VOL 2

Linear Low Dropout (LDO) Regulator Solutions

High Performance Analog ICs

LINEAR TECHNOLOGY

Introduction

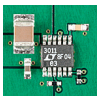
We offer a broad line of high performance low dropout (LDO) linear regulators with fast transient response, excellent line and load regulation, and very wide input voltage range from 0.9V to 100V. Output currents range from 20mA to 10A, with positive, negative and multiple output versions available. Many devices offer output voltage operation <0.8V and some feature operation as low as 0V, even with a single supply. Most are stable with ceramic output capacitors. Our PNP-based linear regulators offer reverse-input, reverse-output, and reverse-current protection. Our LDO+™ devices include monitoring of voltage, current, temperature and diagnostic flags that indicate fault conditions. LDO regulators can be applied in virtually any application. For the most current product information, please visit www.linear.com.

Contents

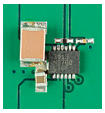
High Voltage PNP Positive Linear Regulators

PNP family features:

- Rugged and Hard to Kill
- Up to 80V_{IN} Continuous Operation
- Low Output Voltage Noise
- Extensive Reverse Protection for Harsh Environments in Automotive, Avionics and Industrial Applications

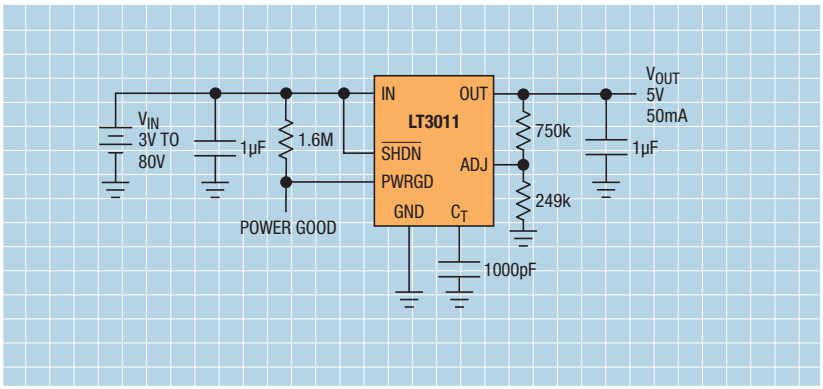


LT3011 Actual Size Demo Board

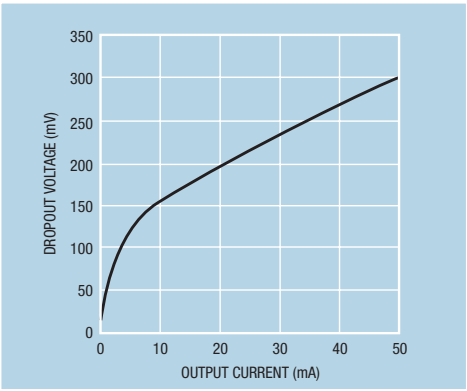


LT3013 Actual Size Demo Board

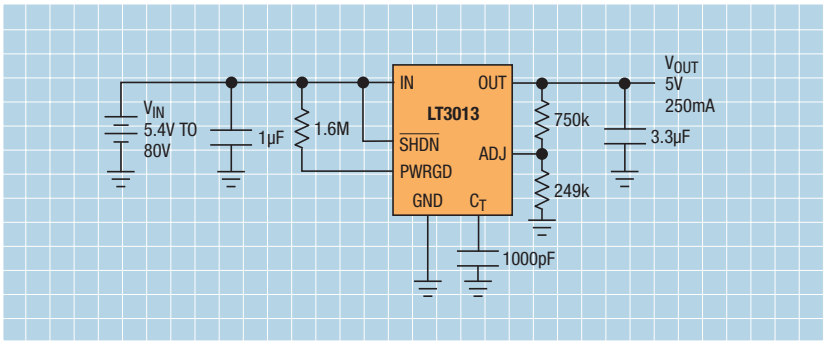
LT®3011: 50mA, 3V to 80V Low Dropout Micropower Linear Regulator with PWRGD



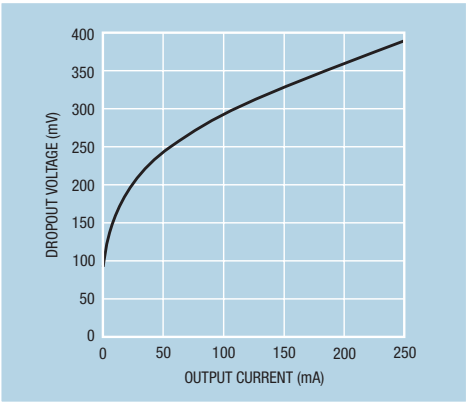
Dropout Voltage



LT3013: 250mA, 4V to 80V Low Dropout Micropower Linear Regulator with PWRGD



Dropout Voltage



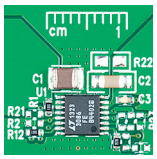
Part Number	Output Current (A)	Min V_{IN} (V)	Max V_{IN} (V)	Reference Voltage (V)	Dropout Voltage (V@I_{OUT})	Typ I_Q (Supply) (µA)	Output Voltage (V)	Noise (µV_{RMS}) or % of V_{OUT}	Temperature Grade	Package
High Voltage PNP Positive Linear Regulators										
LT3014	0.02	3.0	80	1.22	0.35	7	Adj (1.22 to 60)	115	E I	TSOT-5, 3x3 DFN-8
LT3014HV	0.02	3.0	100	1.22	0.35	7	Adj (1.22 to 60)	115	E I	TSOT-5, 3x3 DFN-8
LT3014B	0.02	3.0	80	1.22	0.35	7	Adj (1.22 to 60)	115	E I	TSOT-5, 3x3 DFN-8
LT3014BHV	0.02	3.0	100	1.22	0.35	7	Adj (1.22 to 60)	115	E I	TSOT-5, 3x3 DFN-8
LT3010	0.05	3.0	80	1.275	0.30	30	Adj (1.275 to 60), 5	100	E H MP	MSOP-8E
LT3011*†	0.05	3.0	80	1.24	0.30	45	Adj (1.24 to 60)	100	E I H	MSOP-12E, 3x3 DFN-10
LT3012	0.25	4.0	80	1.24	0.40	40	Adj (1.24 to 60)	100	E H	TSSOP-16E, 3x4 DFN-12
LT3012B	0.25	4.0	80	1.24	0.40	40	Adj (1.24 to 60)	100	E	TSSOP-16E, 3x4 DFN-12
LT3013*†	0.25	4.0	80	1.24	0.40	65	Adj (1.24 to 60)	100	E H MP	TSSOP-16E, 3x4 DFN-12
LT3013B*†	0.25	4.0	80	1.24	0.40	65	Adj (1.24 to 60)	100	E	TSSOP-16E, 3x4 DFN-12

* Power Good † LDO+

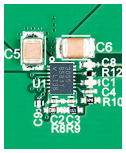
PNP Positive Linear Regulators

PNP family features:

- Low Output Voltage Noise
- Wide Voltage Range
- Low Dropout Voltage
- Fast Transient Response and Extensive Reverse Protection
- Precision Current Limits

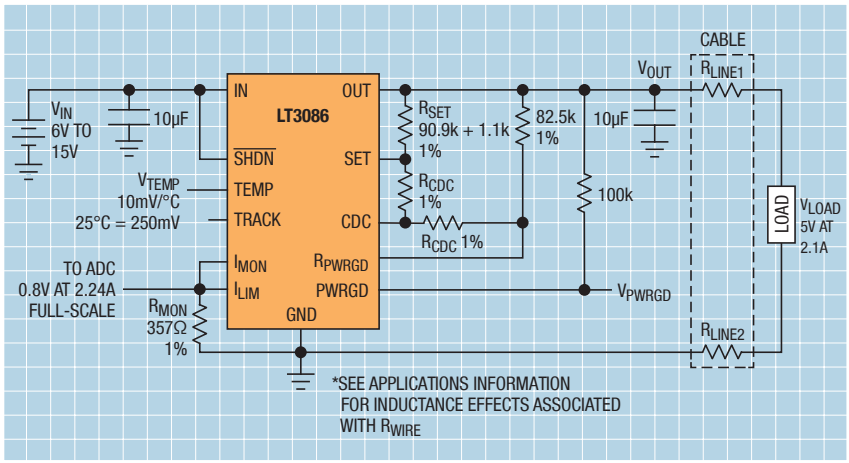


LT3086
Actual Size
Demo Board

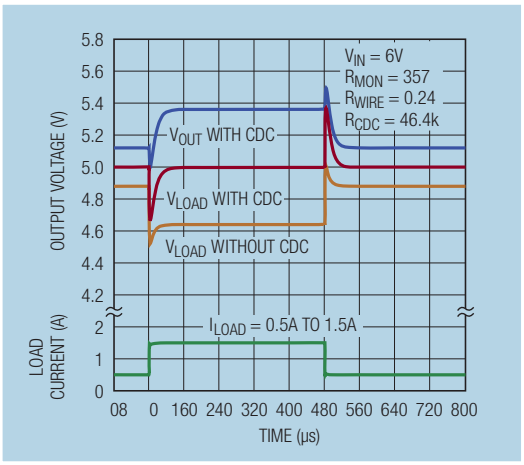


LT3055
Actual Size
Demo Board

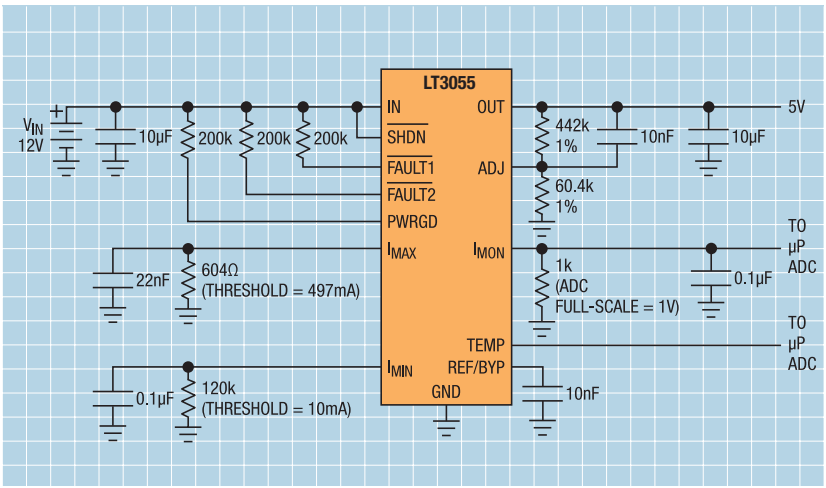
LT3086: 1.5A Rail-to-Rail, Low Dropout PNP Linear Regulator with Monitoring and Cable Drop Compensation



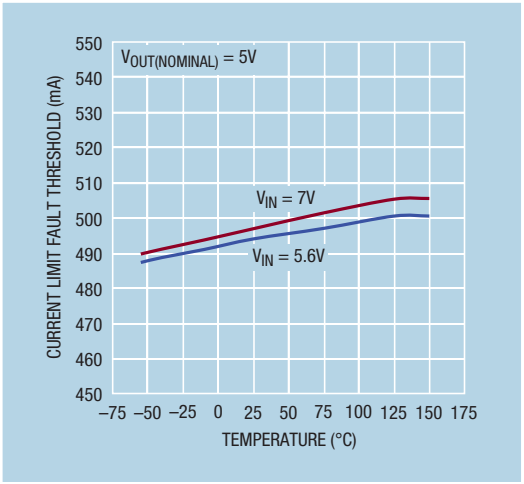
Transient Response with Cable Drop Compensation (CDC)



LT3055: 500mA Linear Regulator with Precision Current Limit and Diagnostics



External Current Limit R_{IMAX} = 604Ω



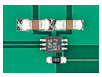
Part Number	Output Current (A)	Min V_{IN} (V)	Max V_{IN} (V)	Reference Voltage (V)	Dropout Voltage ($V@I_{OUT}$)	Typ I_Q (Supply) (µA)	Output Voltage (V)	Noise (μV_{RMS}) or % of V_{OUT}	Temperature Grade	Package
PNP Positive Linear Regulators										
LT1761	0.1	1.8	20	1.22	0.30	20	Adj (1.22 to 19.5), 1.2, 1.5, 1.8, 2, 2.5, 2.8, 3, 3.3, 5	20	E I MP	TSOT-5
LT3050§	0.1	1.6	45	0.60	0.34	45	Adj (0.6 to 44.5), 3.3, 5	30	E I MP	2x3 DFN-12, MSOP-12E
LT3060	0.1	1.6	45	0.60	0.30	40	Adj (0.6 to 44.5), 1.2, 1.5, 1.8, 2.5, 3.3, 5, 15	30	E I H MP	2x2 DFN-8, TSOT-8
LT3061#	0.1	1.6	45	0.60	0.25	45	Adj (0.6 to 19)	30	E I H MP	2x3 DFN-8, MSOP-8E
LT1020	0.125	4.5	36	2.50	0.40	40	Adj	–	C I	SO-16, DIP-14
LT1120/A	0.125	4.5	36	2.50	0.40	40	Adj	–	C I	SO-8, DIP-8
LT1121/A/HV	0.15	4.2	30/36	3.75	0.42	30	Adj (3.75 to 29/35), 3.3, 5	–	C I	SOT-223, SO-8, TO-92, DIP-8
LT1762	0.15	1.8	20	1.22	0.27	25	Adj (1.22 to 19.5), 2.5, 3, 3.3, 5	20	E	MSOP-8
LT3062	0.2	1.6	45	0.60	0.30	45	Adj (0.6 to 40)	30	E I H MP	2x3 DFN-8, MSOP-8E
LT3063#	0.2	1.6	45	0.60	0.30	45	Adj (0.6 to 19)	30	E I H MP	2x3 DFN-8, MSOP-8E
LT1521	0.3	4.3	20	3.75	0.50	12	Adj (3.75 to 19), 3, 3.3, 5	–	C I	SOT-223, SO-8, MSOP-8
LT1579	0.3	2.7	20	1.50	0.40	50	Adj (1.5 to 19), 3, 3.3, 5	–	C	SO-8, SO-16, SSOP-16
LT1962	0.3	1.8	20	1.22	0.27	30	Adj (1.22 to 19.5), 1.5, 1.8, 2.5, 3, 3.3, 5	20	E	MSOP-8
LT1763	0.5	1.8	20	1.22	0.30	30	Adj (1.22 to 19.5), 1.5, 1.8, 2.5, 3, 3.3, 5	20	C I MP	3x4 DFN-12, SO-8,
LT3055‡§	0.5	2.0	45	0.60	0.35	65	Adj (0.6 to 44.5)	25	E I H MP	3x4 DFN-16, MSOP-16E
LT3065‡§	0.5	2.0	45	0.60	0.30	55	Adj (0.6 to 44.5)	25	E I H MP	3x3 DFN-10, MSOP-12E
LT1129	0.7	4.2	30	3.75	0.40	50	Adj (3.75 to 29), 3.3, 5	–	E I MP	DD-Pak, SOT-223, SO-8, TO-220, TSSOP-20
LT1965	1.1	1.8	20	1.20	0.31	500	Adj (1.2 to 19.5), 1.5, 1.8, 2.5, 3.3	40	E I H	3x3 DFN-8, MSOP-8E, DD-Pak, TO-220
LT1963/A*	1.5	2.1	20	1.21	0.34	1mA	Adj (1.21 to 19.5), 1.5, 1.8, 2.5, 3.3	40	E I MP	TSSOP-16E, DD-Pak, TO-220, SOT-223, SO-8
LT3081†§	1.5	1.2	36	50µA	1.21	1.1mA	Adj (0 to 34.5)	27	E I H MP	4x4 DFN-12, TSSOP-16E, TO-220, DD-Pak
LT3086‡§	2.1	1.4	40	400mV/50µA	0.33	1.2mA	Adj (0.4 to 32)†	40	E I MP	TSSOP-16E, 4x5 DFN-16, DD-Pak, TO-220
LT1528	3.0	3.9	15	3.30	0.60	400	Adj (3.3 to 14), 3.3	–	C	DD-Pak, TO-220
LT1529	3.0	3.9	15	3.75	0.60	50	Adj (3.75 to 14), 3.3, 5	–	C I	DD-Pak, TO-220
LT1764/A*	3.0	2.7	20	1.21	0.34	1mA	Adj (1.21 to 19.5), 1.5, 1.8, 2.5, 3.3	40	E MP	DD-Pak, TO-220, TSSOP-16E

*"A" Versions are stable with ceramic capacitors † Single-Resistor V_{OUT} Set ‡ Power Good # Active Discharge § LDO+

Micropower PNP Positive Linear Regulators

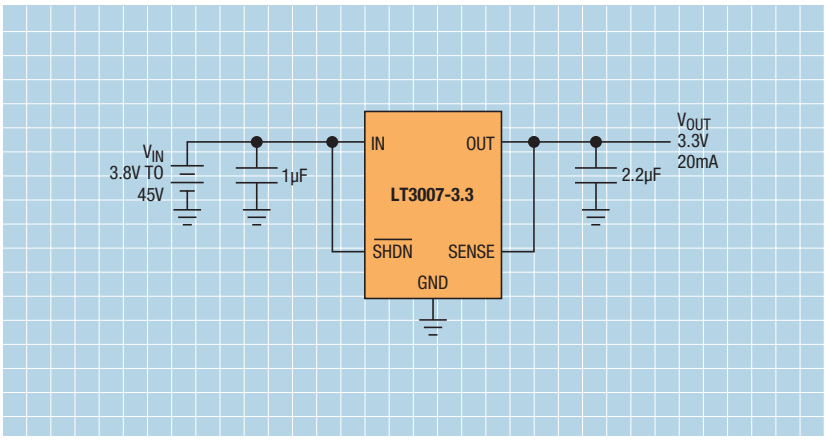
Micropower PNP family features:

- Sub-5µA Quiescent Current
- Good Output Noise Performance
- Keep Alive, Real-Time Clock and Remote Monitoring Applications

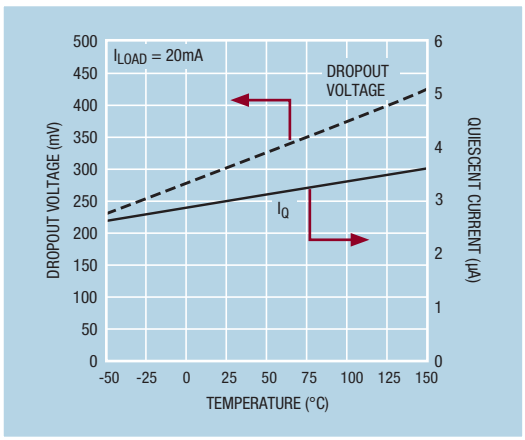


LT3008
Actual Size
Demo Board

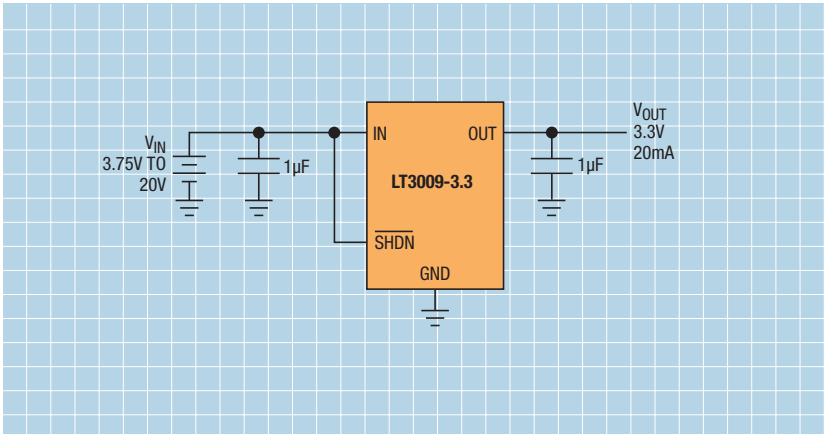
LT3007: 3µA I_Q, 20mA, 45V Low Dropout Fault Tolerant Linear Regulator



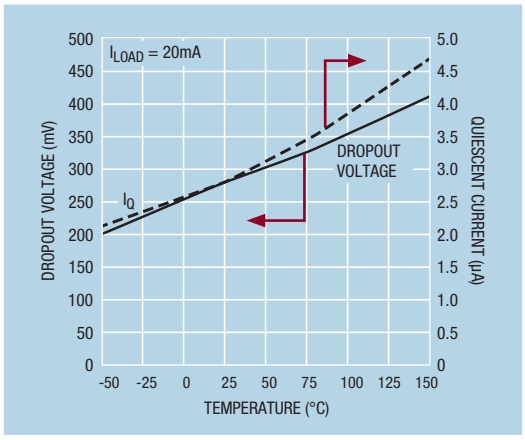
Dropout Voltage/Quiescent Current



LT3009: 3µA I_Q, 20mA Low Dropout Linear Regulator



Dropout Voltage/Quiescent Current



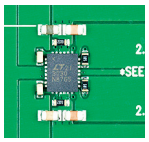
Part Number	Output Current (A)	Min V_{IN} (V)	Max V_{IN} (V)	Reference Voltage (V)	Dropout Voltage (V@I_{OUT})	Typ I_Q (Supply) (µA)	Output Voltage (V)	Noise (μV_{RMS}) or % of V_{OUT}	Temperature Grade	Package
Micropower PNP Positive Linear Regulators										
LT3009	0.02	1.6	20	0.60	0.28	3	Adj (0.6 to 19.5), 1.2, 1.5, 1.8, 2.5, 3.3, 5	150	E I	SC70-8, 2x2 DFN-6
LT3007*	0.02	2.0	45	0.60	0.30	3	Adj (0.6 to 44.5), 1.2, 1.5, 1.8, 2.5, 3.3, 5	92	E I	TSOT-8
LT3008	0.02	2.0	45	0.60	0.30	3	Adj (0.6 to 44.5), 1.2, 1.5, 1.8, 2.5, 3.3, 5	92	E I MP	TSOT-8, 2x2 DFN-6

*FMEA Fault Tolerant version

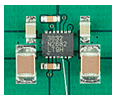
Dual Output PNP Linear Regulators

Dual linear regulator family features:

- Highly Compact Solution
- All the Performance Features of our Single PNP Regulators
- Ideal for Core/Logic Combinations

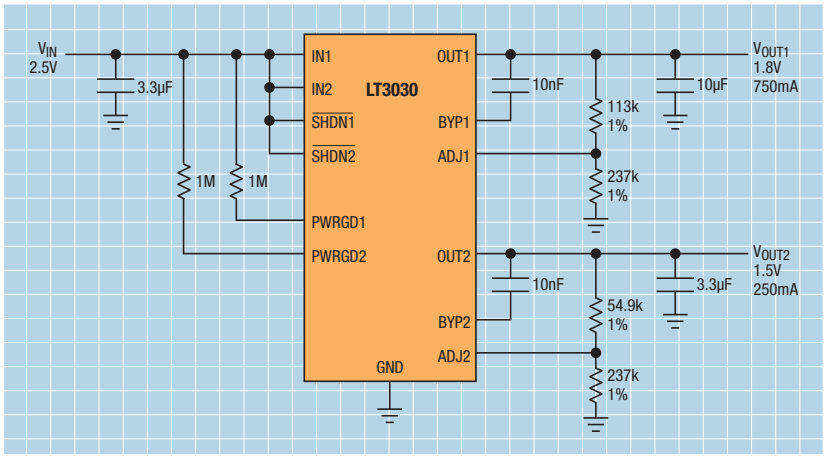


LT3030 Actual Size Demo Board

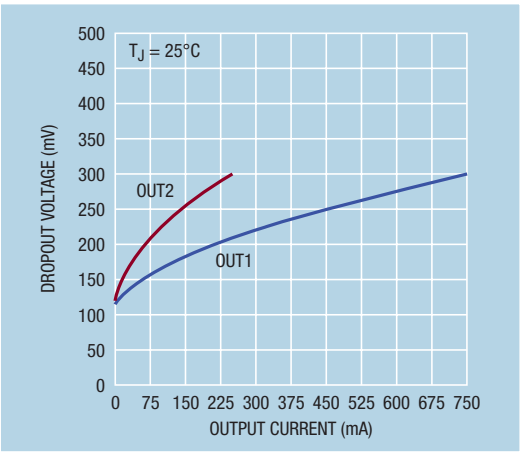


LT3032 Actual Size Demo Board

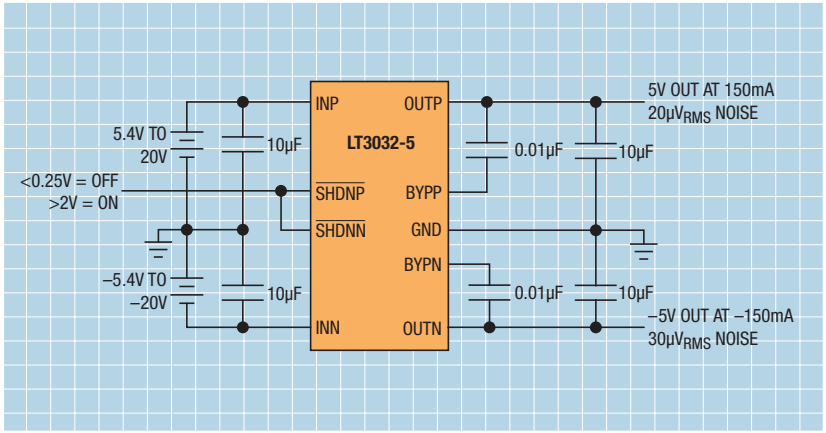
LT3030: Dual 750mA/250mA Low Dropout, Low Noise Micropower Linear Regulator



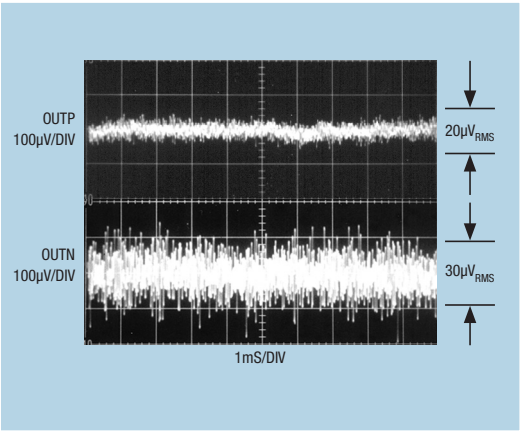
Dropout Voltage vs Load Current



LT3032: Dual 150mA Positive/Negative Low Noise Regulator



10Hz to 100kHz Output Noise



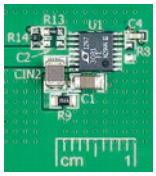
Part Number	Output Current (A)	Min V_{IN} (V)	Max V_{IN} (V)	Reference Voltage (V)	Dropout Voltage ($V@I_{OUT}$)	Typ I_Q (Supply) (µA)	Output Voltage (V)	Noise (μV_{RMS}) or % of V_{OUT}	Temperature Grade	Package
Dual Output Positive Linear Regulators										
LT3023	0.1/0.1	1.8	20	1.22	0.30	40	Adj (1.22 to 20)	20	E I	MSOP-10E, 3x3 DFN-10
LT3027	0.1/0.1	1.8	20	1.22	0.30	50	Adj (1.22 to 20)	20	E I	MSOP-10E, 3x3 DFN-10
LT3024	0.1/0.5	1.8	20	1.22	0.30	60	Adj (1.22 to 20)	20	E I	TSSOP-16E, 3x4 DFN-12
LT3028	0.1/0.5	1.8	20	1.22	0.30	60	Adj (1.22 to 20)	20	E I	TSSOP-16E, 3x5 DFN-16
LT3029	0.5/0.5	1.8	20	1.215	0.30	110	Adj (1.215 to 19.5)	20	E I H MP	MSOP-16E, 3x4 DFN-16
LT3030*	0.75/0.25	1.7	20	1.22	0.30	195	Adj (1.22 to 19.5)	20	E I H MP	4x5 QFN-28, TSSOP-20E
Dual Output Positive and Negative Linear Regulators										
LT3032	±0.15	±1.8	±20	±1.22	0.30/-0.34	60	Adj, ±3.3, ±5, ±12, ±15	20 / 30	E I MP	3x4 DFN-14

* Power Good

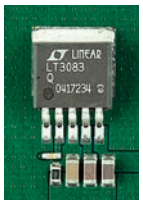
Single Resistor Set, Current Reference-Based NPN/PNP Positive Linear Regulators

Second generation NPN family features:

- Operation Down to 0V Output
- Direct Paralleling to Spread PCB Heat
- Low Noise and Simplicity with a Single Resistor V_{OUT} Set Capability
- Always Operates in Unity-Gain
  - — Bandwidth Independent of Output Voltage
  - — Output Noise Independent of Output Voltage
  - — Load Regulation Independent of Output Voltage

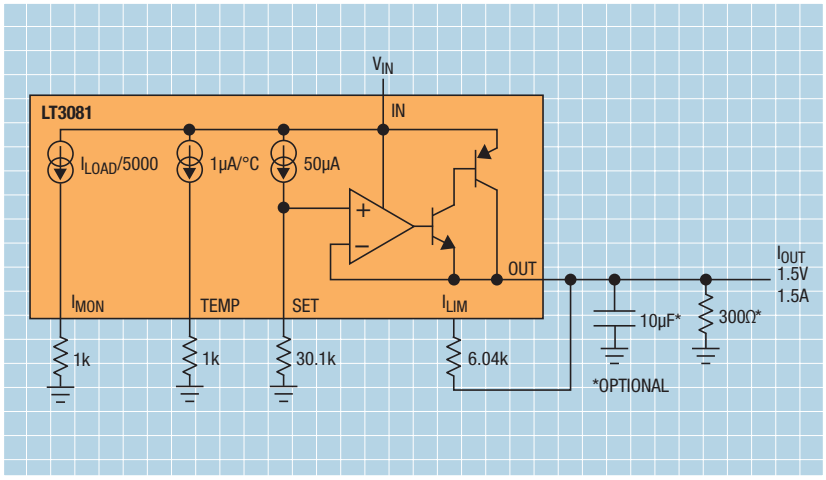


LT3081 Actual Size Demo Board

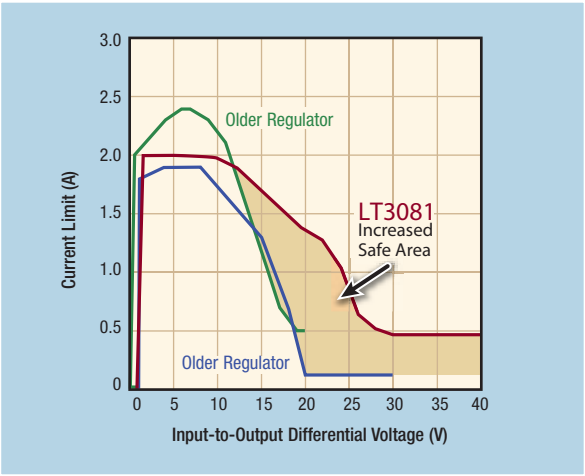


LT3083 Actual Size Demo Board

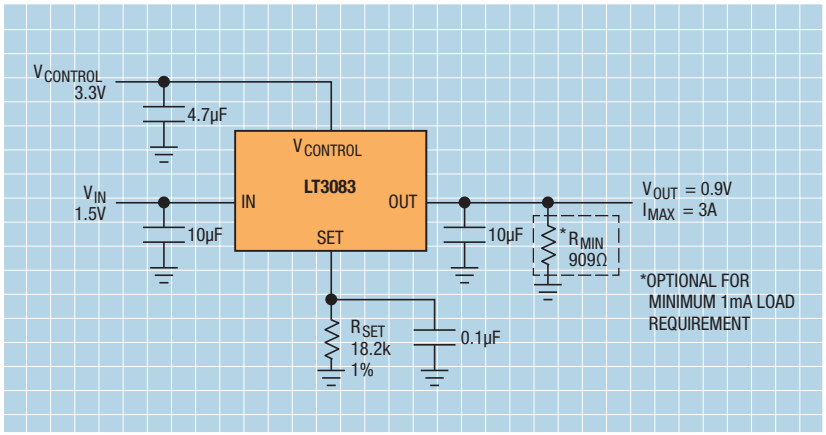
LT3081: 1.5A Single Resistor Rugged Linear Regulator with Monitors



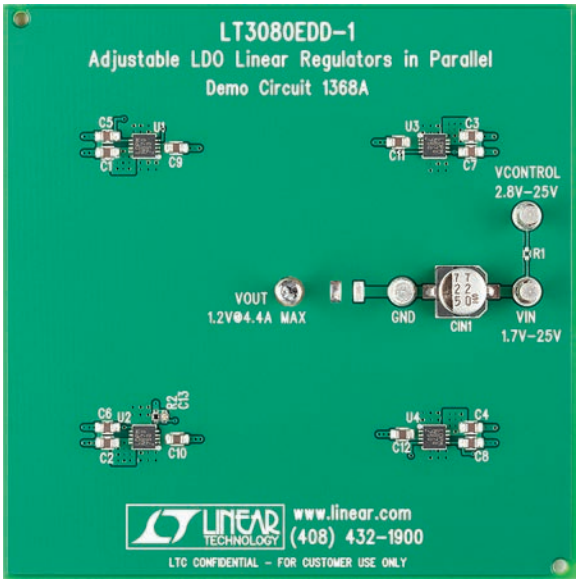
LT3081: Wide Safe Operating Area (SOA)

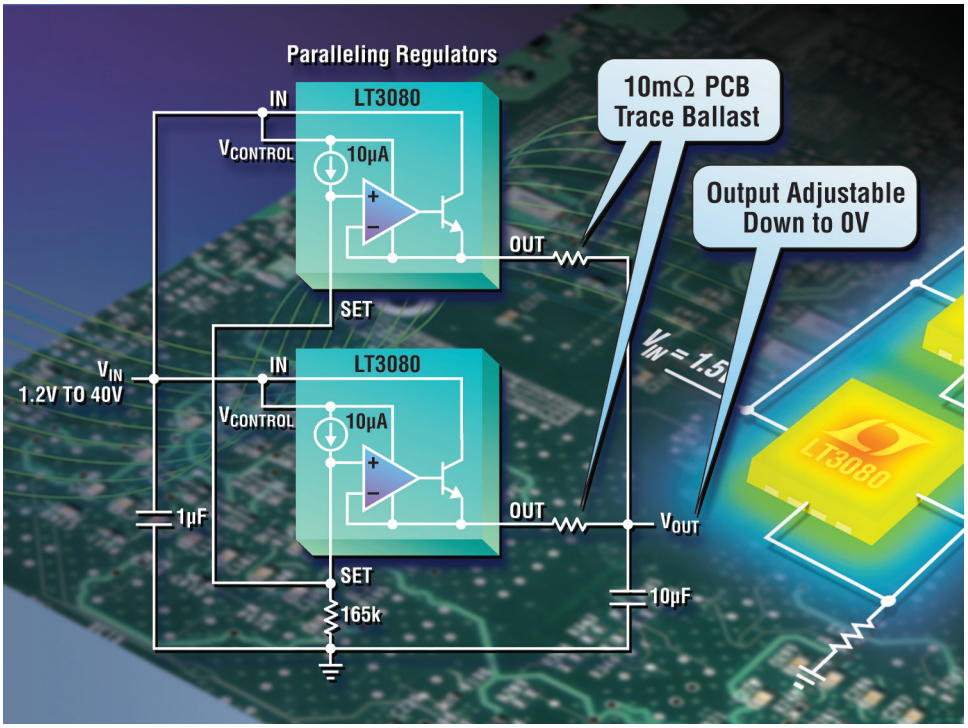


LT3083: Adjustable 3A Single Resistor Low Dropout Regulator



LT3080 Actual Size Demo Board





Part Number	Output Current (A)	Min V_{IN} (V)	Max V_{IN} (V)	Reference Current (µA)	Dropout Voltage (V@I_{OUT})	Typ I_Q (Supply) (µA)	Output Voltage (V)	Noise (μV_{RMS}) w/ C_{SET}	Temperature Grade	Package
0V Output Capable, Single-Resistor Set, Current Reference-Based NPN Positive Linear Regulators										
LT3082 §	0.2	1.2	40	10	1.30	500µA	Adj (0 to 38.5)	33	E I MP	3x3 DFN-8, TSOT-23-8, SOT-223
LT3085	0.5	1.2	36	10	0.275‡	1mA	Adj (0 to 35.7)	33	E I MP	2x3 DFN-6, MSOP-8E
LT3080	1.1	1.2	36	10	0.35‡ (1.35, SOT-223)	1mA	Adj (0 to 35.7)	40	E I	3x3 DFN-8, MSOP-8E, SOT-223, TO-220, DD-Pak
LT3080-1*	1.1	1.2	36	10	0.35‡	1mA	Adj (0 to 35.7)	40	E I	3x3 DFN-8, MSOP-8E
LT3081#¤	1.5	1.2	36	50	1.23	1.1mA	Adj (0 to 34.5)	40	E I	4x4 DFN-12, TSSOP-16E, TO-220, DD-Pak
LT3086#§¤	2.1	1.4	40	50	0.33	1.2mA	Adj (0.4 to 32)	40	E I MP	4x5 DFN-16, TSSOP-16E, TO-220, DDPak
LT3083	3	1.2	8/18†	50	0.31‡	1mA	Adj (0 to 7.5 or 0 to 17.5†)	40	E I MP	4x4 DFN-12, TSSOP-16E, TO-220, DD-Pak

* Integrated Ballast Resistor † DD-Pak and TO-220 Packages ‡ Dual-Supply Operation #Power Good § PNP pass transistor ¤ LDO+

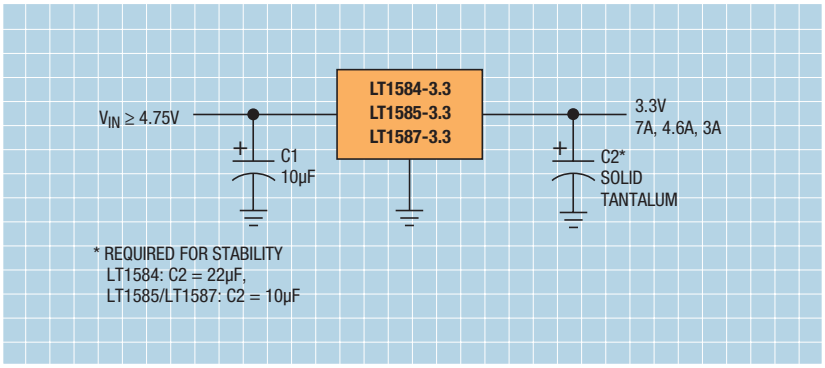
Part Number	Output Current Range (mA)	Initial Accuracy (%)	Min V_{IN} (V)	Max V_{IN} (V)	Current Regulation (ppm/V)	Quiescent Current (µA)	Reverse Voltage Protection	Reverse Current Protection	Current Limiting	Thermal Protection	Temperature Grade	Package
Current Sources												
LM334	1µA to 10mA	3	0.8	40	200	280	—	yes	—	—	C	TO-92, SO-8
LT3092	0.5 to 200	1	1.2	40	<10	300	yes	yes	yes	yes	E I MP	TSOT-8, SOT-223, 3x3 DFN-8

NPN Positive Linear Regulators

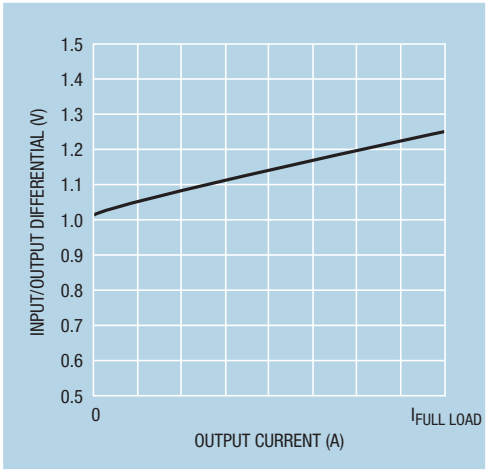
First generation NPN positive linear regulator family:

- Based on Classic 3-Terminal Architecture
- Wide Input Voltage
- Wide Output Voltage

LT®1584/5A/7: Low Dropout Fast Response Positive Regulator Adjustable & Fixed



Dropout Voltage vs Output Current



Part Number	Output Current (A)	Min V_{IN} (V)	Max V_{IN} (V)	Reference Voltage (V)	Dropout Voltage ($V@I_{OUT}$)	Typ I_Q (Supply) (mA)	Output Voltage (V)	Noise (μV_{RMS}) or % of V_{OUT}	Temperature Grade	Package
NPN Positive Linear Regulators										
LT1117	0.8	2.5	15	1.25	1.20	5	Adj, 2.85, 3.3, 5	0.003%	C I	DD-Pak, SOT-223
LT1118	–0.4/0.8	3.0	15	1.225	1.00	0.6	Adj, 2.5, 2.85, 5	–	C	SO-8, SOT-223
LT1086	1.5	2.6	25	1.25	1.30	5	Adj, 2.85, 3.3, 3.6, 5, 12	0.003%	C I	DD-Pak, TO-220
LT1085	3	2.6	30	1.25	1.30	5	Adj, 3.3, 3.6, 5, 12	0.003%	C I	DD-Pak, TO-220, TO-3P
LT1587	3	2.7	7	1.25	1.20	8	Adj, 1.5, 3.3, 3.38, 3.45, 3.6	0.003%	C	DD-Pak, TO-220
LT1585	4.6	2.4	7	1.25	1.10	8	Adj, 1.5, 3.3, 3.38, 3.45, 3.6	0.003%	C	DD-Pak, TO-220
LT1585A	5	2.5	7	1.25	1.20	8	Adj, 1.5, 3.3	0.003%	C	DD-Pak, TO-220
LT1084	5	2.6	30	1.25	1.30	5	Adj, 3.3, 3.6, 5, 12	0.003%	C I	DD-Pak, TO-220, TO-3P
LT1584	7	2.5	7	1.25	1.25	8	Adj, 3.3, 3.38, 3.45, 3.6	0.003%	C I	DD-Pak, TO-220
LT1580	7	1.8*	6	1.25	0.54‡	10	Adj, 2.5	–	C I	DD-Pak, TO-220
LT1083	7.5	2.6	30	1.25	1.30	5	Adj, 3.3, 3.6, 5, 12	0.003%	C	DD-Pak, TO-220
LT1581	10	1.7*	6	1.25	0.43‡	10	Adj, 2.5	–	C	TO-220

* Dual-Supply Operation

Very Low Dropout (VLDO) Positive Linear Regulators

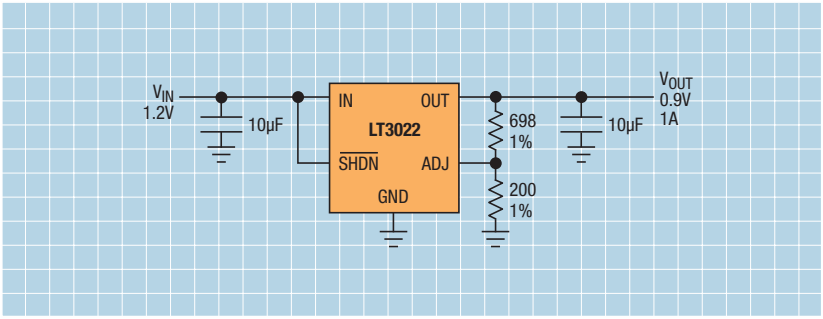
VLDO™ regulator family features:

- Input Voltage Operation Down to 0.9V
- Output Voltage Down to 0.2V
- Typical Dropout Performance ≤ 150mV Enabling low V_{IN}-to-V_{OUT} Differential Applications

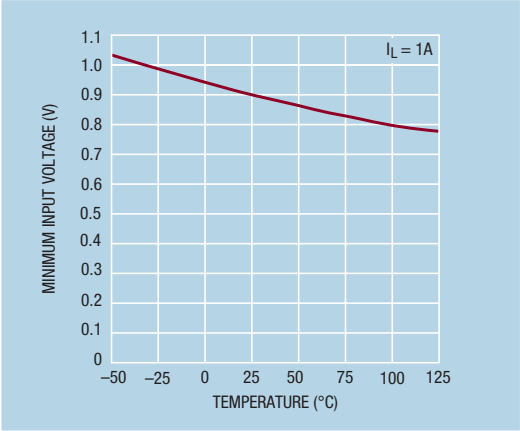
LT3022 Actual Size Demo Board

LTC3025-x Actual Size Demo Board

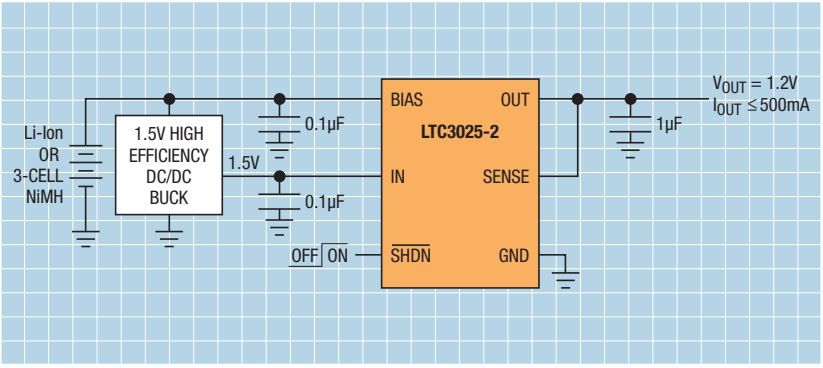
LT3022: 1A, 0.9V to 10V, Very Low Dropout Linear Regulator



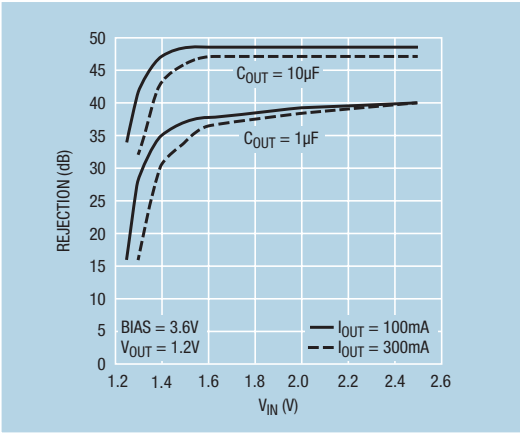
Minimum Input Voltage



LTC®3025-x: 500mA Positive Low Noise LDO Regulator



1MHz V_{IN} Supply Rejection



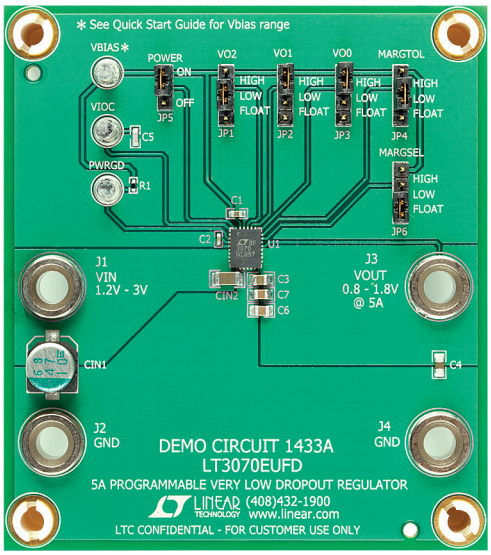
Part Number	Output Current (A)	Min V_{IN} (V)	Max V_{IN} (V)	Reference Voltage (V)	Dropout Voltage (V@I_{OUT})	Typ I_Q (Supply) (µA)	Output Voltage (V)	Noise (µV_{RMS}) or % of V_{OUT}	Temperature Grade	Package
VLDO Positive Linear Regulators										
LT3020	0.1	0.9	10	0.20	0.15	120	Adj (0.2 to 9.5), 1.2, 1.5, 1.8	245	E I	MSOP-8, 3x3 DFN-8
LTC1844	0.15	1.6	6.5	1.25	0.11	35	Adj (1.25 to 6), 1.5, 1.8, 2.5, 2.8, 3.3	60	E	TSOT-5
LTC3025	0.3	0.9	5.5	0.40	0.045	54	Adj (0.4 to 3.6)	80	E	2x2 DFN-6
LTC3035	0.3	1.7	5.5	0.40	0.05	100	Adj (0.4 to 3.6)	150	E	2x3 DFN-8
LT3021	0.5	0.9	10	0.20	0.16	120	Adj (0.2 to 9.5), 1.2, 1.5, 1.8	300	E I	5x5 DFN-16, SO-8
LTC3025-x	0.5	0.9	5.50	0.40	0.08	54	Adj (0.4 to 3.6), 1.2, 1.5, 1.8	80	E I	2x2 DFN-6
LT3022	1.0	0.95	10	0.20	0.15	400	Adj (0.2 to 9.5), 1.2, 1.5, 1.8	165	E I	3x5 DFN-16, TSSOP-16E
LTC3026‡	1.5	1.14	3.5/5.5	0.40	0.10	400#	Adj (0.4 to 2.6)	110* or 210†	E I	3x3 DFN-10, MSOP-10E

* Boost Disabled † Boost Enabled ‡ LDO+ # V_{IN} = 3.5V

NMOS Positive Linear Regulators for Digital IC Power

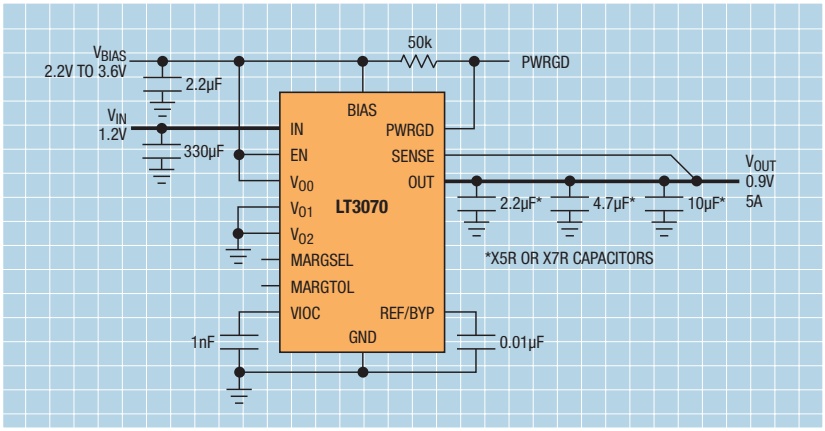
Our family of NMOS positive linear regulators has the performance demanded by modern high current, low voltage digital ICs:

- Ultrafast Transient Response
- Very Low Dropout Voltage
- High Output Current
- Low Output Voltage
- Good Power Supply Rejection Ratio (PSRR)
- VIOC—Control of Upstream Buck Regulator for V_{IN} to V_{OUT} Regulation across LT3070/71

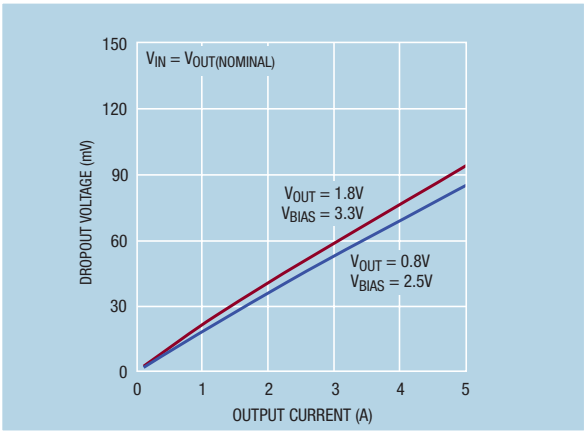


LT3070 Actual Size Demo Board

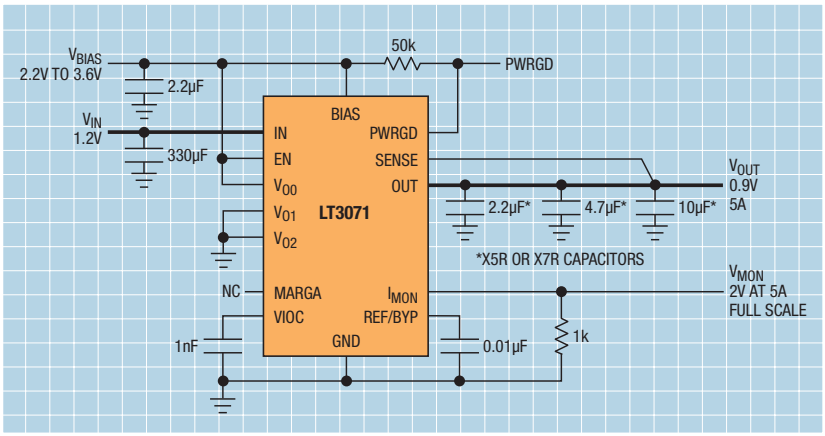
LT3070: 5A, Low Noise, Programmable Output, 85mV Dropout Linear Regulator



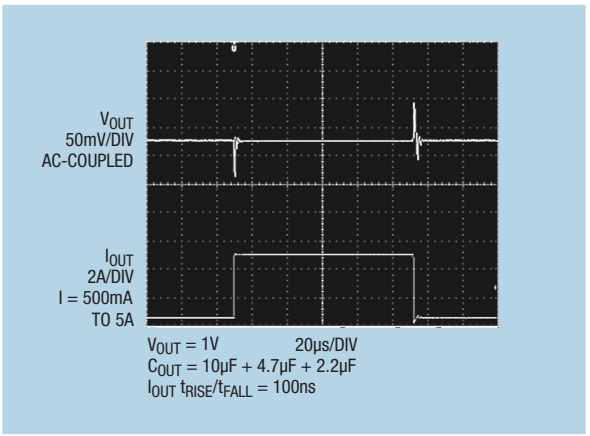
Dropout Voltage



LT3071: 5A, Low Noise, Programmable Output, 85mV Dropout Linear Regulator with Analog Margining



Transient Load Response



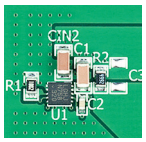
Part Number	Output Current (A)	Min V_{IN} (V)	Max V_{IN} (V)	Reference Voltage (V)	Dropout Voltage ($V@I_{OUT}$)	Typ I_Q (Supply) (µA)	Output Voltage (V)	Noise (μV_{RMS}) or % of V_{OUT}	Temperature Grade	Package
NMOS Positive Linear Regulators										
LT3070*‡#	5	0.95	3	0.6	0.09	1.1mA	Adj (0.8 to 1.8)	25	E I MP	4x5 QFN-28
LT3071†‡	5	0.95	3	0.6	0.09	1.1mA	Adj (0.8 to 1.8)	25	E I MP	4x5 QFN-28
LT3072‡§	2.5/2.5	0.9	4	0.6	0.085	1.5/1.5mA	Adj (0.6 to 3.3)	20	E I MP	4x7 QFN-36, TSSOP-38E

* Digital Margining † Analog Output Margining ‡ LDO+ #Power Good § Future product, contact factory for information.

Negative Linear Regulators

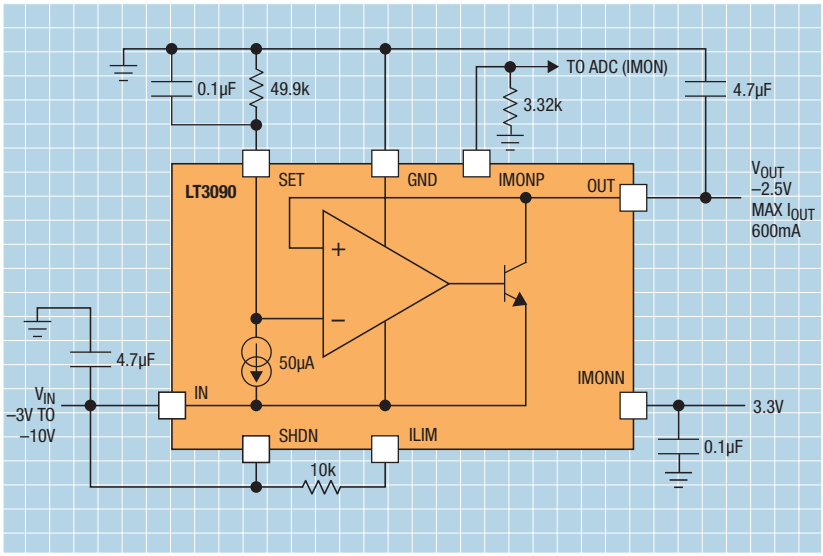
Rugged and hard to kill negative linear regulator family features:

- Low Output Voltage Noise
- Wide Voltage Range
- Low Dropout Voltage
- Reverse Output Protection

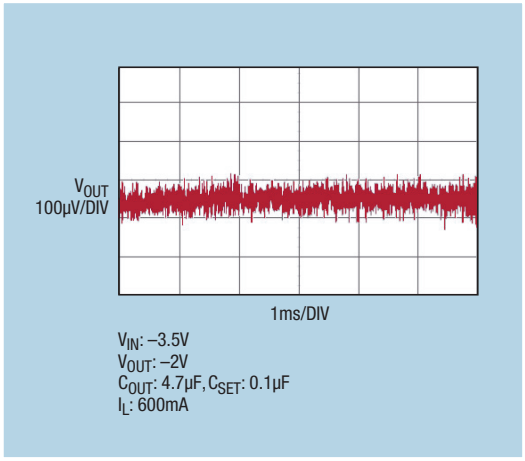


LT3090
Actual Size
Demo Board

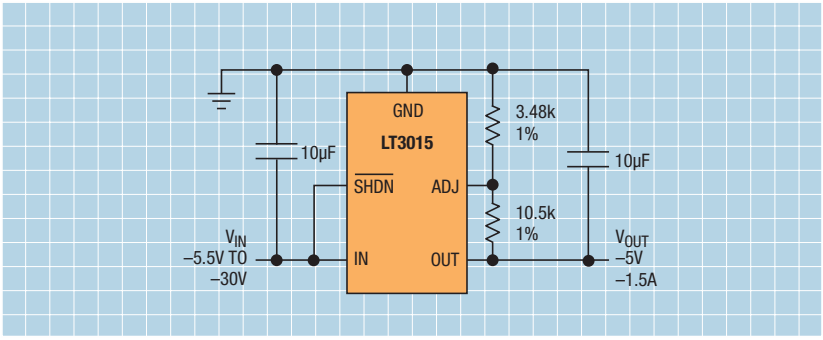
LT3090: 36V, 600mA Negative Linear Regulator with Programmable Current Limit



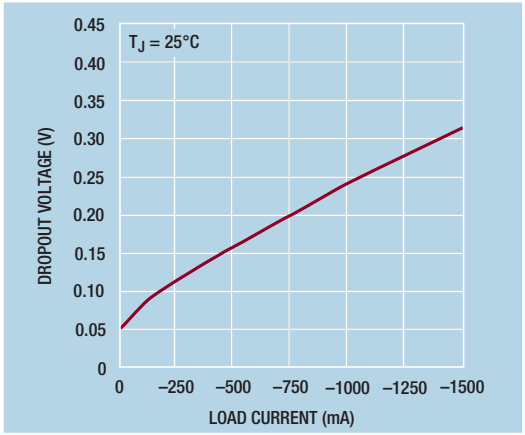
Output Noise: 10Hz to 100kHz



LT3015: 1.5A, Low Noise, Negative LDO Regulator with Precision Current Limit



Dropout Voltage



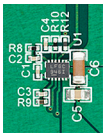
Part Number	Output Current (A)	Min V_{IN} (V)	Max V_{IN} (V)	Reference Voltage (V)	Dropout Voltage ($V@I_{OUT}$)	Typ I_Q (Supply) (µA)	Output Voltage (V)	Noise (μV_{RMS}) or % of V_{OUT}	Temperature Grade	Package
Negative Linear Regulators										
LT1964	0.2	–1.9	–20	–1.22	0.34	30	Adj, –5	30	E I	TSOT-5, 3x3 DFN-8
LT1175	0.5	–4.3	–20	–3.8	0.50	45	Adj, –5	134	C I MP	SOT-223, SO-8, DIP-8, DD-Pak, TO-220
LT3090*	0.6	–1.5	–36	50µA	0.30	1mA	Adj (0 to –32)	18	E I H MP	3x3 DFN-12, MSOP-12E
LT3015	1.5	–1.8	–30	–1.22	0.31	1.1mA	Adj (–1.22 to –30)	60	E I MP	DD-Pak, TO-220, MSOP-12E, 3x3 DFN-8
LT1185	3.0	–4.3	–35	–2.37	0.67	2.5mA	Adj (–2.37 to –30)	49	C I	DD-Pak, TO-220
Dual Output Positive and Negative Linear Regulators										
LT3032	±0.15	±1.9	±20	±1.22	0.30/-0.34	55	Adj, ±3.3, ±5, ±12, ±15	20 / 30	E I MP	3x4 DFN-14

* LDO+

Linear Regulator Controllers

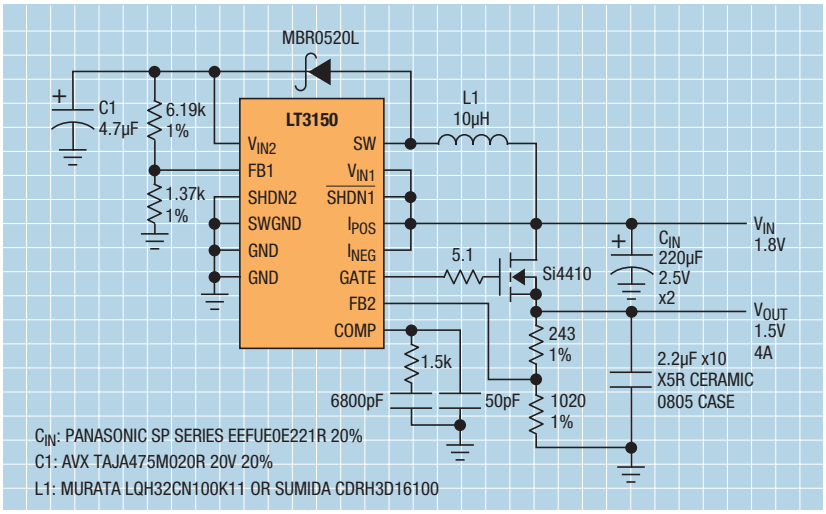
Linear regulator controller family features:

- An Off-Board Power Device
- Reduced On-Chip Power Dissipation
- Spreads Heat More Evenly on a PC Board

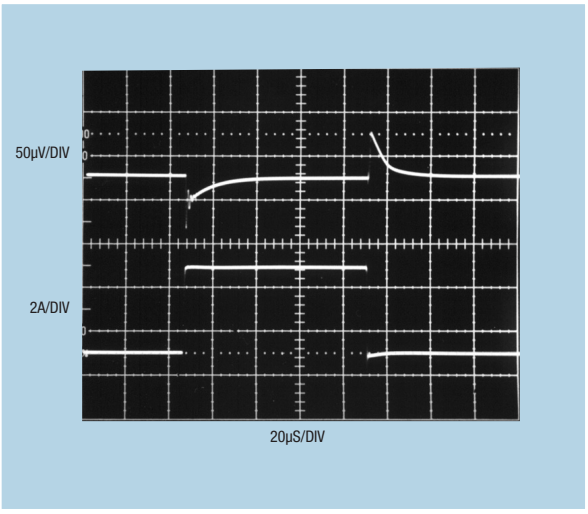


LT3150 Actual Size Demo Board

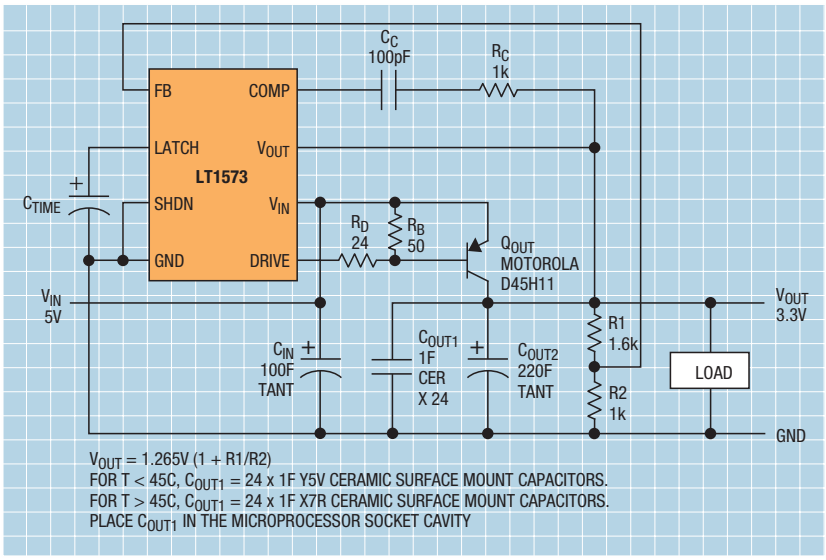
LT3150: Fast Transient Response, Low Input Voltage, LDO Controller



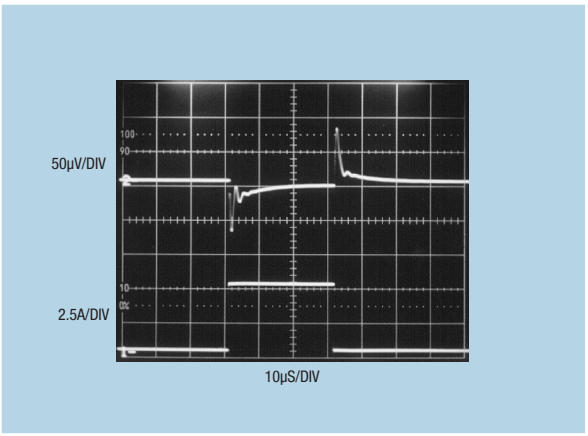
Transient Response for 0.1A to 4A Output Load Step



LT1573: Low Dropout Regulator Controller



Transient Response for 0.2A to 5A Output Load Step



Part Number	Output Current (A)	Min V_{IN} (V)	Max V_{IN} (V)	Reference Voltage (V)	Dropout Voltage ($V@I_{OUT}$)	Typ I_Q (Supply) (µA)	Output Voltage (V)	Noise (μV_{RMS}) or % of V_{OUT}	Temperature Grade	Package
Discrete Pass Element Drivers and Regulators—Very Low Dropout										
LT1123	3	n/a	30	5	–*	700	5	–	C	SOT-223, TO-92
LT1573	5*	2.8	10	1.265	–*	1.7mA	Adj, 2.5, 2.8, 3.3	–	C I	SO-8
LT3150	10*	1.4	10	1.23	0.13	12mA	Adj	–	C	SSOP-16
LT1575	–*	n/a	22	1.21	–*	12mA	Adj, 1.5, 2.8, 3.3, 5	–	C	DIP-8, SO-8
LT1577	–*	n/a	22	1.21	–*	12mA	Adj, 2.8, 3.3	–	C	SO-16

* Depends On Selection of External Pass Device

Radiation Hardened (RH) Linear Regulators

Linear Technology manufactures a broad range of rugged radiation tolerant (rad hard) voltage regulators that are ideal for space and military applications. We also partner with several outside vendors to provide monolithic packaged and hybrid products of Linear Technology RH DICE.

Part Number	Polarity	Output Current (A)	Max. V_{IN} (V)	Reference Voltage (Adj.)	Package
Radiation Hardened (Rad Hard or RH) Linear Regulators					
RH1084	Positive	5	25	1.25V	TO-3
RH1086M	Positive	0.5/1.5	25	1.25V	Dice, TO–3, TO–39
RH117	Positive	0.5/1.5	40	1.25V	Dice, TO–3, TO–39
RH137	Negative	1.5	–30	–1.25V	Dice, TO–3, TO–39
RH1573	Positive	5	10	1.265V	Dice
RH1185	Negative	3	–35	–2.37V	Dice
RH3080*	Positive	1	35	10uA	Dice
RH3083*	Positive	3	23	50µA	Dice

* Current Source Reference

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All reference materials listed above are available at **www.linear.com**

Videos / Video Product Briefs

LT3009 LT3015 LT3070/71 LT3080 LT3081 LT3086 LT3090 LT3092

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