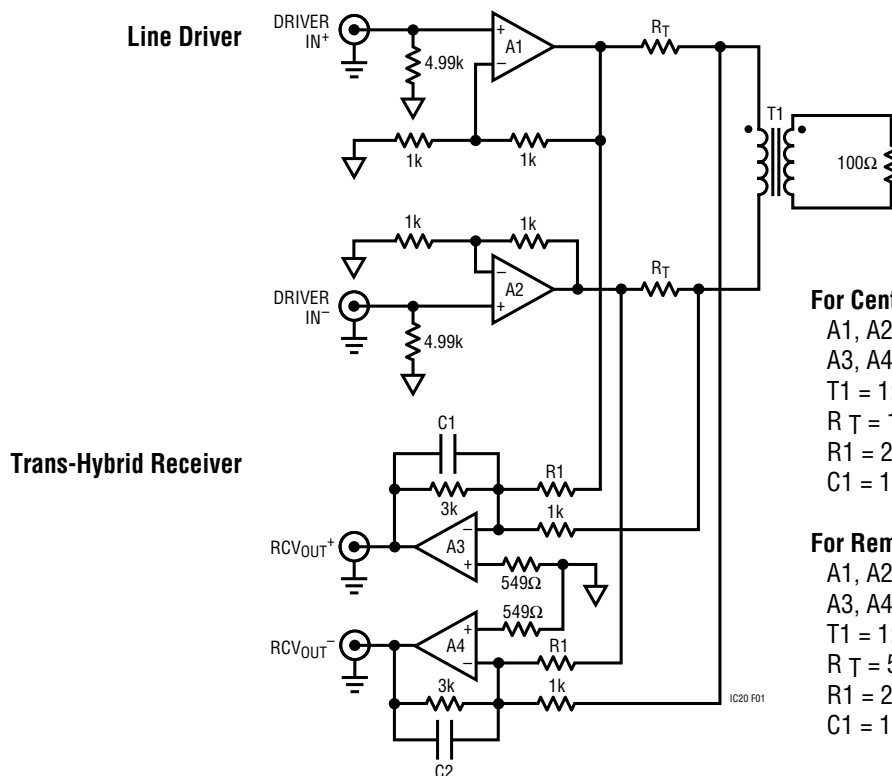


LT, LTC and LT are registered trademarks of Linear Technology Corporation.

### Line Driver Amplifiers

Characteristics	LT <sup>®</sup> 1206	LT1207	LT1210
Minimum Output	250mA	250mA	1.1A
Bandwidth	60MHz	60MHz	35MHz
Slew Rate	900V/μs	900V/μs	900V/μs
Key Features	Single Amplifier for ADSL RT Line Driver	Dual Amplifier, Ideal for HDSL and ADSL	Single Amplifier for ADSL CO Line Driver
Packages	8-Lead PDIP, SO, 7-Lead DD, TO-220	16-Lead SO Thermally Enhanced	16-Lead SO, 7-Lead DD, TO-220
Data Sheet	94DB 2-137	96DB 2-48	96DB 2-64

- Peak Output Currents to 1.1A
- Ideal for DMT and CAP ADSL Modems
  - Better than 72dB Spur Performance
- Adjustable Output Power Capability
- Low Power Operation
  - Shutdown Mode Supported
  - $I_S < 200\mu A/\text{Amp}$  in Shutdown



#### For Central Office (CO) Applications:

A1, A2 = LT1210CT7  
 A3, A4 = 1/2 LT1355CS8  
 T1 = 1:2 Turns Ratio  
 $R_T = 12.7\Omega$ , 1%  
 $R1 = 2.05k$ , 1%  
 $C1 = 100pF$

#### For Remote Terminal (RT) Applications:

A1, A2 = 1/2 LT1207CS  
 A3, A4 = 1/2 LT1358CS8  
 T1 = 1:1 Turns Ratio  
 $R_T = 52.3\Omega$ , 1%  
 $R1 = 2.1k$ , 1%  
 $C1 = 12pF$

### Trans-Hybrid Receiver High Speed Amplifiers

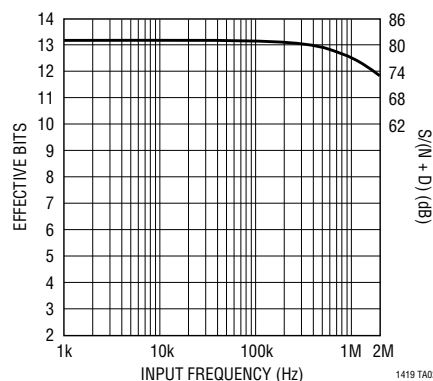
Single	Dual	Quad	GBW (MHz)	SR (V/μs)	$I_S/\text{Amp}$ (mA)
LT1354	LT1355	LT1356	12	400	1
LT1357	LT1358	LT1359	25	600	2
LT1360	LT1361	LT1362	50	800	4
LT1363	LT1364	LT1365	70	1000	6

- Low Noise: Less Than  $10nV/\sqrt{Hz}$
- High Speeds to 70MHz
- Low Power: Typically Less Than 6mA per Amplifier

### High Speed A/D Converters

- Up to 1.25Msps (LTC<sup>®</sup>1410, LTC1415)
- $\pm 5V$  or 5V Supply Operation
- High Bandwidth Sample-and-Hold
- Excellent S/N + D at Nyquist ( $\geq 72dB$ )
- SO and SSOP Surface Mount Packages
- Nap and Sleep Modes for Instant Wake-Up
- Internal Reference
- Future High Speed A/D Converters
  - 12 Bits at 3Msps
  - 14 Bits at 2.2Msps

LTC1419's Effective Bits and S/N + D vs Input Frequency



Characteristics	LTC1278-4	LTC1279	LTC1409	LTC1410	LTC1415	LTC1419
Application	2-Pair T1	2-Pair E1	1-Pair T1, ADSL	1-Pair E1, ADSL	1-Pair E1, ADSL	1-Pair T1, ADSL
Resolution	12-Bit	12-Bit	12-Bit	12-Bit	12-Bit	14-Bit
Sample Rate	400ksps	600ksps	800ksps	1.25Msps	1.25Msps	800ksps
SINAD	72dB	72dB	72dB	72dB	72dB	79dB
Power Dissipation	75mW	60mW	80mW	160mW	55mW	160mW
Supply Voltage	5V or $\pm 5V$	5V or $\pm 5V$	$\pm 5V$	$\pm 5V$	5V	$\pm 5V$
Processor Interface	Parallel	Parallel	Parallel	Parallel	Parallel	Parallel
Packages	24-Lead SO	24-Lead SO,SSOP	28-Lead SO/SSOP	28-Lead SO/SSOP	28-Lead SO/SSOP	28-Lead SO/SSOP
Data Sheet	94 DB 6-80	95 DB 6-8	96 DB 6-47	96 DB 6-58	96 DB 6-73	<b>NEW</b>

### Digital-to-Analog Converters

Applications: VCXO Control, Tx Attenuator/Rx PGA Control

#### Multiplying 12-Bit $I_{OUT}$ DACs

- Multiplying Current Output
- Industry Standard Pinouts
- 16-Bit Serial (Future Products)

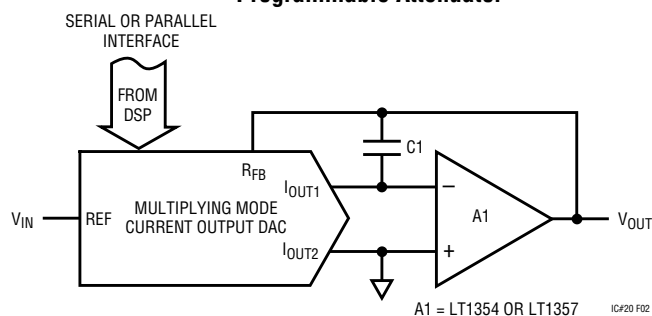
	I/O	V <sub>CC</sub> (V)	# DACs
LTC7541A	Parallel	5	Single
LTC7543	Serial	5	Single
LTC7545	Parallel	5	Single
LTC8043	Serial	5	Single
LTC8143	Serial	5	Single
LTC1590	Serial	5	Dual

#### Serial 12-Bit $V_{OUT}$ DACs

- Rail-to-Rail Voltage Output
- Serial Interface, Easy to Daisy-Chain
- Power-On Reset
- Internal Reference

Single	Dual	Quad	V <sub>CC</sub> (V)	Package
LTC1451	LTC1446		5	N8
LTC1453	LTC1446L		3	S8
LTC1456			5	
	LTC1454		5	N16
	LTC1454L		3	S16
		LTC1458	5	SW28
		LTC1458L	3	G28

#### Programmable Attenuator



### ***Tx Reconstruction and Rx Antialiasing Filters*** ***LTC1264: High Speed Universal Quad Filter***

- Up to 250kHz Center Frequency
- Clock-to-Center Frequency Ratio of 20:1
- LTC1264-7: Linear Phase and Flat Group Delay
- 65dB THD or Better Throughout 100kHz Passband

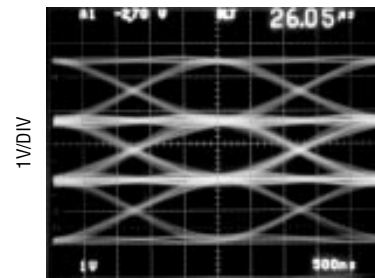
### ***LTC1069-7: Linear Phase 8th Order Lowpass Filter***

- SO-8 Package
- Raised Cosine Amplitude Response
- Up to 200kHz
- Clock-to-Cutoff Frequency of 25:1

### ***LTC1560-1: 1MHz/500kHz Continuous Time Low Noise Elliptic Filter***

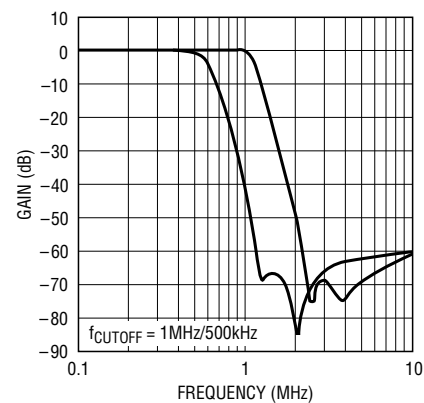
- 5th Order Filter in an SO-8
- $\pm 0.3\text{dB}$  Passband Ripple
- 75dB Signal-to-Noise Ratio (2.1V<sub>RMS</sub> Input)
- 69dB Signal-to-Noise Ratio with  $-63\text{dB}$  THD
- Pin Selectable Cutoff Frequency

**4-Level PAM Eye Diagram**



$f_{\text{CLK}} = 5\text{MHz}$   
 $f_c = 200\text{kHz}$

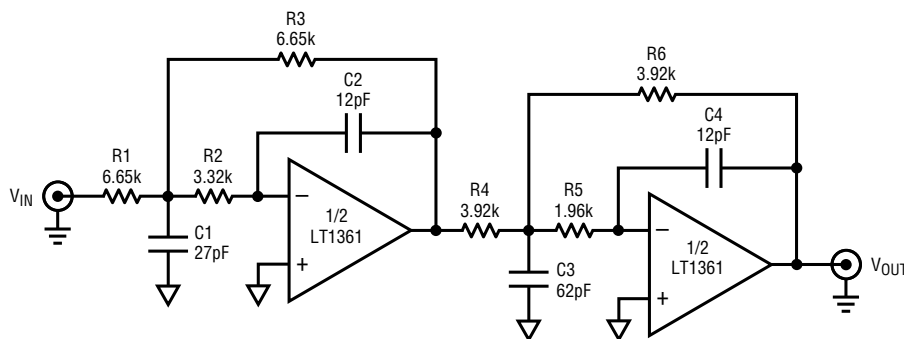
**LTC1560 Frequency Response**



1560-1 TA02

### ***Active Filters Using High Speed Op Amps***

**1.1MHz 4th Order Bessel Lowpass Filter**

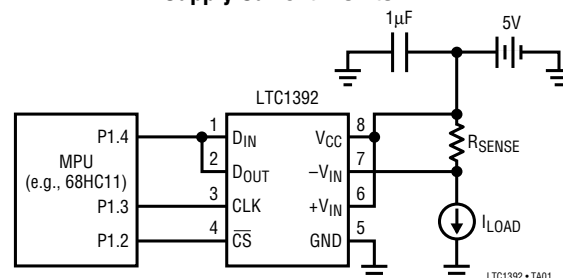


IC#20 F03

### ***Temperature Sensor for Fan Control*** ***LTC1392***

- Complete Ambient Temperature Sensor Onboard
- Power Supply Monitor
- 10-Bit Resolution, Rail-to-Rail Input Common Mode, Differential Voltage Input
- 0.2 $\mu\text{A}$  Supply Current When Idle
- 350 $\mu\text{A}$  Supply Current When Converting

**Complete Temperature, Supply Voltage and Supply Current Monitor**

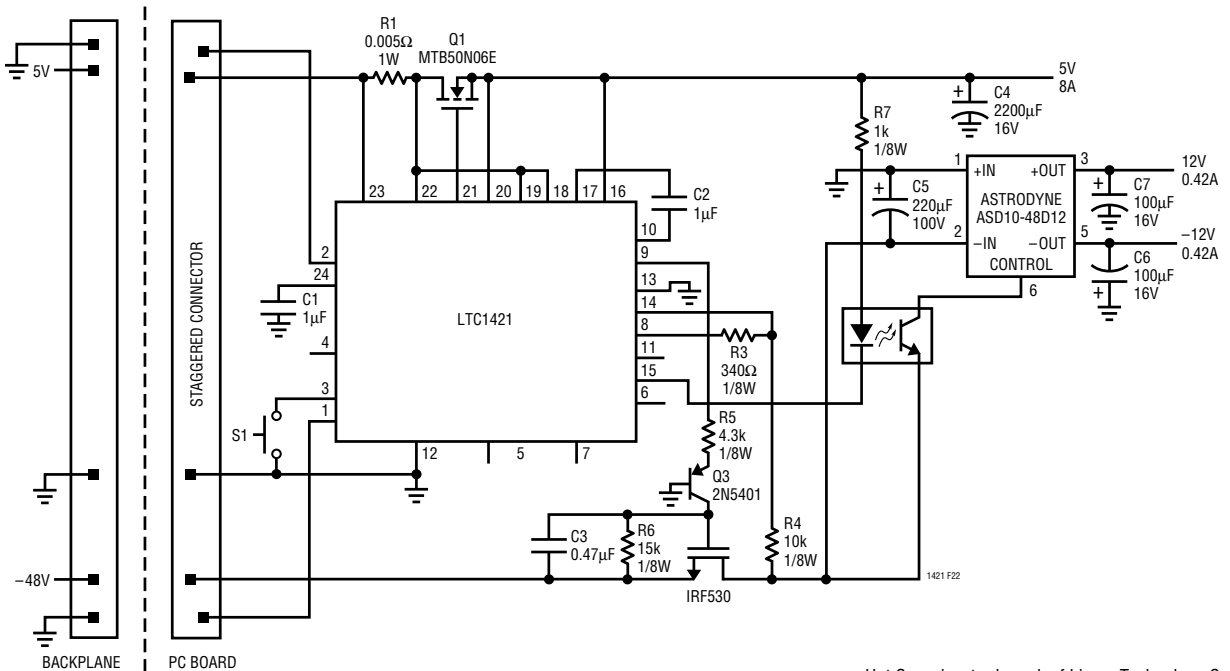


LTC1392 • TA01

## Hot Swap™ Controller

- LTC1421 Allows Safe Insertion and Removal from a Live Backplane
- System Reset and Power Good Outputs
- Programmable Electronic Circuit Breaker
- High Side Driver for Two External N-Channel MOSFETs
- User-Programmable Supply Voltage Power-Up Rate
- Controls Supply Voltages from 3V to 12V
- Connection Inputs Detect Board Insertion or Removal
- Undervoltage Lockout
- Power-On Reset Input

### 5V and -48V to ±12V Hot Swappable Supply

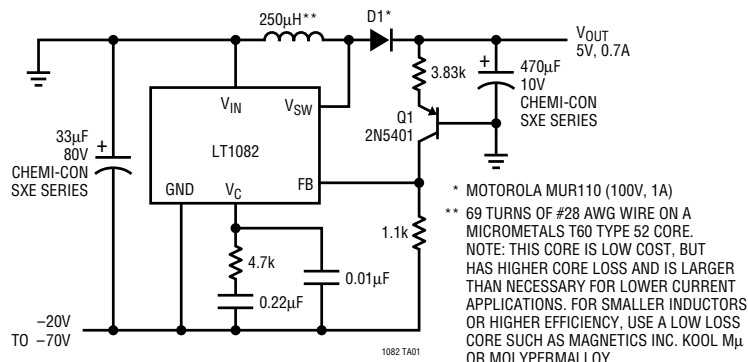


Hot Swap is a trademark of Linear Technology Corporation.

## DC/DC Voltage Converters Switching Regulator Controllers

- LTC1149 Synchronous P-Channel/N-Channel, Up to 48V Input, Up to 95% Efficiency
- LT1339 Up to 60V Input, All N-Channel MOSFET Synchronous Power Supply Controller
- LT1680 Up to 60V Input, Single N-Channel MOSFET Controller for Step-Up Applications

### Negative-to-Positive Telecom 5V Supply

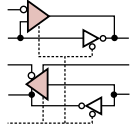
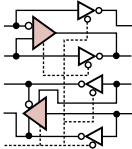
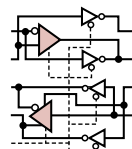


## Boost Regulators

Part	MAX Input (V)	MAX Switch Voltage (V)	MAX Switch Current (A)	Switching Frequency (Hz)
LT1268	30	60	7.5	150k
LT1269			4.0	100k
LT1270/A			8.0/10	60k
LT1271			4.0	60k
LT1372	30	35	1.25	500k
LT1373			1.25	250k
LT1377			1.25	1M
LT1070HV	60	75	5.0	40k
LT1071HV			2.5	
LT1072HV			1.25	
LT1170HV	60	75	5.0	100k
LT1171HV			2.5	
LT1172HV			1.25	
LT1082	75	100	1.0	60k

### Multiprotocol Interface Transceivers

- Configurable as Either RS232 Transceivers or RS485 Transceivers with the Same I/O Pins
- LTC1343/LTC1344 Support V.10, V.11, V.28, V.35, RS232, RS422 and RS423 Interface Standards
- Driver Maintains High Impedance in Three-State, Shutdown or with Power Off
- Receiver Inputs Withstand  $\pm 25V$
- I/O Lines Withstand  $\pm 10kV$  ESD Pulses
- Loopback Mode
- Power-Up/Down Glitch-Free Outputs

Key Features	Part	Package	Each Channel
Two Channels of Configurable <b>RS485</b> /RS232 Transceivers RS232 (5V, $\pm 6.5V$ Supplies) or EIA/TIA652 ( $\pm 5V$ Supplies)	LTC1321	24-Lead N, SW	
Two Channels of Configurable <b>RS485</b> /RS232 Transceivers RS232 (5V, $\pm 6.5V$ Supplies) or EIA/TIA652 ( $\pm 5V$ Supplies)	LTC1322	24-Lead N, SW	
Same as LTC1322 Except OE Disables Receiver Outputs LTC1335 Meets EIA/TIA652 with $\pm 5V$ Supplies	LTC1335		
Two Channels of Configurable <b>RS485</b> /RS232 Transceivers 5V Supply, Charge Pump for RS232 Bias Voltage	LTC1334	28-Lead N, SW	
One Channel Configurable <b>RS485</b> /RS232 Transceiver 5V Supply, Charge Pump for RS232 Bias Voltage	LTC1387	20-Lead G, SW	
Four Channels of Configurable Multiprotocol Transceivers Two LTC1343 Transceivers and One LTC1344 Terminator Form a Complete, Single 5V Supply, Serial Port that Supports RS232, RS449, EIA-530, EIA-530-A, V.35, V.36 and X.21 Protocols	LTC1343 4-Channel Transceiver	44-Lead SSOP	RS232 (V.28) RS422 (V.11) RS423 (V.10) or V.35
	LTC1344 Terminator	24-Lead SSOP	

