3.3V/5A Out Supply for Pentium Processor	DN90	1	1	LTC1148
	High Efficiency 5V Regulator with Burst Mode Operation	LT1269/71 DS	1	NA	LT1271, LT1432
		LT1432 DS	1	1	LT1170/LT1271, LT1432
		AN51	3	2	LT1271/LT1269, LT1432
	High Efficiency 5V to 3.3V/1.5 Converter in 0.6 Square Inches	AN66	13	17	LTC1147-3.3
	High Efficiency 5V to 3.3V/1.5A Converter	LTM IV:1	29	1	LTC1147-3.3
	High Efficiency 5V to 3.3V/1A Converter	LTC1265 DS	13	NA	LTC1265-3.3
		AN66	23	32	LTC1265-3.3
	High Efficiency 5V to 3.3V/1A Converter with Extended Input Voltage Range	LTC1148 DS	16	11	LTC1148HV-3.3
	High Efficiency 5V to 3.3V/5A Step-Down Converter	AN66	7	7	LTC1148-3.3
		LTM III:3	26	1	LTC1148-3.3
	High Efficiency 5V/1A Step-Down Converter	AN66	22	30	LTC1265-5
	High Efficiency 5V/2A Step-Down Regulator	LTC1159 DS	1	1	LTC1159-5
	High Efficiency 8V to 20V In 3.3V/3A Output Regulator	LTC1149 DS	16	11	LTC1149-3.3
	High Efficiency 8V to 20V In, 2.5V/5A Output Regulator	LTC1159 DS	15	10	LTC1159
	High Efficiency 8V to 20V In, 3.3V/1A Output Regulator	LTC1149 DS	16	10	LTC1149-3.3
	High Efficiency Adjustable 3A Regulator	LTC1148 DS	17	13	LTC1148L-3.3
	High Efficiency Buck Converter	AN46	7	14	LT1070, LT1431
		LT1270 DS	1	NA	LT1270, LT1431

## Regulators—Switching (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Buck (Continued)</b>	High Efficiency Buck Converter with Active Catch Diode	AN44	15	11	LT1074
	High Efficiency Power Supply Providing 3.3V/2A with Built-In Battery Charger	LTC1142 DS	18	14	LTC1142HV-ADJ
	High Efficiency Regulator 4.5V to 18V In, 3.3V/2A and 2.5V/1.5A Out	LTC1142 DS	17	12	LTC1142HV-ADJ
	High Efficiency Regulator with 5.2V to 8V In, 3.3V/3A and 5V/2A	LTC1142 DS	18	13	LTC1142HV
	High Efficiency Regulator with 5.5V < V <sub>OUT</sub> < 13V	LTC1159 DS	12	6	LTC1159
	High Efficiency Step-Down Converter (5.5V–16V In, 5V/175mA Out)	LTC1574 DS	1	NA	LTC1574-5
	High Efficiency Step-Down Converter	LTC1266 DS	1	NA	LTC1266-3.3
	High Efficiency Step-Down Converter (5.2V to 14V In, 5V/2A Out)	LTC1147 DS	1	1	LTC1147-5
	High Efficiency Step-Down Converter (5.2V to 18V In, 5V/2A Out)	LTC1148 DS	1	1	LTC1148HV-5
	High Efficiency Step-Down Regulator	LTC1159 DS	1	1	LTC1159
	High Efficiency Step-Down Regulator (5V/2A Out)	LTC1149 DS	1	1	LTC1149-5
	High Efficiency Step-Down Converter (5.4V to 12V In, 5V/1A Out)	LTC1265 DS	1	NA	LTC1265-5
	High Efficiency, 5V to 3.3V/4.5A Converter	LTC1148 DS	18	15	LTC1148-3.3
	High Efficiency, Dual 5.2V to 14V In, 3.3V/2A and 5V/2A Out Converter	LTC1143 DS	1	1	LTC1143
	High Output Voltage (24V/2A) Buck Regulator	AN66	11	13	LTC1149, LT1211
	High Output Voltage (26–35V In, 24V/2A Out) Buck Regulator	LTM V:2	37	1	LTC1149, LT1211
	High Power Linear Regulator with Switching Preregulator	LT1083 DS	13	NA	LT1011, LT1083
		AN30	30	46	
		AN29	25	46	
	High Precision Microprocessor Supply	AN63	3	2	LTC1266, LT1431

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Regulators—Switching (Continued)					
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Buck (Continued)	Inductive Boost Circuit for EXTV <sub>CC</sub>	LTC1159 DS	11	5a	LTC1159-3.3
	Linear Regulator with Switching Preregulator (28V to Adj.)	AN30	31	48	LT1018, LT350A
		AN2	3	5	
	Logic Selectable 5V/1A or 3.3V/1A, High Efficiency Regulator	LTC1148 DS	19	17	LTC1148
	Logic Selectable 5V/2A or 3.3V/2A High-Efficiency Regulator	LTC1149 DS	18	15	LTC1149
	Logic-Selectable 0V/3.3V/5V 700mA Regulator	LTC1265 DS	15	NA	LTC1265
	Low Dissipation Regulator (10V–20V to 5V)	LT1036 DS	7	NA	LT1036, LT1011
		LT1035 DS	11	NA	LT1035, LT1011
		AN30	32	50	LT1035, LT1011
	Low Dropout 3.3V/3A Complementary MOSFET Regulator	AN66	7	6a	LTC1266-3.3
	Low Dropout 3.3V/3A High Efficiency Regulator	LTC1266 DS	17	11	LTC1266-3.3
	Low Dropout 5.5V–12.5V In, 5V/365mA Out Regulator with Low-Battery Detection	LTC1574 DS	7	NA	LTC1574-5
	Low Dropout 5.5V–12V In, 5V/2A Out Converter	AN66	19	27	LTC1147-5
	Low Noise 5V In, 3.3V/425mA Out Regulator	DN98	1	3	LTC1574
	Low Noise 5V to 3.3V/425mA Regulator	LTC1574 DS	5	5	LTC1574
	Low Noise, High Efficiency 4V–12.5V In, 3.3V/450mA Out Regulator	LTC1574 DS	6	NA	LTC1574
	Low Output, 5V/2.5A High Efficiency Regulator	LTC1266 DS	18	12	LTC1266-5
	Low Power Switching Regulator (9V to 5V)	LT1013 DS	13	NA	LT1013
		AN8	4	9	
		AN30	17	23	
	Low Quiescent Current Buck Converter (150μA, 8V–16V to 5V)	AN30	14	18	LT1072, LT1017
		AN29	12	19A	

## Regulators—Switching (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Buck (Continued)</b>	Low-Dropout 3.3V/3A Complementary MOSFET Regulator	LTM V:1	5	5a	LTC1266-3.3
	Low-Dropout 5V/2A Regulator	LTM III:1	12	6	LTC1148-5
		LTM III:2	10	6	LTC1147-5
	LT1070 Floating Input Step-Down Switching Regulator	AN46	5	9	LT1070
	LT1070 High Efficiency Buck Switching Regulator	AN46	7	14	LT1070, LT1431
	LT1074 Step-Down Regulator	LTM I:1	8	2	LT1074
	LT1074/LT1076 Adjustable 0V–5V/1.5A Power Supply	AN66	14	19	LT1074/LT1076, LT1006, LT1029
	LT1158 (24V to 5V/10A) Buck Converter	AN52	9	10	LT3525, LT1158
	LT1377-Based Buck Converter	DN125	2	7	LT1377
	LTC1147 High Efficiency 5V to 3.3V/1A Converter	AN66	17	23	LTC1147-3.3
	LTC1148 94% Efficient 5V to 3V Converter	LTM III:1	10	2	LTC1148-3.3
	LTC1149-5 12V–36V to 5V/5A Converter Using N-Channel MOSFETs	AN66	9	9	LTC1149-5
	LTC1266 5V In, 3.38V/7A Supply for Pentium and Other High Speed Microprocessors	DN91	2	NA	LTC1266
	LTC1267 Dual, Adjustable High Efficiency Regulator	AN66	13	16	LTC1267-ADJ
		LTM V:1	8	4	LTC1267
	LTC1267 Dual-Output (3.3V and 5V/2A) High Efficiency Regulator	LTM V:1	8	3	LTC1267-ADJ
	LTC1267 Dual-Output 3.3V/2A and 5V/2A High Efficiency Regulator	AN66	12	15	LTC1267
	LTC1430 5V to 3.3V/10A Regulator	DN113	1	1	LTC1430
	LTC1574 Adjustable Configuration	LTC1574 DS	5	3	LTC1574
	LTC1575 Low-Battery Comparator	LTC1574 DS	5	2	LTC1574
	Micropower Postregulated Switching Regulator (6V–10V to 5V)	AN30	32	51	LT1020
		AN23	16	25	

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Regulators—Switching (Continued)					
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Buck (Continued)	Micropower Switching Regulator (5.8V–10V to 5V)	AN30	17	24	LT1017
		AN23	15	22	
	Negative Buck Converter (–20V In, –5.2V/1A Out)	LT1072 DS	11	NA	LT1072
	Negative Buck Converter (–20V to –5.2V/4.5A)	AN19	21	19	LT1070
		AN30	16	21	
		LT1070 DS	10	NA	
	Negative Buck Converter (–8V to –30V In, –5.2V/3.5A Out)	LT1269/71 DS	4	NA	LT1271
	No-Design Switching Regulator	DN48	2	1	LT1074
	Pentium P54C 5/10A Power Supply Circuit	LTM V:1	19	1	LTC1266
	Pentium P54C-VR and P54-VRE Power Supply Circuit	LTM V:1	20	2	LTC1266, LT1431
	Positive (3.3V–7.5V) to Negative (–5V) Converter	AN66	24	36	LTC1265-5
	Positive (4V–7.5V) to Negative (–5V/150mA) Converter with Low-Battery Detection	AN66	36	65	LTC1174-5
	Positive Buck Converter	LT1070 DS	10	NA	LT1070
		AN30	15	20	
		AN19	27	21	
	Positive Buck Converter (12V–35V to 5V)	AN29	23	42	LT1072
		AN30	13	17	
	Positive Buck Converter (5V/1A Out)	LT1072 DS	11	NA	LT1072
	Positive Buck Converter (7V–15V to 5V/250mA)	AN30	15	19	LT1072
	Reducing LT1376 Input Voltage	LT1375/76 DS	19	10	LT1376-5
	Self-Bypassing 5V to 3.45V High Efficiency Buck Converter	DN82	2	3	LTC1148

## Regulators—Switching (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Buck (Continued)</b>	Step-Down Converter with Doubler Charge Pump	LTC1430 DS	7	4	LTC1430
	Switching Preregulated Linear Regulator (9V to 5V)	LT1013 DS	13	NA	LT1013
		AN30	31	49	
		AN8	5	11	
	Switching Preregulator for Wide Input Voltage Range (7.5V–30V to 5V)	LT1020 DS	14	NA	LT1020
		AN30	33	53	
	Tapped-Inductor Buck Converter	LT1074 DS	13	NA	LT1074
	Triple Output 3.3V/2A, 5V/2A and 12V/150mA Notebook Computer Power Supply	AN66	16	22	LTC1142, LT1121
	Triple Output Regulator with Switched 12V Out	LTC1142 DS	19	16	LTC1142
	Typical 3.3A/3V Converter	LT1432-3.3 DS	1	1	LT1432-3.3, LT1271
	Typical 5V to 3.3V Converter Showing Schematic Layout Considerations	LTC1430 DS	13	11	LTC1430
	Typical 5V to 3.3V/10A LTC1430 Application	AN66	4	1	LTC1430
<b>Buck-Boost</b>	Ultrawide Input Range (5.5V to 25V), High Efficiency 5V/2A Regulator	LTC1149 DS	17	12	LTC1149-5
	“5V to 5V” Step-Up or Step-Down Converter	LT1173 DS	14	NA	LT1173
	3-Cell to 3.3V/300mA Buck-Boost Converter	LTM V:2	36	1	LT1303
	3.3V or 5V In, 3.3V and 5V/150mA Regulator Circuit	DN71	1	1	LT1111, LTC1157
	5V Buck Converter with –5V Overwinding	AN66	27	46	LT1176-5
	5V Buck-Boost Converter	LTC1265 DS	14	NA	LTC1265
	A (Better) Negative Output Step-Down Regulator (–5V Out)	LT1074 DS	13	NA	LT1074
		AN35	5	11	LT1074
	LT1070 High Efficiency Positive to Negative Switching Regulator	AN46	10	22	LT1070, LT1431
	Negative Output Step-Down Regulator (12V to –5V)	AN35	4	9	LT1074, LT1006

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Regulators—Switching (Continued)					
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Buck-Boost (Continued)	Negative-to-Positive Buck-Boost Converter (–40V to –60V to 5V)	AN29	21	38	LT1072
		AN25	4	4	LT1070
	No Design Switching Regulator	DN49	2	1	LT1074
	Positive Buck-Boost Converter (15V–35V to 28V/250mA)	AN29	24	44	LT1072
		AN30	18	26	LT1072
	Positive-to-Negative Buck-Boost Converter (10V–30V to –12V/2A)	LT1070 DS	9	NA	LT1070
		AN19	43	NA	
		AN30	19	28	
	Positive-to-Negative Converter (4.5V–40V to –5V)	AN46	9	18	LT1074
		LT1074 DS	13	NA	
		AN44	28	19	
	Transformerless 3.5V–40V to 5V/500mA Converter	AN66	28	47	LT1171
	Transformerless 8V–40V to ±15V/500mA Converter	AN66	30	50	LT1074
	All N-Channel, Single-Supply 5V In, 3.3V/10A Out Regulator	DN103	2	1a	LTC1266
Cuk	Low Ripple 5V to –3V “Cuk” Converter	LT1372/77 DS	11	NA	LT1372/LT1377
		LT1373 DS	11	NA	LT1373
		DN125	2	5	LT1373
Discussion	A Checklist for Switching Regulator Designs	AN25	16–17	NA	NA
	Adding Short-Circuit Limiting, True Shutdown and Regulation When There is a High Input Voltage to the LT1301 in Boost Mode	AN66	39	72	LT1301
	Basic Step-Down Circuit	AN35	1	1–2	NA
	Basic Switching Regulator Topologies	AN19	12–17	NA	NA
	Driving External Transistors	AN19	52–53	40–41	LT1070
	Efficiency and Power Characteristics of Switching Regulator Circuits	AN46	NA	NA	NA

## Regulators—Switching (Continued)

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		AN19	49	34	LT1070
	Evolution of a Switching Regulator Design	AN25	20–23	D1–D9	LT1070, LT1071
	External Current Limiting	AN19	50–52	35–39	LT1070
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		AN19	47–49	NA	NA
	General Considerations for Switching Regulator Design	AN35	20–24	NA	NA
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	Inductor Selection	DN8	1	1	LT1070
	Inductor Selection—Alternate Method	AN35	22–23	NA	NA
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	LT1070 Operation	AN19	7	NA	NA
		AN25	13–14	NA	NA
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	Some Thoughts on DC/DC Converters	AN29	1–44	NA	NA
	Subharmonic Oscillations	AN19	70	NA	NA

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## Regulators—Switching (Continued)

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	Techniques and Equipment for Current Measurement	AN35	24–26	NA	NA
	The 5V to $\pm 15$ V Converter	AN29	33	A1	NA
	Troubleshooting Hints	AN19	68–70	NA	NA
		AN44	47–48	NA	NA
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	20V–30V In, 5V/1.5A Out Flyback Converter	LT1072 DS	9	NA	LT1072
	800 $\mu$ A Output Converter (1.5V to 5V)	AN30	26	40	LT1017
		AN29	14	20	LT1017
	Dual-Output Flyback Converter with Overvoltage Protection	LT1372/77 DS	11	NA	LT1372/LT1377
	Dual-Output Flyback Converter (2.7V to 13V In, $\pm 15$ V Out) with Overvoltage Protection	LT1372/77 DS	11	NA	LT1372/77
	Dual-Output Flyback Converter with Overvoltage Protection	LT1371 DS	13	NA	LT1371
		LT1373 DS	10	NA	LT1373
	Flyback Converter (12V to 5V/1A)	AN29	20	37	LT1070
	Flyback Converter (20V–30V to 5V)	AN30	20	29	LT1070
		AN19	30	22	LT1070
	Fully Isolated Regulator ( $-40$ V to $-60$ V to 5V)	AN25	6	6	LT1071, LT1006
		AN30	24	38	
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		AN29	19	35	LT1071
	High Voltage Power Supply for Ring-Tone Generator	AN67	60	83	LT1070
	Low $I_Q$ , Isolated (5V to $\pm 15$ V)	AN30	25	39	LT1070, LT1020, LT1017
		AN29	7	8	LT1070, LT1020, LT1017

## Regulators—Switching (Continued)

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		LTM IV:3	21	7	LT1372
	Multioutput Flyback Converter (12V to 5V, $\pm 12V$ )	AN30	42	85	LT1071, LT1086-12
		DN18	1	1	
	Negative, Current-Boosted Buck Converter	LT1070 DS	10	NA	LT1070
		AN30	23	35	
		AN19	36	27	
	Negative Input/Negative Output Flyback Converter	LT1070 DS	10	NA	LT1070
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		AN30	23	36	
	Positive, Current-Boosted Buck Converter (28V to 5V)	LT1070 DS	12	NA	LT1070
		AN30	22	34	
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	Positive Input/Negative Output Flyback Converter	LT1070 DS	11	NA	LT1070/LT1071
		AN30	24	37	LT1070/LT1006
		AN19	41	29	LT1070
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		DN130	1	1	LT1171, LT1006
	Totally Isolated Converter (5V to $\pm 15V$ )	AN30	21	31	LT1070/LT1071
		AN19	34	25	
		LT1070 DS	8	NA	
	Transformer-Coupled, Low Quiescent Current Converter (150 $\mu A$ , 12V to 5V $\pm 15$ )	DN18	2	3	LT1071, LT1086, LT1017
		AN30	42	86	
		AN29	13	19B	
	Wide-Range, Positive Input, Negative Output Flyback Converter (3.5V–35V to –5V)	AN29	22	40	LT1070
		AN30	21	32	

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		AN30	27	41	
		LT1070 DS	11	NA	
	Push-Pull Forward Converter	LT1846 DS	8	NA	LT1846
High Voltage	Converter with 20,000V Isolation (15V to 10V)	AN30	28	44	LT1020, LT1011
		AN29	28	51	
	High Voltage Power Supply (8V–15V to 330V)	AN39	1	1	LT1070
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	Parasitic Capacitance Effects in Step-Up Transformer Design	AN39	1–4	NA	NA
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	Regulated Charge Pump Power Supply	AN66	34	59	LTC1044A
Inverting, Negative-to-Positive	Negative-to-Positive Buck-Boost Converter	LT1269/71 DS	4	NA	LT1271
	Negative-to-Positive Buck-Boost Converter (–12V In, 12V/0.5A Out)	LT1072 DS	10	NA	LT1072
Inverting, Offline	300kHz Offline Power Supply	LT1241 DS	11	NA	LT1241
Inverting, Positive-to-Negative	10V–20V to –24V Converter	LTM V:1	29	1	LT1172
	10V–20V to –24V/100mA Converter	AN66	40	74	LT1172
	12V to –12V/1A Converter	AN66	33	57	LTC1159
	3.3V, 5V, and 12V, 18.4W High Efficiency Notebook-Computer Power Supply	LTM IV:1	7	2	LT1142, LT1121
	4V to 9V In, –5V/1A Regulator	LTC1148 DS	18	14	LTC1148

## Regulators—Switching (Continued)

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		LTM V:1	35	1	
	LT1372 Positive-to-Negative Converter (2.7V to 16V In, –5V Out) with Direct Feedback	LTM IV:3	21	6	LT1372
		AN66	26	40	LT1372
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	Positive (4V–12.5V) to –5V Converter	LTC1574-5	7	NA	LTC1574-5
	Positive (4V–7.5V) to Negative (–5V/150mA) Converter with Low-Battery Detection	AN66	36	65	LTC1174-5
	Positive-to-Negative Converter	LTM I:1	9	3	LT1074
	Positive-to-Negative Converter with Op Amp Level Shifting	LTM I:1	9	4	LT1074, LT1006
	Positive-to-Negative (–5V) Converter	LTC1265 DS	13	NA	LTC1265-5
	Positive-to-Negative (2.7V to 16V In, –5V Out) Converter with Direct Feedback	LT1372/77 DS	11	NA	LT1372/77
	Positive-to-Negative (4V to 12V In, –5V Out) Converter	LTC1174 DS	12	NA	LTC1174HV-5
	Positive-to-Negative (4V to 13.5V In, –3.3V/210mA Out) Converter	LTC1174 DS	12	NA	LTC1174HV-3.3
		LTC1174 DS	9	5	LTC1174HV-5
	Positive-to-Negative 5V Converter (4V to 12V In, –5V/45mA Out)	LTC1174 DS	9	5	LTC1174HV-5
		LTC1574 DS	5	4	LTC1574-5
	Positive-to-Negative Buck-Boost Converter 10V–30V In, –12V/2A Out)	LT1072 DS	10	NA	LT1072
	Positive-to-Negative Converter (4.5V to 20V In, –5V/0.5A Out)	LT1375/76 DS	23	17	LT1376-5
	Positive-to-Negative Converter (4.5V–20V In, –5V/1A Out)	LT1375/76 DS	23	17	LT1376-5
	Positive-to-Negative Converter with Direct Feedback	LT1371 DS	13	NA	LT1371
		LT1372/77 DS	11	NA	LT1372/LT1377
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		AN29	19	35	LT1071
	Isolated 5V $\pm$ 15V Flyback Converter	LT1431 DS	8	NA	LT1072, LT1172, LT1431
	Low $I_Q$ , Isolated (5V to $\pm$ 15V)	AN29	7	8	LT1020, LT1070, LT1017
		AN30	25	39	
	Totally Isolated 5V to $\pm$ 15V Converter	LT1072 DS	9	NA	LT1072
	Totally Isolated Converter (5V to $\pm$ 15V)	LT1070 DS	8	NA	LT1070/LT1071
		AN19	34	25	
		AN30	21	31	
Laptop	Cold Cathode Fluorescent Lamp (Backlight)	AN51	8	14	LT1172
	Cold Cathode Fluorescent Lamp Power Supply	DN52	2	3	LT1072
	Cold Cathode Fluorescent Lamp (Backlight)	AN49	2	2	LT1172
		AN45	21	36	LT1072
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	LCD Display Contrast Power Supply	AN49	6	7, 8	LT1172/ LT1173
		DN47	2	4	LT1172
Laser	Helium Neon Laser Power Supply	AN55	38	H2	LT1170
		AN61	7	11	LT1170
	Laser Driver Power Supply	LTM II:2	4	A1	LT1074, LT1018
	Laser Power Supply	AN49	14	D1	LT1074, LT1018, LT1004-1.2
		LT1371 DS	14	NA	LT1371
		LTM III:1	13	1	LT1170
LCD Bias	DC/DC Converter for LCD Bias (3V to $\pm$ 12V to $\pm$ 24V)	AN55	9	13	LT1173
	Dual-Output LCD Bias Voltage Generator	AN55	10	15	LT1107
	LCD Bias Circuit Generates $-24V$	AN51	13	20	LT1172

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	LCD Contrast Positive Boost Converter	LT1182–84 DS	23	NA	LT1182
	LCD Contrast Positive Boost/Charge Pump Converter	LT1182–84 DS	23	NA	LT1182
	LCD Contrast Supply	LT1301 DS	9	NA	LT1301
		LT1300 DS	8	NA	LT1300
	LT1182 LCD Contrast Positive Boost Converter	AN65	116	J4	LT1182
		LT1182–84 DS	23	NA	LT1182
	LT1182 LCD Contrast Positive Boost/Charge Pump Converter	AN65	117	J5	LT1182
		LT1182–84 DS	23	NA	
	LTC1182 LCD Contrast Positive-to-Negative/Charge Pump Converter	LT1182–84 DS	24	NA	LT1182
<b>Local Area Network</b>	Transformer-Based LCD Contrast Supply	AN55	10	14	LT1172
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	Battery Splitter	AN30	38	72	LTC1044
		LTC1044 DS	8	9	
		AN8	2	4	
	Better Regulation while Maintaining 150μA Quiescent Current (12V to 5V)	AN35	8	18	LT1074, LT1017

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		AN30	8	9	
		LT1018 DS	7	NA	
	Generating CMOS Logic Supply From Two Mercury Batteries (2.4V to 4.8V)	LTC1044 DS	1	NA	LTC1044
		AN30	38	71	
	Low Power Switching Regulator (9V to 5V)	AN30	17	23	LT1013
		AN8	4	9	
		LT1013 DS	13	NA	
	Low Quiescent Current Buck Converter (8V–16V to 5V)	AN30	14	18	LT1072, LT1017
		AN29	12	19A	
	Low Quiescent Current Flyback Regulator (150 $\mu$ A, 6V to 12V/2A)	DN11	2	2	LT1070, LT1017
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		AN29	9	12	
	Micropower Postregulated Switching Regulator (6V–10V to 5V)	AN23	16	25	LT1020
		AN30	32	51	
	Micropower Switching Regulator (5.8V–10V to 5V)	AN30	17	24	LT1017
		AN23	15	22	
	Regulated Up Converter (5V to 10V)	AN30	8	8	LT1018
	Regulated Voltage Up Converter	AN8	7	16	LTC1044, LM10
		AN30	39	76	
		LTC1044 DS	11	16	
	Single-Cell Up Converter (1.5V to 5V)	AN8	8	18	LM10
		AN30	8	11	
	Switching Preregulated Linear Regulator (9V to 5V)	AN8	5	11	LT1013
		AN30	31	49	
		LT1013 DS	13	NA	

## Regulators—Switching (Continued)

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		DN18	2	3	
		AN30	20	30	
	Up Converter (1.5V to 5V)	AN30	8	10	LM10
		LM10 DS	1	NA	
	Up Converter (6V to 15V)	AN8	9	20	LT1013
		AN30	7	7	
		LT1013 DS	18	NA	
Multioutput	17W Dual Output, High Efficiency 5V and 3V Regulator	LTC1159 DS	17	14	LTC1159
	4V to 12V In, $\pm 12V/55mA$ Output Converter	LTC1174 DS	14	NA	LTC1174
	4V to 12V In, $\pm 5V/135mA$ Converter	LTC1174 DS	14	NA	LTC1174-5
	4V–12V In to $\pm 12V$ Out DC/DC Converter	LTC1265 DS	14	NA	LTC1265
	6V–20V In, $\pm 5V$ Out Regulator Using Only One Inductor	DN100	1	1	LT1376-5
	9V to $\pm 5V$ , 4.5W Buck Converter	LTM IV:1	32	1	LT1176-5
	Coupled Inductor Provides Positive and Negative Outputs (28V to 15V, $-5V$ )	AN35	3	8	LT1074, LT1086
	Dual Output Switch Capacitor Voltage Generator	LT1026 DS	5	NA	LT1026
		AN30	39	78	
	Dual Output Voltage Doubler	LT1054 DS	11	NA	LT1054
		AN30	35	60	
	Dual Preregulated Supply (90VAC–130VAC to $\pm 12V$ )	AN30	30	47	LT1086, LT1011
		LT1086 DS	11	NA	
	Dual Regulator with 3.45V/2.5A and 5V/2A Outputs	LTC1267 DS	15	NA	LTC1267-ADJ5
	Dual Regulator with 3.6V/2.5A and 5V/2A Outputs	LTC1267 DS	15	NA	LTC1267-ADJ

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		AN29	29	56	
	High Efficiency, Dual 3.3V/2A and 5V/2A Output Regulator	LTC1267 DS	1	1	LTC1267
	High Voltage (3–15V In, $\pm 110V$ Out) Power Supply for Ring-Tone Generator	LTM IV:2	22	7	LT1070
	Inductor and Switch Capacitor Techniques Provide Bipolar Output	DN47	1	1	LT1172
	Low $I_Q$ , Isolated (5V to $\pm 15V$ )	AN29	7	8	LT1020, LT1070, LT1017
		AN30	25	39	
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		AN30	11	14	
	Multioutput Flyback Converter (12V to 5V $\pm 12V$ )	DN18	1	1	LT1071, LT1086
		AN30	42	85	
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		AN30	42	86	
		AN29	13	19B	
	Single-Inductor Regulated Converter (5V to $\pm 15V$ )	AN30	10	13	LT1018
		AN29	6	6	
	Single-Inductor, Dual-Output Converter (5V to $\pm 15V$ )	AN30	13	16	LT1054, LT1072
	Single-Inductor, Dual-Polarity Regulator (6V to $\pm 15V$ )	AN8	10	22	LT1013
		AN30	9	12	
		LT1013 DS	17	NA	
	Switched Capacitor Based (6V to $\pm 7V$ )	AN30	40	79	LT1020, LT1026
		AN29	31	59	
	Switched Capacitor Charge Pump Based Voltage Multiplier	AN30	36	62	LT1054
		AN29	31	60	

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		AN30	35	NA	
		LT1054 DS	11	NA	
	Totally Isolated Converter (5V to $\pm 15V$ )	LT1070 DS	17	NA	LT1070/LT1071
		AN30	21	31	
		AN19	34	25	
	Ultralow Noise Sine Wave Drive Converter (5V to $\pm 15V$ )	AN29	4	4	LT1006, LT1010, LT1013, LT1021
		AN30	12	15	
	Voltage Multiplier ( $\pm 5V$ to $\pm 15V$ )	LT1032 DS	7	NA	LT1032
		AN30	41	81	
Negative Buck	Negative Buck Converter ( $-7V$ to $-20V$ In, $-5.2V/0.75A$ Out)	LT1572	11	NA	LT1572
Offline	100W Offline Switching Regulator (5V at 20A)	AN25	8	9	LT1071, LT1006
		AN30	29	45	
	Fully Isolated Flyback 100kHz, 50W Converter	LT1103/1105 DS	1	NA	LT1103
	No-Design Offline Power Supply	DN62	2	1	LT1105
Power-Factor Corrected	25W–300W Power-Factor Corrected Supply	LTM III:2	4	2	LT1248
	300W, 24VDC Output Power-Factor Corrected, Universal Input Supply	LTM V:3	14	3	LT1509, LT1431
		AN66	38	68	
Preregulator	300W, 382V Preregulator	LT1248 DS	11	NA	LT1248
	Adjustable Linear Postregulator Maintains Efficiency (35V to 1.2V–28V)	AN35	7	15	LT1074, LT1085, LT1006
	Dual Preregulated Supply (90VAC–130VAC to $\pm 12V$ )	LT1086 DS	11	NA	LT1086, LT1011
		AN30	30	47	LT1086, LT1010

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Regulators—Switching (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Preregulator (Continued)	High Current, Low Dissipation, Preregulated Linear Regulator (0V–35V, 0A–10A)	AN2	4	7	LM301A, LT1011, LT1038
		AN30	33	52	
		LT1083 DS	11	NA	
	High Power Linear Regulator with Switching Preregulator	LT1083 DS	13	NA	LT1083, LT1011
		AN29	25	46	
		AN30	30	46	
	Linear Postregulator Improves Noise and Transient Response (5V Out)	AN35	6	14	LT1074, LT1084-5
	Linear Regulator with Switching Preregulator (28V to Adj.)	AN2	3	5	LT350A, LT1018
		AN30	31	48	
	Low Dissipation Regulator (10V–20V to 5V)	LT1035 DS	11	NA	LT1035, LT1011
		LT1036 DS	7	NA	LT1036, LT1011
		AN30	32	50	LT1035, LT1011
	Micropower Postregulated Switching Regulator (6V–10V to 5V)	AN23	16	25	LT1020
		AN30	32	51	
	Micropower Preregulated Linear Regulator (6V–10V to 5V)	AN32	8	15	
	Preregulated Low Dropout Regulator (7V–20V to 5V)	AN32	4	8A	LT1083, LT1018
	SCR Preregulator (90VAC–140VAC to 15V)	AN32	3	5	LT1086, LT1006, LT1018
	Switching Preregulated Linear Regulator (9V to 5V)	AN30	31	49	LT1013
		AN8	5	11	
	Switching Preregulator for Wide Input Voltage Range (7.5V–30V to 5V)	LT1020 DS	14	NA	LT1020
		AN30	33	53	
	Ultralow Dropout Linear Regulator with Preregulator	AN32	7	13	LT1018, LT1013

## Regulators—Switching (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
SEPIC	2 Li-Ion Cells to 5V SEPIC Converter	LT1372/77 DS	12	NA	LT1372/LT1377
		LT1371 DS	13	NA	LT1371
		LT1373 DS	11	NA	LT1373
	5V, 9W SEPIC Converter	DN125	2	3	LT1371
	Buck-Boost Converter (4V to 12V In, 5V/160mA Out)	LTC1174 DS	15	NA	LTC1174HV-5
	Dual-Output SEPIC Converter (6V to 25V In, $\pm 5V$ Out)	LT1375/76 DS	26	19	LT1376-5
	Transformerless 3.5V–40V In, 5V Out Voltage Regulator	LTM III:2	15	1	LT1171
	Transformerless 8V–40V In, $\pm 5V$ Out Switching Regulator	LTM III:1	15	2	LT1074
	Transformerless, 8V–40V In, $\pm 15V$ Out Switching Regulator	LTM III:1	14	1	LT1074
Step-Down: See Buck					
Step-Up: See Boost, Flyback					
Switched Capacitor	–1.24V Generator for 4mA–20mA to 0V–5V Conversion	LTC1261 DS	14	NA	LTC1261
	–1.7V Regulated Charge Pump	LTM IV:2	26	1	LTC1044A
	–4.1V Generator with 1mV <sub>p-p</sub> Noise	LTC1550/51 DS	1	NA	LTC1551-4.1
	–4.1V Out GaAsFET Bias Generator	LTC1550/51 DS	6	NA	LTC1550-4.1
	–4V Converter with Output Filter to Cut Ripple	LTC1429 DS	9	6	LTC1429-4
	–4V Generator with $\overline{\text{Power Valid}}$	LTC1429 DS	1	NA	LTC1429-4
		LTC1261 DS	1	NA	LTC1264-4
	–5V Supply Generator	LTC1429 DS	11	NA	LTC1429CS
		LTC1261	13	NA	LTC1261
	–V In to +V Out Converter	AN29	29	55	LT1054
		AN30	34	58	

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Regulators—Switching (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Switched Capacitor (Continued)	100mA Regulated Negative Doubler	LT1054 DS	10	NA	LT1054
	1mV Ripple, 5V In, –4V Out GaAsFET Bias Generator	LTC1429 DS	12	NA	LTC1429-4
		LTC1261 DS	12	NA	LTC1264-4
	1mV <sub>P-P</sub> Ripple, –4.1V GaAsFET Bias Generator	LTC1550/51 DS	7	NA	LTC1550-4.1
	3.3V In, 4.5V Out, GaAsFET Bias Generator	LTC1429 DS	11	NA	LTC1429
	3.3V In, –4.5V Out GaAsFET Bias Generator	LTC1261 DS	11	NA	LTC1261
	3.5V to 5.5V In, 5V/50mA Out Converter	LT1054 DS	12	NA	LT1054, LTC1044
	4/5V–15V In Voltage Doubler Using the LTC203	DN38	2	6	LTC203
	5V In, –4V Out, GaAsFET Bias Generator	LTC1429 DS	11	NA	LTC1429-4
		LTC1261 DS	11	NA	LTC1261
	5V In, –0.5V Out GaAsFET Bias Generator	LTC1261 DS	13	NA	LTC1261
	5V to ±12V Converter	LT1054 DS	11	NA	LT1054
	Basic Voltage Inverter	LT1054 DS	10	NA	LT1054
		AN30	34	54	
	Basic Voltage Inverter/Regulator	AN30	34	55	LT1054
		LT1054 DS	10	NA	
	Battery Splitter	LTC1144 DS	7	11	LTC1144
	Battery Splitter (9V to ±4.5V)	AN8	2	4	LTC1044
		AN30	38	72	LTC1046
		LTC1046 DS	7	10	
	Charge Pump Negative Voltage Generator	LT1020 DS	13	NA	LT1020
		AN30	41	82	
	Charge Pump Voltage Doubler	LT1020 DS	13	NA	LT1020
		AN30	41	83	

## Regulators—Switching (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Switched Capacitor (Continued)	Digitally Programmable Negative Supply	LT1054 DS	12	NA	LT1054, LT1004-2.5
		AN30	37	65	
	Dual Output Switched Capacitor Voltage Generator	AN30	39	78	LT1026
		LT1026 DS	5	NA	
	Dual Output Voltage Doubler	LT1054 DS	11	NA	LT1054
		AN30	35	60	
	Generating –15V from 15V	LTC1144 DS	1	NA	LTC1144
	High Current Switched Capacitor Converter (6V to $\pm 5V$ )	AN29	29	56	LT1020, LT1054
		AN30	41	84	
	High Power Switched Capacitor Voltage Converter (12V to 5V)	AN29	32	61	LTC1043, LT1011
		AN8	5	12	
		AN3	16	23	
	Low Output Voltage Generator	LTC1261 DS	13	NA	LTC1261
	LTC1550 Low Noise, Regulated, Switched Capacitor Voltage Inverter for GaAsFET Gate Bias	LTM V:4	19	1	LT1550-4.1
	Micropower, $\pm 4.5V$ to $\pm 15V$ , Voltage Inverter Using the LTC203	LTC203 DS	7	NA	LTC203
	Minimum Parts Count –4.1V Generator	LTC1550/51 DS	6	NA	LTC1551-4.1
	Minimum Parts Count –4V Generator	LTC1429 DS	12	NA	LTC1429-4
		LTC1261 DS	13	NA	LTC1261-4
	Negative Doubler with Regulator	AN30	37	67	LT1054
		LT1054 DS	13	NA	
	Negative Voltage Converter	LTC1046 DS	6	7	LTC1046
		LTC1044 DS	7	7	
		AN30	37	68	LTC1044
		LTC1144 DS	7	8	LTC1144
	Negative Voltage Doubler	LT1054 DS	10	NA	LT1054

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Regulators—Switching (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Switched Capacitor (Continued)	Paralleling for 100mA Load Current	LTC1046 DS	8	11	LTC1046
	Paralleling for Lower Output Resistance	AN30	38	73	LTC1044
		LTC1044 DS	9	11	
		LTC1144 DS	8	13	LTC1144
	Positive Doubler	AN29	30	57	LT1054
		AN30	34	57	
		LT1054 DS	10	NA	
	Positive Doubler with Regulation	AN30	37	66	LT1054, LT1006
		LT1054 DS	12	NA	
	Regulated –5V Supply	LTC1144 DS	8	12	LTC1144
	Regulated Negative Doubler (100mA)	LT1054 DS	10	NA	LT1054
		AN30	35	59	LT1054
	Regulated Negative Voltage Converter	AN8	2	3	LTC1044, LM10
		AN30	39	77	
	Regulated Voltage Up Converter (3V to 5V)	AN8	7	16	LTC1044, LM10
		AN30	39	76	
	Regulating 12V to –5V/200mA Converter	LT1054 DS	12	NA	LT1054
	Regulating 200mA Converter (12V to –5V)	LT1054 DS	12	NA	LT1054
		AN30	36	64	
	Seven Cells to –1.24V Out GaAsFET Bias Generator	LTC1261 DS	12	NA	LTC1261
	Stacking for Higher Voltage	LTC1044 DS	9	11	LTC1044
		AN30	38	74	
	Switched Capacitor Based Converter (6V to ±7V)	AN29	31	59	LT1020, LT1026
		AN30	40	79	
	Switched Capacitor, Charge-Pump Based Voltage Multiplier (5V to ±12V)	AN30	36	62	LT1054
		AN29	31	60	

## Regulators—Switching (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Switched Capacitor (Continued)	Switched Capacitor Converter (5V to $\pm 12V$ )	LT1054 DS	11	NA	LT1054
		AN30	35	61	
		AN29	30	58	
	Switched Capacitor Regulator (3.5V to 5V)	LT1054 DS	12	NA	LT1054, LTC1044
		AN30	36	63	
	Ultraprecision Voltage Divider	LTC1144 DS	7	10	LTC1144
	Voltage Doubler	AN30	38	70	LTC1044
		AN30	37	69	
		LTC1044 DS	8	NA	
		AN8	6	14	
		LTC1144 DS	7	9	LTC1144
	Voltage Inverter	LTC660 DS	8	NA	LTC660
	Voltage Multiplier ( $\pm 5V$ to $\pm 15V$ )	LT1032 DS	7	NA	LT1032
		AN30	41	81	LT1032
	Voltage Tripler/Quadrupler	AN30	39	75	LTC1044
		LTC1044 DS	9	13	
Synchronized	LT1172 Synchronized by Driving the DC/AC Converter	AN55	19	32	LT1172
	Synchronized, Gated-Oscillator 2- to 3-Cell to 5V Switching Regulator	AN61	1	1	LT1107
	Synchronizing the LT1172 by Lowering the Value of L2	AN55	19	30	LT1172
Synchronous	LTC1148 5V In, 3.38V/3.5A Out Pentium Power Solution	DN91	2	NA	LTC1148
Telecom	Fully Isolated Regulator ( $-40V$ to $-60V$ to 5V)	AN30	24	38	LT1071, LT1006
		AN25	6	6	
	Negative to Positive Flyback Converter ( $-40V$ to $-60V$ to 5V)	AN29	21	38	LT1072HV
		AN25	4	4	LT1070HV

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Regulators—Switching (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Ultrahigh Efficiency	Switching Power Supply for Ring-Tone Generator (60V and –180V)	DN134	1	1	LT1070
	Totally Isolated Converter	LT1082 DS	10	NA	LT1082
	High Current, High Efficiency Synchronous Buck (12V–36V to 5V/5A)	DN68	2	3	LTC1149-5
	High Efficiency Synchronous Buck (5.5V–13V to 5V/2A)	DN68	1	1	LTC1148-5
	LTC1148 (10V–14V to 5V/10A, –5V/0.5A) High Current Buck Converter	AN54	19	17A	LTC1148-5
	LTC1148 (2V–5V to 5V/1A) Buck Converter—Surface Mount	AN54	27	25A	LTC1148, LT1109
	LTC1148 (4V–10V to –5V/1A) Positive-to-Negative Converter	AN54	25	23	LTC1148
	LTC1148 (4V–14V to +5V/0.5A, –5V/0.5A) Split-Supply Converter	AN54	24	22A	LTC1148
	LTC1147 (4V–14V to 3.3V/1A) Buck Converter—Surface Mount	AN54	17	15A	LTC1147-3.3
	LTC1148 (4V–14V to 3.3V/2A) Buck Converter—Surface Mount	AN54	7	5A	LTC1148-3.3
	LTC1148 (4V–14V to 5V/1A) SEPIC Converter	AN54	18	21A	LTC1148
	LTC1148 (5V–14V to 5V/1A) Buck Converter—Surface Mount	AN54	3	1A	LTC1148-5
		AN54	3	14	LTC1147-5
	LTC1148 (5V–14V to 5V/2A) Buck Converter—Surface Mount	AN54	4	2A	LTC1148-5
	LTC1148 (5V–14V to 5V/2A) High Frequency Buck Converter—Surface Mount	AN54	5	3A	LTC1148-5
	LTC1149 (10V–48V to 3.3V/2A) High Voltage Buck Converter	AN54	12	10A	LTC1149-3.3
	LTC1149 (10V–48V to 5V/1A) High Voltage Buck Converter	AN54	10	8A	LTC1149-5
	LTC1149 (10V–48V to 5V/2A) High Voltage Buck Converter with Large P-Channel and N-Channel MOSFETs	AN54	11	9A	LTC1149-5

## Regulators—Switching (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Ultrahigh Efficiency (Continued)</b>	LTC1149 (12V–36V to 5V/5A) High Current, High Voltage Buck Converter	AN54	20	18A	LTC1149-5
	LTC1149 (12V–48V to 5V/10A) High Current, High Voltage Buck Converter	AN54	15	13A	LTC1149-5
	LTC1149 (32V–48V to 24V/10A) High Current, High Voltage Buck Converter	AN54	16	14A	LTC1149

## Regulators—Switching (Micropower)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Backlight</b>	2–6V In CCFL Power Supply	LTM IV:2	17	1	LT1301
	All Surface Mount EL Panel Driver	LTM V:1	32	1	LT1303
		AN66	61	126	
	Backlight LED Driver	AN59	11	20	LT1300
	CCFL Driver	AN59	10	18	LT1300
	Cold Cathode Fluorescent Lamp Driver	LTM III:3	20	6	LT1300
	Compact EL-Panel Display	AN61	8	12	LT1108
	EL Panel Driver	LT1303 DS	11	NA	LT1303
	High Efficiency EL Panel Driver	AN66	59	124	LT1303
		LTM V:2	29	1	
	Low Power CCFL Supply	AN61	5	9	LT1301
	Low Power CCFL Supply Optimized for Low Voltage Inputs (2V–6V) and Small lamps	AN65	38	43	LT1301
	Low Power, Low Voltage CCFL Power Supply	AN66	60	125	LT1301
	Micropower CCFL Driver Delivers up to 1mA	AN51	20	28	LT1173
<b>Boost</b>	12V, 60mA Flash Memory Programming Supply	LT1309 DS	1	NA	LT1309
	2 AA Cell to 5V/200mA DC/DC Converter	LTM III:3	12	2	LT1300

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Regulators—Switching (Micropower) (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Boost (Continued)	2 AA Cell to 5V/50mA DC/DC Converter	LTM III:3	13	8	LT1300
	2 AA NiCd to 6V/550mA Converter	LTM II:2	19	1	LT1110
	2- or 3-Cell to 5V/600mA Converter	AN66	44	79	LT1302
	2- or 3-Cell to 5V/600mA or 3.3V/1A DC/DC Converter	LTM IV:2	7	2	LT1302
	2-Cell to 128V/3mA Converter	AN66	57	123	LT1107
	2-Cell to 12V/120mA Converter	AN66	46	86	LT1302
	2-Cell to 12V/120mA DC/DC Converter	LTM IV:2	9	9	LT1302
	2-Cell to 128V DC/DC Converter with Automatic Shutdown	LTM V:1	34	1	LT1107
	2-Cell to 5V/200mA Boost Converter with Only Four External Parts	DN120	1	1	LT1304-5
	2-Cell to 5V/200mA DC/DC Converter	AN66	51	97	LT1300
	2-Cell to 5V/200mA DC/DC Converter with Low-Battery Detect	LT1303 DS	1	1	LT1303-5
	2-Cell to 5V/200mA Boost Converter	LTM V:3	18	2	LT1304-5
	2-Cell to 5V/50mA DC/DC Converter	AN59	5	8	LT1300
	2-Cell to 5V/600mA Converter	LT1302 DS	1	1	LT1302
	2-Cell to 5V/>200mA DC/DC Converter	AN59	3	2	LT1300
	2-Cells to 5V/200mA Converter	AN66	54	109	LT1304-5
	2-Cells to 5V/50mA Converter	AN66	52	102	LT1300
	2V to 12V/120mA Converter	LT1302 DS	14	NA	LT1302
	2V to 5V/300mA Step-Up Converter with Undervoltage Lockout	LT1173 DS	14	NA	LT1173
	3-Cell to 3.3V Boost/Linear Converter with Output Disconnect	LT1303 DS	10	NA	LT1303
	3.3V or 5V to 12V/120mA Converter	AN59	7	13	LT1301
	3.3V or 5V to 12V DC Converter	LTM III:3	14	13	LT1301
	3.3V or 5V to 12V/120mA Converter	AN66	53	107	LT1301
	3V to 12V Step-Up Converter	LT1073 DS	13	NA	LT1073-12

## Regulators—Switching (Micropower) (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Boost (Continued)	3V to 15V Step-Up Converter	LT1073 DS	13	NA	LT1073
	3V to 5V Converter	LT1109 DS	7	NA	LT1109-5
	3V to 5V Step-Up Converter	LT1173 DS	13	NA	LT1173-5
		LT1073 DS	13	NA	LT1073-5
		LT1110 DS	15	NA	LT1110-5
	3V to 5V/100mA Step-Up Converter with Undervoltage Lockout	LT1073 DS	16	NA	LT1073
	3V to 6V at 1A Step-Up Converter	LT1073 DS	18	NA	LT1073
	4- to 5-Cell to 5V/100mA Converter with Output Disconnect	LT1303 DS	10	NA	LT1303-5
	5V Step-Up Converter with Reference Output	LT1303 DS	9	NA	LT1303
	5V to 12V Step-Up Converter	LT1073 DS	14	NA	LT1073-12
	5V to 15V Step-Up Converter	LT1073 DS	14	NA	LT1073
	Boost Converter with Added Short-Circuit Limiting, True Shutdown and Regulation with High Input Voltage	LTM V:2	30	1	LT1301
	LT1106 3.3V to 5V/120mA DC/DC Converter	AN60	14	20	LT1106
	LT1300 3.3V to 5V/250mA DC/DC Converter	AN60	14	22	LT1300
	LTC1329 Digitally Controls the Output of a Power Supply	AN67	7	5	LT1107, LTC1329-50
	LTC1477 Controlled by the LT1304's Low-Battery Detector	DN117	2	4	LTC1304, LTC1477
	Main Logic Converter with Backup Converter	AN51	17	24	LT1173
	Setting Output Voltage on the LT1303	LT1303 DS	9	NA	LT1303
	Short-Circuit Protection and 100% Shutdown for a Micropower Boost Regulator	DN117	2	3	LT1301, LTC1477
	Single-Cell to 3.3V Boost Converter (1V In, 3.3V/75mA Out)	DN128	1	1	LT1307
	Single-Cell to 5V Step-Up Converter	LTM I:1	10	2a	LT1073-5

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Regulators—Switching (Micropower) (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Boost (Continued)	Single-Cell to 5V/150mA DC/DC Converter	LT1302 DS	14	NA	LT1302, LT1073
		AN61	4	6	
		LTM IV:2	10	13	
	Single-Cell to 5V/150mA or 3.3V/250mA Converter	AN66	47	90	LT1073, LT1302
	Step-Up Converter (5V to 12V)	LT1173 DS	1	NA	LT1173
	Super Burst™ Mode 2-Cell to 5V/80mA Converter	AN66	55	116	LT1304
	Two AA Cell to 5V Step-Up Converter Delivers 150mA	DN52	1	1	LT1073-5
	Two AA Cells to 5V Deliver 150mA	AN51	16	22	LT1108-5
		LT1108 DS	1	NA	LT1108-5
		LT1107 DS	1	NA	LT1107-5
	Two AA Cells to 6V/550mA	AN52	7	8	LT1110
	Typical LT1106 3.3 or 5V to 12V/60mA Boost Regulator	AN60	12	17	LT1106
Buck	2-Cell to 128V DC/DC Converter with Automatic Shutdown	LTM V:1	34	1	LT1107
	2.5mm High, 5V In, 3.3V/500mA Out Regulator	DN105	2	3	LTC1265
	5.5 to 12V In, 5V/175mA Out Surface Mount Regulator	DN73	1	1	LTC1174-5
	5.5V to 12.5V In, 5V/425mA Out Surface Mount Regulator	DN73	1	3	LTC1174-5
	5V In, 3.3V/425mA Out, High Efficiency Regulator	DN91	1	1	LTC1174-3.3
	5V to 3.3V/450mA Buck Regulator	LTM III:2	8	10	LTC1174-5
	6V to 5V/365mA Step-Down Regulator with Low Battery Detection	LTC1174 DS	11	NA	LTC1174-5
	9V to 5V Pre/Post Regulator	LTC1174 DS	13	NA	LTC1174, LT1121-5
	9V to 5V Reduced Noise Step-Down Converter	LT1073 DS	17	NA	LT1073

Regulators—Switching (Micropower) (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Buck (Continued)</b>	9V to 5V Step-Down Converter	LT1073 DS	15	NA	LT1073
		LT1173 DS	13	NA	LT1173-5
		LT1111 DS	14	NA	LT1111
		LTM I:1	11	2b	LT1073
	9V to 5V/175mA Buck Regulator	LTM III:2	6	1	LTC1174-5
	9V to 5V/425mA Buck Regulator	LTM III:2	6	3	LTC1174-5
	Automatic Current Selection Regulator (6V to 12.5V In, 5V at 0–320mA Out)	LTC1174 DS	15	NA	LTC1174-5
	High Efficiency 4V to 12.5V In, 3.3V/425mA Out Regulator	LTC1174 DS	11	NA	LTC1174-3.3
	High Efficiency 4V to 12.5V In, 3V/450mA Out Regulator	LTC1174 DS	12	NA	LTC1174
	High Efficiency 5.4V–12V In, 5V/1A Out, Step-Down Converter	DN105	1	1	LTC1265-5
	High Efficiency 5V to 3.3V/1A Converter	LTM V:1	11	6	LTC1265-3.3
	High Efficiency Step-Down Converter (9V In, 5V/175mA Out)	LTC1174 DS	1	NA	LTC1174-5
	High Efficiency Step-Down Converter (5.4V–12V In, 5V/1A Out)	LTM V:1	10	1	LTC1265-5
	High Power, Low Quiescent Current Step-Down Converter	LT1111 DS	15	NA	LT1111
		LT1173 DS	15	NA	LT1173
	Low Noise 5- to 7-Cell to 5V/120mA DC/DC Converter	LTM IV:3	25	1	LTC1174
	Low Noise, High Efficiency 5- to 7-Cell input 5V/120mA Out Step-Down Regulator for Personal Communication	DN86	1	1	LTC1174
	Low Noise, High Efficiency 5V/120mA Step-Down Regulator for Personal Communications Devices	AN66	43	77	LTC1174
<b>Buck-Boost</b>	3-Cell to 3.3V/200mA Bipolar Buck-Boost Converter	DN109	2	3	LT1303
	3-Cell to 3.3V/200mA MOSFET Buck-Boost Converter	DN109	2	4	LT1303

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Regulators—Switching (Micropower) (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Buck-Boost (Continued)</b>	3-Cell to 3.3V/300mA Buck-Boost Converter	AN66	41	75	LT1303
	3-Cell to 3.3V/400mA Converter with Auxiliary 12V/120mA Regulated Output	AN66	48	92	LT1302, LT1121
	4-Cell to 5V/100mA MOSFET Buck-Boost Converter	DN110	2	4	LT1303
	4-Cell to 5V/100mA SEPIC Converter	DN110	1	1	LT1303-5
	4-Cell to 5V/100mA Bipolar Buck/Boost Converter	DN110	2	3	LT1303-5
	9V to 3V Step-Down Converter	LT1073 DS	15	NA	LT1073
	DC to DC Converter Generates –24V from 3V or 5V	DN52	1	2	LT1173
	Positive to Negative Converter 5V to –5V/75mA	LT1111 DS	15	NA	LT1111
		LT1173 DS	13	NA	LT1173
	Voltage Controlled Positive-to-Negative Converter	LT1173 DS	15	NA	LT1173
		LT1111 DS	15	NA	LT1111, LT1006
<b>Digital System Support</b>	Memory Backup Supply	LT1073 DS	16	NA	LT1073
<b>Dual Output</b>	Single Li-Ion to $\pm 5$ V Regulator	DN108	2	3	LT1373
<b>Inverting, Positive-to-Negative</b>	Positive (3.5–7.5V) to Negative (–5V) Converter	LTM V:1	12	10	LTC1265-5
	Positive to –5V/150mA Converter with Low-Battery Detection	LTM III:2	8	9	LTC1174-5
	Positive (4V to 7.5V In) to –5V/150mA Converter with Low Battery Detection	DN73	2	7	LTC1174-5
	Positive-to-Negative Converter with Direct Feedback	LT1373 DS	10	NA	LT1373
<b>Isolated</b>	5V Isolated Switching Power Supply	LTM V:2	27	1	LT1111, LTC1145, LT1121-5
	Isolated 5V/100mA Supply	AN66	42	76	LT1111, LTC1145, LT1121
<b>Laser</b>	1.5V Powered Laser Diode Driver	AN52	12	17	LT1110
		LT1110 DS	14	NA	
	LT1110 Single-Cell Laser-Diode Driver	LTM I:1	13	1	LT1110

Regulators—Switching (Micropower) (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
LCD Bias	1.8V–6V In, –4V to –29V Out, LCD Contrast Supply	AN65	114	J1	LT1300/LT1301
	3V In LCD Bias Generator	LTM II:3	17	1	LT1173
	DC/DC Converter Generates LCD Bias from 3V Supply	AN65	115	J2	LT1173
	Dual-Output LCD Bias Generator	AN66	62	128	LT1107
		AN65	115	J3	
		LTM III:3	27	1	
	LCD Bias Generator	LT1111 DS	14	NA	LT1111
		AN51	18	25	LT1173
		LT1173 DS	12	NA	
	LCD Bias Generator (3V to –12 to –24V)	LTM II:2	6	6	LT1173
	LCD Bias Generator (5V to –10 to –30V)	LTM II:2	7	7	LT1172
Multioutput	LCD Bias Supply	AN66	63	129	LT1173
	LCD Power Supply	LTC1174 DS	13	NA	LTC1174
Multioutput	1.5V to 10V/3mA, 5V/3mA Dual Output Step-Up Converter	LT1110 DS	15	NA	LT1110
	Multioutput Power Supply (5V/400mA, 12V/60mA, –5V/50mA, and 28V/2mA) from 2 AA Cells	LTM III:1	20	1	LT1110
SEPIC	2 Li-Ion Cell to 5.8V/600mA DC/DC Converter	LT1302 DS	15	NA	LT1302
	2.7V–6V In, 3.3V/300mA Out SEPIC Converter	DN109	1	2	LT1372
	3-Cell to 3.3V Buck-Boost Converter with Auxiliary 12V Regulated Output	LT1302 DS	15	NA	LT1302, LT1121
	3-Cell to 3.3V/200mA SEPIC Converter	DN109	1	1	LT1303
	4 AA Cell to 3.3V or 5V/220mA DC/DC Converter	LTM III:3	14	11	LT1300
	4-Cell to 5V or 3.3V/220mA Converter	AN66	53	105	LT1300
	4-Cell to 5V Step-up/Step-Down Converter	LTM V:3	18	7	LT1304-5
	4-Cell to 5V/300mA SEPIC Converter	DN110	1	2	LT1372

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Regulators—Switching (Micropower) (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>SEPIC (Continued)</b>	4-Cell to 5V SEPIC Converter	AN66	55	114	LT1304-5
	4-Cell to 3.3V or 5V/220mA Converter	AN59	6	11	LT1300
	4-Cell to 5V/3.3V Up-Down Converter	LT1300 DS	8	NA	LT1300
	Single Li-Ion Cell to 3.3V SEPIC Converter	DN108	1	1	LT1373
	3-Cell to 3.3V Buck-Boost Converter with Auxiliary 12V Regulated Output	LTM IV:2	11	15	LT1302, LT1121
<b>Single Cell</b>	1.5V to 12V Step-Up Converter	LT1073 DS	13	NA	LT1073-12
	1.5V to 3V Step-Up Converter	LT1073 DS	12	NA	LT1073
	1.5V to 5V Bootstrapped Step-Up Converter	LT1073 DS	16	NA	LT1073-5
	1.5V to 5V Low Noise Step-Up Converter	LT1073 DS	17	NA	LT1073
	1.5V to 5V Step-Up Converter with Logic Shutdown	LT1073 DS	14	NA	LT1073
	1.5V to 5V Step-Up Converter with Low-Battery Detector	LT1073 DS	15	NA	LT1073-5
	1.5V to 5V Very Low Noise Step-Up Converter	LT1073 DS	17	NA	LT1073
	1.5V to 9V Step-Up Converter	LT1073 DS	12	NA	LT1073
	Single Cell to 5V Converter	LT1073 DS	1	NA	LT1073-5
<b>“Super Burst”</b>	Super Burst 2-Cell to 5V DC/DC Converter	LTM V:3	19	9	LT1304
<b>Switched Capacitor</b>	Generating –5V from 5V	LTC660 DS	1	NA	LTC660
	Positive Voltage Doubler	LTC660 DS	8	NA	LTC660
	Protected Negative Bias Generator for GaAsFET RF Amplifier	LTM III:2	24	1	LTC1044, LTC1153, LT1004
<b>Synchronized</b>	Clock-Synchronized 2V–4V In, 5V Out Switching Regulator	LTM IV:1	24	1	LT1107
	Clock-Synchronized 2V–4V to 5V Switching Regulator	AN66	50	95	LT1107
<b>Telecom</b>	Telecom Supply	LT1173 DS	13	NA	LT1173

Regulators—Switching (Micropower) (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
VPP Generator	Boost Mode Switching Regulator with Low $R_{ON}$ Pass Transistor for Flash Memory Programming	AN66	65	132	LT1109A-12
	Inductorless VPP Generator	AN66	64	130	LTC1262
	3.3V or 5V to 12V/120mA Stepup Converter	LTM III:3	14	13	LT1301
	All-Surface Mount Flash-Memory VPP Generator	LTM I:2	16	1	LT1109-12

Relative Humidity (see Signal Conditioning, Humidity)

Sample and Hold (see Amplifiers, Sample and Hold)

Sensors/Transducers (see Signal Conditioning)

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Signal Conditioning					
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Acceleration	Acceleometer Digitizer	AN7	15	16	LT1011, LT1056
	Accelerometer Amplifier with DC Servo	LT1169 DS	12	NA	LT1169
		AN67	70	105	LT1113
	Fast Piezoelectric Accelerometer	LT1022 DS	5	NA	LT1022
Acoustic	Low Noise Hydrophone Amplifier with DC Servo	LT1169 DS	11	NA	LT1169
Audio	Phono Preamplifier	LT1007 DS	11	NA	LT1037
	Tape Head Amplifier	LT1007 DS	11	NA	LT1037
Barometric Pressure	Single-Cell Barometer	AN67	48	62	LT1077, LT1110, LT1004
Bridge	A Practical Instrumentation-Amplifier-Based Bridge Circuit	AN43	5	5	LT1021, LT1010, LT1078
	Amplifier for Bridge Transducer	LM108 DS	6	NA	LM108
		LT1008 DS	9	NA	LT1008
		LT1012 DS	10	NA	LT1012
	Differential Voltage Amplification from a Resistance Bridge	LT1101 DS	11	NA	LT1101
	Floating Input Bridge Instrumentation Amplifier with 200V Common Mode Range	AN43	10	13	LTC1150
	Gain Trimming by Adjustment of Transducer Excitation	DN51	1	2	LT1027, LT1097, LT1010
	High Precision Scale for Human Subjects	AN43	8	11	LT1010, LT1012, LT1018, LT1021, LTC1043, LTC1150
	High Resolution Bridge Amplifier with Common Mode Suppression	AN43	7	10	LT1054, LT1078
	High Resolution Pulsed Excitation Bridge Signal Conditioner	AN43	23	25	LT1007, LT1012, LT1018, LTC1150
	Low Noise Bridge Amplifier with Common Mode Suppression	AN43	6	7	LT1007, LT1028
	Low Noise, Chopper-Stabilized Bridge Amplifier with Common Mode Suppression	AN43	6	8	LT1007, LT1021-5, LT1028, LTC1150

## Signal Conditioning (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Bridge (Continued)</b>	Low Power Bridge Driver	AN43	18	19B	LT1078, LT1101
	Marrying Gain and Balance	AN43	NA	NA	NA
	Pulsed Excitation Bridge Signal Conditioner—DC Output	AN43	21	23	LT1077, LT1021, LT1101
	Pulsed Excitation, Sampled Output Bridge Signal Conditioner	AN43	20	21	LT1078, LT1101
	Servo Controlling Bridge Drive Eliminates Common Mode Voltage	AN43	5	6	LTC1150
	Single-Supply Bridge Amplifier with Common Mode Suppression	AN43	7	9	LTC1044, LT1078
	Strobed Power Strain-Gauge Bridge Signal Conditioner	AN43	19	20	LT1054, LT1078
	Time Domain Bridge	AN43	27	31	LT1011
<b>Current-Loop Transmitter</b>	Optoisolated 4mA–20mA Process Controller	LTM V:1	16	4	LTC1453, LT1121-3.3, LT1077
<b>Distance</b>	Linear Variable Differential Transformer (LVDT)	LTC1043 DS	15	NA	LT1004, LT1011, LT1013, LTC1043
		LT1013 DS	16	NA	
		AN3	9	10	LT1011, LT1013, LTC1043
<b>Flow</b>	Air Flow Detector	LT1012 DS	11	NA	LT1012
		LTC1052 DS	13	NA	LTC1052, LT1004
	Hot Wire Anemometer	LT1013 DS	10	NA	LT1014
	Liquid Flowmeter	AN5	6	8	LT1002, LT1011, LT1012
		LT1013 DS	10	NA	LT1014, LT1004
	Thermal Anemometer	AN5	7	11	LT1002, LM107
<b>Gas</b>	Linearized Methane Transducer	AN11	3	2	LT1014, LTC1044
	Methane Concentration Detector with Linearized Output	LT1013 DS	13	NA	LT1014, LTC1044, LT1004
<b>Humidity</b>	Battery Powered Relative Humidity Signal Conditioner	AN45	10	15	LTC1043, LT1006

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Signal Conditioning (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Humidity (Continued)	Humidity Sensor	LTM V:2	23	1	LTC1043, LTC1046, LTC1050, LTC1250
	Humidity to Frequency (0%–100% to 0Hz–1000Hz)	AN7	11	11	LTC1043, LT1056, LT1011
	Humidity Sensor Circuit	AN67	46	60	LTC1046, LTC1050, LTC1250, LTC1043
	Relative Humidity	AN3	8	9	LTC1043, LT1056, LM301A, LT1004-1.2
		AN3	7	8	LTC1043, LT1056, LT1009-2.5
		LTC1043 DS	14	NA	LTC1043, LT1056, LM301A, LT1004-1.2
	System Monitor for Relative Humidity, Supply Voltage and Ambient Temperature	LTC1392 DS	9	NA	LTC1392, LTC1043, LT1056, LM301A, LT1004
Infrared	Infrared Detector Preamplifier	LT1007 DS	11	NA	LT1007
	Low Noise Infrared Detector	LT1028 DS	16	NA	LT1028, LTC1043, LM301A, LT1012
Level	Bar Graph Level Gauge	LTC1443–45 DS	1	NA	LTC1443
	Level to Frequency	AN7	13	14	LT319A, LT1056, LTC1043, LM301A
	Level Transducer Digitizer Uses AC Bridge Technique	AN43	26	29B	LT1018, LT1057, LT1102
Light	Discriminator Circuit with Low Battery Detect for 3V Flame Alarm	LTM III:3	18	3	LT1179, LT1004
	Flame Detector	AN59	8	15	LT1300
		LTM III:3	17	1	LT1300
	Light Stick Controller	AN59	11	19	LT1178
		LTM III:3	20	7	LT1178
	Low Noise Light Sensor with DC Servo	LT1169 DS	1	NA	LT1169
Particle Detector	1.5V Powered Particle detector	LT1073 DS	19	NA	LT1073

## Signal Conditioning (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Photoconductive Cell</b>	Buffer for Photoconducting Cell	LM134 DS	10	NA	LM334
<b>Photodiode</b>	A Simple Fiber Optic Receiver	AN47	43	95	LT1016, LT1220
	A Simple Photodiode Amplifier	AN47	41	90	LT1122
	A Very Fast Photo Integrator	AN47	42	93	LT1122
	Adaptively Triggered 40MHz Fiber Optic Receiver	AN47	44	97	LT1016, LT1097, LT1220, LT1223
	Amplifier for Photodiode Sensor	LT1008 DS	9	NA	LT1008
		LT1012 DS	10	NA	LT1012
		LTC1150 DS	10	NA	LTC1150
	Fast Fiber Optic Receiver (10MHz)	AN13	23	38	LT1012, LT1016
	IR LocalTalk Infrared Receiver	DN118	2	2	LT1319
	Light Level Sensor	LM10 DS	12	NA	LM10
	Logarithmic Photodiode Amplifier 100dB Range	AN5	3	4	LT1012, LM107, LM301A
		LT1057 DS	11	NA	LT1057, LT1021, LM301A
	Photodiode Amplifier	LT1215/16 DS	16	NA	LT1216
	Photodiode Current-to-Voltage Converter	LTM V:2	16	1	LT1311
	Photodiode Preamp with AC-Coupling Loop	LT1360 DS	11	NA	LT1360, LT1358
	Photodiode, Frequency Output (20Hz–2MHz)	AN7	9	8	LT1011, LT1021-10, LT1056
	PIN Photodiode to Frequency Converter	LT1022 DS	6	NA	LT1022, LT1011, LM329
<b>Piezoelectric</b>	Amplifier for Piezoelectric Transducer	LM108 DS	6	NA	LM108
<b>Pressure</b>	1.5V Powered Barometric Pressure Signal Conditioner	AN61	11	15	LT1110, LT1078, LT1101, LT1004
	1.5V Powered Barometric Pressure Signal Conditioner Eliminates Instrumentation Amp	AN61	12	16	LT1110, LT1077, LT1004
	3.3V Powered, Digital-Output, Barometric Pressure Signal Conditioner	AN61	9	13	LT1172, LT1287, LT1078, LT1101, LTC1043
	Direct Pressure Transducer to Digital Output Signal Conditioner	LT1024 DS	7	NA	LT1024, LT137A

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Signal Conditioning (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Pressure (Continued)	Precision Barometer	AN45	11	16	LT1027, LT1078, LT1101
	Single-Cell Barometer	LTM IV:1	22	1	LT1110, LT1077, LT1004
	Single-Supply, Barometric-Pressure Signal Conditioner	AN61	10	14	LT1172, LT1078, LT1101, LT1034
Radiation Detector	Single-Cell Radiation Detector	AN45	11	17	LT1073
Strain Gauge	12-Bit LTC1296 Data-Acquisition System Strain Gauge with Bridge-Driver Power Shutdown	AN62	16	23	LTC1296, LT1014
	9V Battery Powered Strain Gauge Signal Conditioner	LT1013 DS	11	NA	LT1014
	Differential Bridge Amplifier	LTC1250 DS	1	NA	LTC1250
	Differential Voltage Amplification from a Resistance Bridge	LT1101 DS	11	NA	LT1101
	Direct 10-Bit Strain Gauge Digitizer	LTC1052 DS	17	NA	LTC1052, LM301A, LTC1043
	Sampled Strain Gauge Bridge	AN23	3	3	LT1006, LT1021
	Strain Gauge Bridge Signal Conditioner	LT1054 DS	11	NA	LT1054, LT1013
		LT1013 DS	15	NA	LT1013, LT1004-1.2, LTC1044
	Strain Gauge Conditioner for 350Ω Bridge	LT1236 DS	10	NA	LT1236, LM301A, LT1012
		LT1031 DS	9	NA	LT1031-10, LM301A, LT1012C
		LT1021 DS	12	NA	
	Strain Gauge Signal Conditioner	AN11	7	7	LTC1044, LT1013
		LTC1044 DS	10	15	LTC1044, LT1013, LT1004-1.2
	Strain Gauge Signal Conditioner with Bridge Excitation	LT1002 DS	1	NA	LT1001, LT1002, LM329
		LT1001 DS	8	NA	LT1001, LM329
		LT1007 DS	11	NA	LT1007, LT1009

## Signal Conditioning (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Strain Gauge (Continued)</b>	Strain Gauge Frequency Output	AN7	6	6	LTC1043, LTC1052
	Strobed Power Strain Bridge	AN23	4	5	LT1013, LT1054
	Ultralinear Strain Gauge	LT1019 DS	1	NA	LT1019-5, LT301A, LT1001
		REF02 DS	1	NA	REF-02, LT307, LT1001
<b>Weight</b>	Weight Scale	AN62	6	7	LTC1092, LT1013

## Signal Conditioning—Temperature

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<b>Acoustic</b>	Acoustic Thermometer	AN7	5	4	LT1056, LT1011, LM307
<b>Discussion</b>	Error Sources in Thermocouple Systems	AN28	18	NA	NA
	Linearization Techniques for Thermocouples	AN28	12	NA	NA
	Temperature Sensor Comparison	AN28	2	NA	NA
	Thermal Control Loop Model	AN5	2	1	LT1056
	Thermocouple Measurement	AN28	1	NA	NA
<b>Platinum RTD</b>	0°C–400°C Temperature Measurement System	AN52	2	1	LT1006, LT1027, LTC1292
		LTM II:1	20	1	
	5V Powered, Linearized Platinum RTD Signal Conditioner (0°C–400°C to 0V–4V)	AN11	1	1	LT1014, LT1009
		LT1013 DS	15	NA	
	Digitally Linearized Platinum RTD Signal Conditioner	AN62	10	14	LTC1294, LT1101, LT1006, LT1027
		AN43	13	16	LT1101, LTC1290, LTC1027, LT1006
		DN45	1	1	LT1078, LT1101
	Kelvin Sensed Platinum Temperature Sensor Amplifier	LT1012 DS	10	NA	LT1012
	Linearized Platinum Resistance Thermometer	LT1001 DS	1	NA	LT1001, LM129

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Signal Conditioning—Temperature (Continued)					
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Platinum RTD (Continued)	Linearized Platinum RTD Bridge	DN40	2	6	LT1078, LT1101
		AN43	11	14	
	Linearized Platinum RTD Signal Conditioner (2°C–400°C to 0.2V–4V)	LT1006 DS	10	NA	LT1006, LM334
		AN23	1	1	LT1006, LM334
	Linearized Platinum RTD, Precision	LTC1051 DS	14	NA	LTC1051, LTC1043, LT1009-2.5
		LTC1043 DS	12	NA	LT1013, LTC1043, LT1009-2.5
		AN3	6	7	LT1013, LTC1043
	Platinum Resistor Value to Frequency (0kHz–1kHz)	AN14	17	23	LT1056, LT1011, LTC1043
	Switched Capacitor Based RTD Signal Conditioner	AN43	12	15	LT1078, LTC1043
	Ultralinear Platinum Temperature Conditioner	LT1236 DS	11	NA	LT1236-10, LT1001
	Ultralinear Platinum Temperature Sensor	LT1021 DS	13	NA	LT1021-10, LT1001
		LT1031 DS	10	NA	LT1031, LT1001
Quartz Crystal	Quartz Crystal Based Thermometer	AN61	13	17	LTC485
Silicon Sensor	0°C–70°C Thermometer	AN52	5	5	LTC1096, LT1004-1.2
	0°C–70°C Temperature Measurement System	LTM II:1	11	9	LTC1096, LM134, LT1004
	Centigrade Temperature Sensor with 2-Point Trim	LM134 DS	7	4	LM134-3, LT1009
	Delta $V_{BE}$ Based Thermometer	AN45	7	11	LTC1043, LTC1150
	Differential Temperature Measurement System	LTM II:1	21	3	LTC1292, LT1027, LM134
		AN52	3	3	LTC1292, LT1027
	Ground-Referred Fahrenheit Thermometer	LM134 DS	11	NA	LM334, LT1009
	High Noise Rejection Thermometer	AN9	17	27	LTC1052
	Isolated Temperature Sensor	LF198 DS	13	NA	LF398, LM301, LM135
	Low Output Impedance Thermometer	LM134 DS	9	NA	LM334

Signal Conditioning—Temperature (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Silicon Sensor (Continued)</b>	Low Output impedance Thermometer (Kelvin Output)	LM134 DS	8	NA	LM334
	Micropower, Battery Operated, Remote Temperature	LT1101 DS	11	NA	LT1101, LM134-3, LT1004-1.2
	Remote Temperature Sensor with Voltage Output	LM134 DS	1	NA	LM234-3
	Temperature to Frequency Converter	LT1055 DS	10	NA	LT1055, LM134, LM329
	Temperature to Frequency Converter (0°C–100°C to 0kHz–1kHz)	AN7	2	1	LT1056
	Thermometer Using Current Output Silicon Sensors (–55°C–125°C)	DN5	2	3	LTC1092, LT1019-2.5
<b>Thermistor</b>	“Lock-In” Bridge Amplifier for Thermistor	AN43	24	27	LT1007, LT1057, LT1011, LTC1043
	0°C–100°C Linear Output Thermometer	LT1004 DS	5	NA	LT1004-1.2, LT1002
	0°C–500°C Furnace Exhaust Gas Temperature Measurement System with Low Supply Detection	AN62	11	15	LTC1091A, LTC1052, LT1019A, LT1025A
	2-Wire 0°C Temperature Transducer with 4mA to 20mA Output	LTC1040 DS	11	NA	LTC1040, LM134, LT1019-5
	Accurate Thermistor Based Temperature Measurement System (0°C–100°C)	DN5	2	2	LTC1090, LT1006
	Complete Heating/Cooling Automatic Thermostat	LTC1040 DS	9	NA	LTC1040
	Freezer Alarm	AN23	7	8	LTC1042
	Linear Output Thermistor Bridge	AN43	17	18	LT1006, LT1101
	Linear Thermometer, Thermistor	AN3	15	22	LT1004, LT1013, LTC1043
		LT1006 DS	11	NA	LTC1043, LT1004, LT1006
	Precision Temperature Controller	AN5	1	1	LT1012, LT3525A
	Thermistor Based Current Loop Signal Conditioner (0°C–100°C)	AN23	5	6	LTC1040
	Ultralow Power 50°F–100°F Thermostat	LTC1041 DS	1	NA	LTC1041
	Wall-Type Thermostat	AN23	6	7	LTC1041

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Signal Conditioning—Temperature (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Thermocouple	±15V Dual Thermocouple Amplifier	LTC1151 DS	1	NA	LTC1151, LT1025
	12-Bit, Single 5V Temperature Control System with Shutdown	LTM III:3	15	6	LTC1257, LTC1297, LT1025, LTC1050
		AN67	8	7	LTC1257, LTC1297, LTC1050, LT1025A
	3-Channel Thermocouple Thermometer	LT1013 DS	1	NA	LT1014, LT1004-1.2
	Breakpoint-Based Linearization for Thermocouples	AN28	14	21	LT1014, LT1025
	Cold Junction Compensation for a Type K Thermocouple	LTK001 DS	1	NA	LT1025, LTKA0x
		AN28	5	10	LT1025
	Cold Junction Compensation for a Type J Thermocouple	AN28	4	9	LT1025, LT1001
	Continuous Function Linearization for Thermocouples	AN28	15	22	LT1025, LT1097
	Differential Thermocouple Amplifiers	LTC1250 DS	8	NA	LTC1250, LT1025
		AN28	6	12A	LTC1043, LT1025
	Direct Thermocouple-to-Frequency Converter	LTC1052 DS	17	NA	LTC1052, LTC1043, LT1004
	Flame Detector	LM10 DS	13	NA	LM10
	Furnace Exhaust Gas Temperature Monitor with Low Supply Detection (0°C–500°C)	DN5	1	1	LTC1091, LT1025, LT1019A-5, LTC1052
	Isolated Temperature-to-Frequency Converter	AN67	20	22	LT1025, LTC1049, LTC1146, LT1004-1.2, LTC201
		LTM III:1	4	4	
	Isolated, Battery Powered, Temperature-to-Frequency Converter	LTC1145/46 DS	9	NA	LTC1146, LTC201, LT1025, LTC1049, LT1004
	Low Noise, Multiplexed Thermocouple Amplifier	OP27 DS	1	NA	OP27
	Micropower Cold Junction Compensation for Thermocouple	LT1004 DS	1	NA	LT1004-1.2
	Micropower Thermocouple Temperature to Frequency Converter	LTC203 DS	10	NA	LTC203, LT1025, LTC1049, LT1004

Signal Conditioning—Temperature (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Thermocouple (Continued)	Multiplexed Differential Thermometer	LTC1053 DS	13	NA	LTC1053, LT1025A
	Offset Based Linearization for Thermocouples	AN28	12	20	LT1025, LTC1052
	Optoisolated Temperature Monitor	LTC1292 DS	19	24	LTC1292, LT1019-2.5, LT1025-A, LTC1050
		AN62	13	18	
	Precision Multiplexed Differential Thermocouple Amplifier	LTC1052 DS	16	NA	LTC1052, LT1004, LTC1043
	Processor-Based Linearization for Thermocouples	AN28	15	23	LT1019A-5, LT1025A, LTC1052, LTC1091A
	Pulse Width Output Thermocouple Isolator	AN28	11	17	LT1006, LT1017, LT1025
	Single +5V Thermocouple Amplifier with Cold Junction Compensation	AN11	5	5	LTC1052, LTC1043, LT1004-1.2
		LTC1052 DS	15	NA	
	Single 5V Thermocouple Overtemperature Alarm	LTC1042 DS	6	NA	LTC1043, LT1034, LTC1052, LTC1042
	Single-Supply Thermocouple Amplifier	LTC1049 DS	1	NA	LTC1049, LT1025A
	Thermocouple Based Temperature-to-Frequency Converter	LTC1049 DS	7	NA	LTC1049, LTC201, LT1025, LT1004
	Thermocouple Cold Junction Compensator	LM185-2.5 DS	1	NA	LM385-2.5, LM334
	Thermocouple Isolation Amplifier (0.01%)	AN28	10	15	LT1013, LT1018, LT1025
	Thermocouple Isolation Amplifier (0.25%)	AN28	8	13	LT398A, LT1013, LT1025
	Thermocouple-Sensed Temperature to Frequency Converter	AN45	8	13	LT1025, LTC1049
	Cold Junction Compensated Thermocouple Signal Conditioner	AN11	5	5	LTC1052, LTC1043
	Thermocouple-to-Frequency Converter (0°C–60°C to 0Hz–600Hz)	AN7	3	2	LTC1052, LTC1043
	Thermocouple Transmitter	LM10 DS	13	NA	LM10, LM134
	Thermocouple with Cold Junction Compensation (0°C–60°C)	LT1006 DS	11	NA	LT1006, LT1034

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Signal Processing					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Driver	Oscillator Buffer Drives +17dBm to +27dBm Double Balanced Mixers	AN67	86	143	LT1206
Pulse Detector	Fast Pulse Detector	AN67	76	122	LT1190

## Sine Wave Generator (see Oscillators, Sine Wave)

Single Cell					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
A/D	1.5V A/D Converter (10-Bit)	AN15	2	3	LT1018
Amplifier	1.5V Voltage Boosted Output Op Amp (0V–10V)	AN15	6	11	LM10
DC/DC	Boost Regulator (1.5V to 5V)	AN15	7	13	LT1018
Discussion	Components for 1.5V Operation	AN15	8	NA	NA
Oscillator	1.5V Temperature-Compensated Crystal Oscillator	AN15	6	9	LM10
		AN45	14	20	LT1073, LT1017, LM134-3
		LT1073 DS	19	NA	
Sample and Hold	1.5V Fast Sample and Hold (125 $\mu$ s, 0.1%)	AN15	4	7	LM10, LT1018
	1.5V Sample and Hold	AN15	3	6	
Single Cell: V/F	1.5V Voltage to Frequency Converter (0V–1V to 1Hz–1kHz)	AN14	9	12	LT1017
	1.5V Voltage to Frequency Converter (0V–1V to 25Hz–10kHz)	AN15	1	1	LT1018

Single-Supply					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Analog Switch	Low Charge Injection Analog Switch	LTC201 DS	1–12	NA	LTC201, LTC202, LTC203
Current Loop	Digitally Controlled 4mA–20mA Current Loop Generator	AN31	6	11	LT1072, LT1006
Digital Help Circuits	EEPROM Pulse Generator	LT1013 DS	12	NA	LT1013
Discussion	High Performance Single-Supply Analog Amplifiers	AN11	14	NA	NA
Filter— Switched Capacitor	6th Order LP Butterworth	LTC1061 DS	8	5	LTC1061
	Level Shifting TTL Clock for $V^+ > 6V$	LTC1064-1 DS	5	3	LTC1064-1
	Single 5V Supply 5th Order LP Filter	LTC1062 DS	10	NA	LTC1062
	Single 5V, Gain of 1000, 4th Order Bandpass Filter	LTC1060 DS	1	NA	LTC1060
	Single-Supply LTC1062	AN20	4	7	LTC1062
	Single-Supply Operation of LTC1064-1	LTC1064-1 DS	5	2	LTC1064-1
Gas Sensor	Linearized Methane Transducer Signal Conditioner	AN11	3	2	LT1014, LTC1044
Instrumentation Amplifier	Precision Instrumentation Amplifier	AN11	6	6A	LT1014
	Precision, Micropower, Single-Supply Instrumentation Amplifier	LT1101 DS	1–12	NA	LT1101
	Two Op Amp Instrumentation Amplifier	LTC1049 DS	7	NA	LTC1049
	Ultraprecision Instrumentation Amplifier	AN11	6	6B	LTC1043, LTC1052
		LTC1043 DS	10	6B	
Interface	A/D Converter Interface	DN29	1	1	LTC1094, LT1180, LT1021-5
Motor Speed	Motor Speed Controller, No Tachometer Required	LT1013 DS	12	NA	LT1013
Oscillator	Single-Supply Crystal Oscillator 10MHz–15MHz	LT1116 DS	6	2	LT1116
Sample and Hold	Quad Single 5V Supply, Low Hold Step, Sample and Hold	LTC1043 DS	12	NA	LTC1043, LT1014

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Single-Supply (Continued)					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Signal Conditioning	Photodiode Amplifier	LT1215/16 DS	16	NA	LT1216
Strain Gauge	Strain Gauge Bridge Signal Conditioner	LT1054 DS	11	NA	LT1054, LT1013
	Strain Gauge Signal Conditioner	AN11	7	7	LT1013, LTC1044, LT1034
		LTC1044 DS	10	15	LT1013, LTC1044, LT1004
Temperature Sensor	Cold Junction Compensated Thermocouple Signal Conditioner	AN11	5	5	LTC1043, LTC1052
	Linearized Platinum RTD Signal Conditioner (0°C–400°C)	AN11	1	1	LT1014, LT1009
	Single 5V Thermocouple Overtemperature Alarm	LTC1042 DS	6	NA	LTC1042, LTC1043, LTC1052, LTC1034
	Single-Supply Precision Linearized Platinum RTD Signal Conditioner	AN3	6	7	LTC1043, LT1013, LT1009
	Single-Supply Precision Linearized Platinum RTD Signal Conditioner	LTC1043 DS	12	NA	LTC1043, LT1013, LT1009
Transmitter	4mA–20mA Current Loop Transmitter	AN11	9	10	LT1013, LT1004
	4mA–20mA Digitally Controlled Current Loop Transmitter	AN31	6	11	LT1072, LT1006, LT1004
	4mA–20mA Floating Output for Current Loop Transmitter	AN11	10	11	LT1013
Single-Supply: V/F	Ultralinear Voltage to Frequency Converter (100kHz–1.1MHz)	AN14	7	10	LTC1043, LT1013, LT1004
	Ultralinear Voltage to Frequency Converter (100kHz–1.1MHz)	AN23	13	21	LT1006, LM334, LT1004-1.2, LT1004-2.5
	Ultralinear, Micropower V/F (0–5V to 0–10kHz)	AN45	15	21	LT1017, LM334, LT1034
	Voltage to Frequency Converter	LTC1040 DS	11	NA	LTC1040
Voltage Regulator	Low Dropout 5V Regulator	LM10 DS	10	NA	LM10

**Strain Gauge (see Signal Conditioning, Strain Gauge)**

Switches					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Analog	Low Charge Injection Analog Switch	LTC201 DS	1–12	NA	LTC201, LTC202, LTC203
High-Side	0.85A Protected Switch	LTC1477/78 DS	7	NA	LTC1477
	1.5A Protected Switch	LTC1477/78 DS	6	NA	LTC1477
	2A Protected Switch	LTC1477/78 DS	6	NA	LTC1477
	2A Protected Switch Driving a Capacitive Load	LTC1477/78 DS	7	NA	LTC1477
	5v to 3.3V Selector Switch with Slope Control and 0.01 $\mu$ A Standby Current	LTC1477/78 DS	7	NA	LTC1478
	High-Side Switch (1.5A)	LT1188 DS	1–8	NA	LT1188
	Isolated High-Side Switch	LTC1177 DS	1	NA	LTC1177
	Isolated High-Side Switch with Foldback Current Limit	LTC1177 DS	5	NA	LTC1177
	LTC1477 Controlled by the LTC1304's Low-Battery Detector	DN117	2	4	LTC1477, LT1304
	Short-Circuit Protection and 100% Shutdown for a Micropower Boost Regulator	DN117	2	3	LTC1477, LT1301
	Switched 5V Line with Undervoltage Lockout	DN117	1	2	LTC1477, LTC699

Telecommunications					
Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
HDSL	LT1206 Used as a Differential HDSL Transformer Driver	LTM V:1	27	4a	LT1206
	LT1206 Used as Single-Ended HDSL Transformer Driver	LTM V:1	28	4b	LT1206
ISDN	Power Supply for Subscriber Line Interface Circuit	DN130	1	1	LT1171, LT1006

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### Telecommunications (Continued)

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>ISDN (Continued)</b>	Power Supply for Subscriber Line Interface Circuit	DN130	2	2	LT1269, LT1006
<b>Ring-Tone Generator</b>	Complete Ring-Tone Generator Circuit	DN134	2	4	LT1491
	High Voltage Power Supply for Ring-Tone Generator	AN67	60	83	LT1070
	Ring-Tone Generator	AN67	60	82	LT1078, LT1004

### Thermal Analysis

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
	SimpleThermal Analysis—a Real Cool Subject for LTC Regulators	AN66	98	NA	See Text

**Thermistor (see Signal Conditioning—Temperature, Thermistor)**

**Thermocouple (see Signal Conditioning—Temperature, Thermocouple)**

**Thermometer (see Signal Conditioning—Temperature)**

### Trigger

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
<b>Adaptive Threshold</b>	50MHz Trigger with Adaptive Threshold	AN47	59	130	LT1016, LT1097, LT1222

**VCO (see Oscillators)**

**Video (see Amplifiers, Video; Multiplexers, Video)**

## Voltage

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
Source	5V, $\pm 0.4\%$ Tolerance, $\pm 1\text{A}$ Low Noise Voltage Source	LTM V:4	4	6	LT1166, LT1431
	High Voltage RMS Calibrator	AN65	71	C13	LT1172, LT1006

## Voltmeter

Category	Subject	Publication	Page Number	Figure Number	LT Part Number(s)
RMS	Wideband True RMS Voltmeter	AN47	62	137	LT1013, LT1088, LT1223, LT1004
	Single-Supply, AC-Coupled, RMS Calibrated Average Detector	LT1215/16 DS	16	NA	LT1216

Wein Bridge Oscillator (see Oscillators)