

High Performance LDO Technology

Ultralow Noise LDO Voltage Regulators

Discover Analog Devices' (ADI) best-in-class ultralow noise low dropout (LDO) linear regulators, setting the industry standard where performance matters most. Our LDOs excel in three critical performance pillars:

- Noise and PSRR, providing unmatched noise suppression across a broad frequency spectrum
- Low quiescent current, guaranteeing extended battery life in portable devices
- Dropout voltage, ensuring the most efficient regulation even with minimal voltage differential

5.5 V, 3 A Ultralow Noise, High PSRR, 45 mV Dropout Linear Regulator with PMBus®

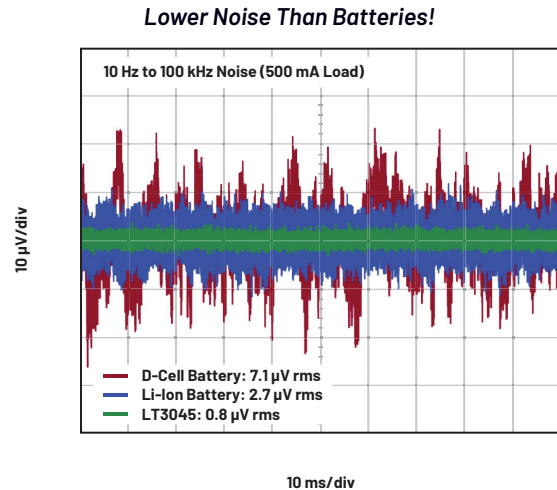
- Ultrafast LDO for RF power supplies, high speed/high precision data converters, low noise instrumentation, FPGAs, DSP, microprocessors, and medical applications
- Unity-gain and precision current source reference architecture that allows easy direct output paralleling
- PMBus-compliant serial interface and commands for control, telemetry, and fault warnings



For more information on Analog Devices high performance LDO regulators, visit analog.com/LDO.

Ultralow Noise LDO Regulators

- Industry's lowest noise 20 V LDO with just 0.8 $\mu\text{V rms}$
- Enable systems to perform at their peak without the interference of power supply noise:
 - Minimize phase noise in PLLs
 - Reduce jitter in clock generators
 - Ensure stability in VCOs



Lowest Noise LDO Voltage Regulators

	Part Number	$V_{\text{IN Max}}$ (V)	$V_{\text{OUT Range}}$ (V)	I_{OUT} (A)	I_{O} (mA)	PSRR (dB)	Noise ($\mu\text{V rms}$)	AEC-Q100	Enable	$V_{\text{OUT Control}}$	Package (mm)
5.5 V Input	ADP151	2.2 to 5.5	1.1 to 3.3	0.2	0.01	55	9	Yes	Yes	Fixed	0.8 × 0.8, 4-ball WLCSP 2 × 2, 6-lead LFCSP 5-lead TSOT
	ADM7170	2.3 to 6.5	1.2 to 6.4	0.5	0.7	60	5	No	Yes	Fixed/ voltage divider	3 × 3, 8-lead LFCSP
	ADM7155/ ADM7154	2.3 to 5.5	1.2 to 3.4	0.6	4	95	1.6	No	Yes	Fixed/ voltage divider	3 × 3, 8-lead LFCSP 8-lead SOIC
	MAX38914/ MAX38913	1.8 to 5.5	0.6 to 5	1	1.37	60	4	No	Yes	Fixed/ digital pins	1.9 × 1.3, 12-ball WLP 3 × 3, 12-lead TDFN
	ADP1761	1.1 to 1.98	0.5 to 1.5	1	4.5	51	2	Yes	Yes	Fixed and single resistor	3 × 3, 16-lead LFCSP
	ADP1762	1.1 to 1.98	0.5 to 1.5	2	4.5	46	2	Yes	Yes	Fixed and single resistor	3 × 3, 16-lead LFCSP
	ADP1763	1.1 to 1.98	0.5 to 1.5	3	4.5	43	2	Yes	Yes	Fixed and single resistor	3 × 3, 16-lead LFCSP
	LT3074	0.6 to 5.5	0.1 to 5.5	3	4.6	55	1.2	No	Yes	Single resistor	3 × 4, 22-lead LQFN
	LT3073	0.6 to 5.5	0.5 to 4.2	3	4.3	55	1.2	No	Yes	Digital pins	3 × 4, 22-lead LQFN
	LT3077	0.6 to 5.5	0.5 to 4.2	3	4.3	53	1.2	No	Yes	Digital pins	3 × 3, 18-lead LFCSP
	ADP1764	1.1 to 1.98	0.5 to 1.5	4	5	46	2	No	Yes	Fixed and single resistor	3 × 3, 16-lead LFCSP
	ADP1765	1.1 to 1.98	0.5 to 1.5	5	5	43	2	No	Yes	Fixed and single resistor	3 × 3, 16-lead LFCSP
	LT3078	0.6 to 5.5	0.5 to 4.2	5	4.3	50	1.3	No	Yes	Digital pins	3 × 4, 22-lead LQFN

Lowest Noise LDO Voltage Regulators (Continued)

	Part Number	V _{IN} Max (V)	V _{OUT} Range (V)	I _{OUT} (A)	I _O (mA)	PSRR (dB)	Noise (μV rms)	AEC-Q100	Enable	V _{OUT} Control	Package (mm)
6 V to 20 V Input	LT3040	1.8 to 20	0 to 15	0.2	2.5	75	1.2	No	Yes	Single resistor	3 × 3, 10-lead DFN
	LT3042	2 to 20	0 to 15	0.2	2	78	0.8	Yes	Yes	Single resistor	3 × 3, 10-lead DFN
	LT3046	2.2 to 20	0.2 to 19	0.2	3.7	81	0.8	No	Yes	Single resistor	3 × 3, 12-lead DFN 1.6 × 1.7, 11-ball WLSCP
	LT3045/ LT3045-1	2 to 20	0 to 15	0.5	2.2	77	0.8	Yes	Yes	Single resistor	3 × 3, 10-lead DFN 12-lead MSOP
	ADM7150/ ADM7151	4.5 to 16	1.5 to 5.1	0.8	4.3	91	1.6	No	Yes	Fixed/ voltage divider	8-lead LFCSP 8-lead SOIC
	LT3041	2.2 to 20	0.2 to 15	1	4.3	77	1	No	Yes	Single resistor	4 × 3, 14-lead DFN
21 V to 40 V Input	ADP7142	2.7 to 40	1.2 to 39.8	0.2	0.05	68	11	Yes	Yes	Fixed/ voltage divider	2 × 2, 6-lead LFCSP 8-lead SOIC 5-lead TSOT
	LT3065/ LT3066	1.8 to 45	0.6 to 19	0.5	0.055	54	25	Yes	Yes	Fixed/ voltage divider	3 × 4, 12-lead DFN 12-lead MSOP
	LT3088/ LT3089	1.2 to 36	0 to 34.5	0.8	0.05	32	27	No	No	Fixed/ single resistor	4 × 4, 12-lead, DFN 16-lead TSSOP 7-lead DD-Pak
	LT3081	1.2 to 36	0 to 34.5	1.5	0.05	28	27	No	No	Fixed/ single resistor	4 × 4, 12-lead, DFN 16-lead TSSOP 7-lead DD-Pak 7-lead TO-220
40 V to 60 V Input	LT3061	1.6 to 45	3.3 to 19	0.1	0.045	28	30	No	Yes	Fixed/ voltage divider	2 × 3, 8-lead DFN 8-lead MSOP
	LT3062/ LT3063	1.6 to 45	0.6 to 40	0.2	0.045	30	30	No	Yes	Fixed/ voltage divider	2 × 3, 8-lead DFN 8-lead MSOP
	LT3065/ LT3066	1.6 to 45	0.6 to 40	0.5	0.055	18	25	Yes	Yes	Fixed/ voltage divider	3 × 3, 10-lead DFN 12-lead MSOP
Inverting LDO	ADP7183	-5.5 to -2	-0.5 to -5	0.3	0.6	50	4	No	Yes	Fixed and voltage divider	2 × 2, 8-lead LFCSP
	ADP7185	-5.5 to -2	-0.5 to -5	0.5	0.6	50	5	No	Yes	Fixed and voltage divider	2 × 2, 8-lead LFCSP
	LT3093	-1.8 to -20	0 to -19.5	0.2	2.35	76	0.8	No	Yes	Voltage divider	6 × 3, 22-lead DFN
	LT3094	-1.8 to -20	0 to -19.5	0.5	2.35	75	0.8	No	Yes	Voltage divider	6 × 3, 22-lead DFN
	LT3091	-1.5 to -36	0 to -32	1.5	1.2	35	18	No	Yes	Single resistor	4 × 3, 14-lead DFN 16-lead TSSOP 7-lead TO-220

Ultralow Quiescent Current LDOs

- Crucial for applications where energy efficiency is paramount
- Less power consumed when in standby or idle mode, extending battery life
- Applications: IoT devices, wearables, portable electronics
- Low I_Q LDOs improve efficiency in low power circuits for industrial, automotive, and battery-powered systems

Discharge Time of 1-Cell Li-Ion 900 mAh Battery

	ADP162	LD01	LD02
Load (mA)	5	5	5
I_Q (μ A)	5	100	1000
Discharge Time (h)	806	735	405

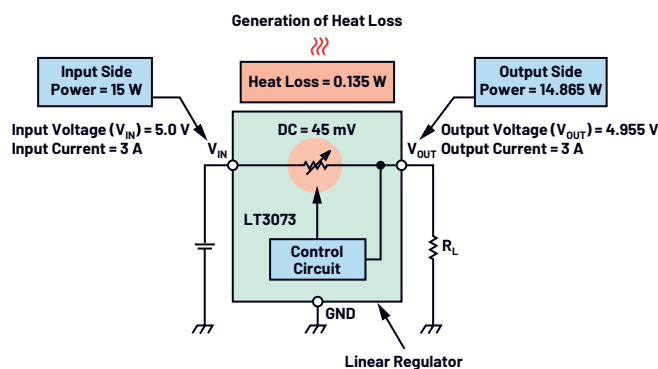
Note: LD01 and LD02 serve as examples of LDOs with higher quiescent current, illustrating their effect on battery operating time.

Ultralow Quiescent Current LDO Voltage Regulators

	Part Number	V_{IN} Range (V)	V_{OUT} Range (V)	I_{OUT} (A)	I_Q (μ A)	PSRR (dB) 100 kHz	Noise (μ V rms)	V_{OUT} Control	Package (mm)
5.5 V Input	ADP165/ADP166	2.2 to 5.5	1.2 to 3.3	0.15	0.59	32	105	Fixed	5-lead TSOT 2 × 2, 6-lead LFCSP 4-ball WLCSP
	ADP162/ADP163	2.2 to 5.5	1 to 4.2	0.15	0.59	32	100	Voltage divider	5-lead TSOT 2 × 2, 6-lead LFCSP 4-ball WLCSP
	ADP151	2.2 to 5.5	1.1 to 3.3	0.2	10	55	9	Fixed	5-lead TSOT 2 × 2, 6-lead LFCSP 4-ball WLCSP
	MAX38911/ MAX38912	1.7 to 5.5	0.8 to 5	0.5	20	60	11	Fixed/ voltage divider	2 × 2, 8-lead TDFN 6-ball WLP
6 V to 20 V Input	MAX1725/ MAX1726	2.5 to 12	1.5 to 5	0.02	2	52	350	Fixed/ voltage divider	5-lead SOT-23
	LT3009	1.6 to 20	0.6 to 19.5	0.02	3	32	150	Fixed/ voltage divider	2 × 2, 6-lead DFN 8-lead SC70
	ADPL42001	4 to 20	0.6 to 18	0.1	8	45	—	Voltage divider	3 × 3, 6-lead TDFN 6-lead TSOT
	MAX8880/ MAX8881	2.5 to 12	1.25 to 5	0.2	3.5	—	300	Fixed/ voltage divider	6-lead SOT-23 6-lead TDFN
	LT1521	4.3 to 20	3 to 19.5	0.3	12	33	—	Fixed/ voltage divider	8-lead MSOP 8-lead SOIC 3-lead SOT-223
	MAX604	2.7 to 11.5	1.25 to 11	0.5	15	41	250	Fixed/ voltage divider	8-lead DIP 8-lead SOIC
21 V to 40 V Input	ADPL44001	4 to 40	0.6 to 38	0.1	8	45	—	Voltage divider	3 × 3, 6-lead TDFN 6-lead TSOT
	MAX1615/ MAX1616	4 to 28	1.24 to 28	0.03	6.2	35	—	Fixed/ voltage divider	5-lead SOT-23
Negative Input	MAX664	-2 to -16.5	-1.3 to -15	0.04	12	20	—	Fixed/ voltage divider	8-lead DIP 8-lead SOIC
	LT1964	-1.9 to -20	-1.22 to -20	0.2	30	27	30	Fixed/ voltage divider	5-lead SOT-23 3 × 3, 8-lead DFN

Very Low Dropout Voltage Regulators

- Ability to efficiently regulate with minimal voltage difference between input and output
- Reduction of power consumption due to the smaller voltage difference loss
- Maximizing battery life and enhancing power efficiency (output voltage stable when the battery voltage approaches the output voltage level)



Very Low Dropout Voltage Regulators

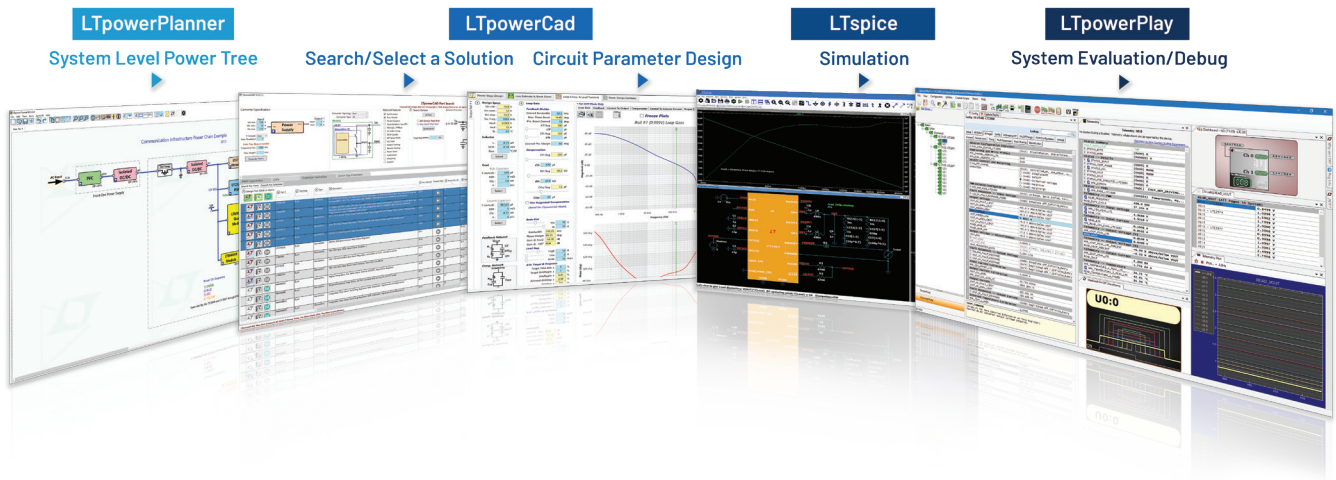
	Part Number	V_{IN} Range (V)	V_{OUT} Range (V)	I_{OUT} (A)	LDO (mV)	PSRR (dB) 100 kHz	Noise (μ V rms)	V_{OUT} Control	Package (mm)
5.5 V Input	LTC3025	0.9 to 5.5	0.4 to 3.6	0.3	45	48	80	Voltage divider	2 × 2, 6-lead DFN
	MAX38902A/ MAX38902B/ MAX38902C/ MAX38902D	1.7 to 5.5	0.6 to 5.3	0.5	50	60	10.5	Fixed/digital pins/ voltage divider	2 × 2, 8-lead TDFN 6-ball WLP
	MAX38902E	1.7 to 5.5	0.8 to 5	0.5	50	45	10.5	Voltage divider	2 × 2, 8-lead TDFN
	ADM7170	2.3 to 6.5	1.2 to 5	0.5	42	60	5	Fixed/voltage divider	3 × 3, 8-lead LFCSP
	MAX38913/ MAX38914	1.8 to 5.5	0.6 to 5	1	28	60	4	Fixed/digital pins	3 × 3, 12-lead TDFN 12-ball WLP
	MAX38909	0.9 to 5.5	0.6 to 5	2	42	42	21.2	Voltage divider	3 × 3, 14-lead TDFN 15-ball WLP
	LT3073/ LT3074	0.6 to 5.5	0.5 to 4.2	3	45	58	1.2	Digital pins/single resistor	3 × 4, 22-lead LQFN
6 V to 20 V Input	ADP1764	1.1 to 1.98	0.5 to 1.5	4	47	46	2	Fixed/single resistor	3 × 3, 16-lead LFCSP
	LT3020	0.9 to 10	0.2 to 9.7	0.1	150	20	245	Fixed/voltage divider	3 × 3, 8-lead DFN 8-lead MSOP
	ADP7112/ ADP7118	2.7 to 20	1.2 to 19.8	0.2	200	68	11	Fixed/voltage divider	6-ball WLCSP 2 × 2, 6-lead LFCSP 8-lead SOIC 5-lead TSOT
	ADP7102	3.3 to 20	1.2 to 19.8	0.3	200	50	15	Fixed/voltage divider	3 × 3, 8-lead LFCSP
	LT3021	0.9 to 10	0.2 to 9.7	0.5	155	45	300	Fixed/voltage divider	5 × 5, 16-lead DFN 8-lead SOIC
	LT3022	0.9 to 10	0.2 to 9.7	1	145	42	165	Fixed/voltage divider	5 × 3, 16-lead DFN 16-lead MSOP
	LT3033	0.95 to 10	0.2 to 9.7	3	95	30	160	Voltage divider	3 × 4, 20-lead QFN
21 V to 40 V Input	LT3007/ LT3008	2 to 45	0.6 to 44.5	0.02	300	33	92	Fixed/voltage divider	8-lead SOT-23 2 × 2, 6-lead DFN
	ADP1720	4 to 28	1.22 to 5	0.05	275	52	124	Fixed/voltage divider	8-lead MSOP
	LT3060/ LT3061	1.6 to 45	0.6 to 19	0.1	250	28	30	Fixed/voltage divider	2 × 3, 8-lead DFN 8-lead MSOP
	ADP7142	2.7 to 40	1.2 to 39.8	0.2	200	68	11	Fixed/voltage divider	2 × 2, 5-lead LFCSP 8-lead SOIC 5-lead TSOT
	LT3065/ LT3066	1.8 to 45	0.6 to 19	0.5	300	22	25	Fixed/voltage divider	3 × 4, 12-lead DFN 12-lead MSOP
Negative Input	MAX1735	-2.5 to -6.5	-1.25 to -5.5	0.2	85	28	160	Fixed/voltage divider	5-lead SOT-23
	ADP7183	-2 to -5.5	-0.5 to -5	0.3	600	62	4	Fixed/voltage divider	8-lead LFCSP
	LT3093	-1.8 to -20	0 to -19.5	0.2	10	77	0.8	Voltage divider	6 × 3, 22-lead DFN
	ADP7185	-2 to -5.5	-0.5 to -5	0.5	600	50	4	Fixed	2 × 2, 8-lead LFCSP

Power Management Tools

Analog Devices offers complete power management tools to make designing power system and circuits easier with good quality. Use the LTpowerPlanner tool for system-level power tree design, start with the LTpowerCAD® tool to find solutions and optimize supply designs, and use LTspice® for circuit simulations.



ADI Power



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