

Input Voltage Range (VDC)	Primary Output Voltage @ Maximum Current (VDC @ A)	Output Power Maximum (W)	Mounting Type	Modular Orientation	Digi-Key Part No.	1	Price Each 25	100	Texas Instruments Part No.
16.0 - 38.0	7.0 @ 1.5	10.5	SMD	Horizontal	296-20279-ND◆	14.41	12.98	11.51	PT78ST107S
16.0 - 38.0	8.0 @ 1.5	12.0	SIP	Horizontal	296-20280-ND◆	14.41	12.98	11.51	PT78ST108H
16.0 - 38.0	8.0 @ 1.5	12.0	SMD	Horizontal	296-20281-ND◆	14.41	12.98	11.51	PT78ST108S
16.0 - 38.0	8.0 @ 1.5	12.0	SIP	Vertical	296-20282-ND◆	14.41	12.98	11.51	PT78ST108V
16.0 - 38.0	9.0 @ 1.5	13.5	SIP	Horizontal	PT78ST109H-ND	14.41	12.98	11.51	PT78ST109H
16.0 - 38.0	9.0 @ 1.5	13.5	SMD	Horizontal	296-20283-ND	14.41	12.98	11.51	PT78ST109S
16.0 - 38.0	9.0 @ 1.5	13.5	SIP	Vertical	296-20284-ND	14.41	12.98	11.51	PT78ST109V
16.0 - 38.0	10.0 @ 1.5	15.0	SMD	Horizontal	296-20285-ND◆	14.41	12.98	11.51	PT78ST110S
16.0 - 38.0	10.0 @ 1.5	15.0	SIP	Vertical	296-20286-ND	14.41	12.98	11.51	PT78ST110V
16.0 - 38.0	12.0 @ 1.5	18.0	SIP	Horizontal	PT78ST112H-ND◆	14.41	12.98	11.51	PT78ST112H
16.0 - 38.0	12.0 @ 1.5	18.0	SMD	Horizontal	PT78ST112S-ND◆	14.41	12.98	11.51	PT78ST112S
16.0 - 38.0	12.0 @ 1.5	18.0	SIP	Vertical	PT78ST112V-ND◆	14.41	12.98	11.51	PT78ST112V
16.0 - 38.0	13.9 @ 1.5	20.9	SIP	Horizontal	296-20287-ND	14.41	12.98	11.51	PT78ST114H
16.0 - 38.0	13.9 @ 1.5	20.9	SMD	Horizontal	296-20288-ND	14.41	12.98	11.51	PT78ST114S
16.0 - 38.0	13.9 @ 1.5	20.9	SIP	Vertical	296-20289-ND◆	14.41	12.98	11.51	PT78ST114V
16.0 - 38.0	15.0 @ 1.5	22.5	SIP	Horizontal	PT78ST115H-ND◆	14.41	12.98	11.51	PT78ST115H
16.0 - 38.0	15.0 @ 1.5	22.5	SMD	Horizontal	296-20290-ND◆	14.41	12.98	11.51	PT78ST115S
9.0 - 26.0	3.3 @ 1.5	5.0	SIP	Horizontal	PT78ST133H-ND◆	14.41	12.98	11.51	PT78ST133H
9.0 - 26.0	3.3 @ 1.5	5.0	SMD	Horizontal	PT78ST133S-ND	14.41	12.98	11.51	PT78ST133S
9.0 - 26.0	3.3 @ 1.5	5.0	SIP	Vertical	PT78ST133V-ND◆	14.41	12.98	11.51	PT78ST133V
9.0 - 38.0	5.25 @ 1.5	7.9	SMD	Horizontal	296-20291-ND◆	14.41	12.98	11.51	PT78ST135S
9.0 - 38.0	5.25 @ 1.5	7.9	SIP	Vertical	296-20292-ND◆	14.41	12.98	11.51	PT78ST135V
9.0 - 38.0	6.5 @ 1.5	9.8	SMD	Horizontal	296-20293-ND	14.41	12.98	11.51	PT78ST165S
9.0 - 38.0	6.5 @ 1.5	9.8	SIP	Vertical	296-20294-ND	14.41	12.98	11.51	PT78ST165V
16.0 - 28.0	12.0 @ 2.0	24.0	SIP	Vertical	PT78ST212V-ND◆	24.45	22.82	21.19	PT78ST212V
-9.0 - -30.0	-5.0 @ 1.5	7.5	SIP	Horizontal	PT79SR105H-ND◆	16.10	15.03	13.95	PT79SR105H
-9.0 - -30.0	-5.0 @ 1.5	7.5	SMD	Horizontal	PT79SR105S-ND	16.95	15.82	14.69	PT79SR105S
-9.0 - -30.0	-5.0 @ 1.5	7.5	SIP	Vertical	PT79SR105V-ND	16.20	15.12	14.04	PT79SR105V
-13.0 - -30.0	-9.0 @ 1.5	13.5	SIP	Horizontal	296-20295-ND	16.95	15.82	14.69	PT79SR109H
-13.0 - -30.0	-9.0 @ 1.5	13.5	SMD	Horizontal	296-20296-ND	16.95	15.82	14.69	PT79SR109S
-13.0 - -30.0	-12.0 @ 1.5	18.0	SIP	Horizontal	PT79SR112H-ND◆	16.95	15.82	14.69	PT79SR112H
-16.0 - -30.0	-12.0 @ 1.5	18.0	SMD	Horizontal	296-20297-ND◆	16.95	15.82	14.69	PT79SR112S
-16.0 - -30.0	-12.0 @ 1.5	18.0	SIP	Vertical	PT79SR112V-ND	16.20	15.12	14.04	PT79SR112V
-16.0 - -30.0	-15.0 @ 1.5	22.5	SIP	Horizontal	296-20298-ND◆	16.95	15.82	14.69	PT79SR115H
-19.0 - -30.0	-15.0 @ 1.5	22.5	SMD	Horizontal	296-20299-ND	16.95	15.82	14.69	PT79SR115S
-19.0 - -30.0	-15.0 @ 1.5	22.5	SIP	Vertical	296-20300-ND◆	16.20	15.12	14.04	PT79SR115V
-9.2 - -30.0	-5.2 @ 1.5	7.8	SIP	Horizontal	296-20301-ND	16.95	15.82	14.69	PT79SR152H
-9.2 - -30.0	-5.2 @ 1.5	7.8	SMD	Horizontal	296-20302-ND◆	16.95	15.82	14.69	PT79SR152S
-9.2 - -30.0	-5.2 @ 1.5	7.8	SIP	Vertical	296-20303-ND◆	16.20	15.12	14.04	PT79SR152V
4.75 - 14.0	3.6 @ 20.0	72.0	DIP	Horizontal	296-23227-ND◆	19.35	18.06	16.77	PTD08A020WAD

◆ RoHS Compliant

LINEAR TECHNOLOGY DC-DC μModule™ Family



These high-end point-of-load μModule regulators are complete solutions containing the DC-DC controller, MOSFETs, inductor, input and output bypass capacitors and compensation circuitry in only 2.25cm². Encapsulated in a 15mm x 15mm x 2.8mm LGA, the innovative packaging protects the solution from the corrosive effects of the outside environment and thermal enhancement provides a highly efficient heat removal mechanism. Resembling the size, form-factor and simplicity of a surface-mount IC, designing with this family of μModule POL solution requires no knowledge in switch mode power supplies, greatly simplifying the task of a digital circuit designer. Despite their small size, these μModule DC/DC regulators are capable of converting a wide range of input supplies from 2.3V to 28V to output voltages as low as 0.6V from 4A to 12A and higher. **Benefits:** • Complete Power Supply • On-Board Inductor • On-Board Power MOSFETs • On-Board DC/DC Controller and MOSFET Drivers • On-Board Compensation Circuit **Minimum Part Count:** • Each μModule converter needs only one resistor to set the output voltage from 0.6V to 5V. **LTM4600 & LTM4602:** The LTM4600, is a 10A μModule DC/DC intended for POL solution requiring simpler features. The LTM4602 is rated for 6A and has the same features, footprint and layout as the LTM4600. Each device is offered in two voltage options of 4.5V - 20V or 4.5V - 28V. **LTM4601 & LTM4603:** The LTM4601 is a full-featured 12A output μModule DC/DC solution. It includes PLL, tracking and margining and remote sensing. The LTM4603 is rated for 6A and has the same features, footprint and layout as the LTM4601. Each device is offered in two voltage options of 4.5V - 20V or 4.5V - 28V. They allow current sharing by paralleling the outputs of multiple devices for higher load current. **LTM4601-1 & LTM4603-1:** The LTM4601-1 and LTM4603-1 are identical to the LTM4601 and LTM4603, respectively, except the remote sense function is removed. **LTM4604:** LTM4604 is a complete 4A regulator system in a 9mm x 15mm LGA package. The device operates from an input supply range of 2.33V - 5.5V, regulates an output voltage from 0.8V - 5V, and achieves 93% efficiency when converting a 3.3V input to 2.5V output up to 4A. **LTM4605:** Is the first device in a new family of buck-boost products and operates from 4.5V - 20V, regulates an output voltage from 0.8V - 16V and delivers an output power up to 150W. **LTM4607:** Is a high efficiency switching mode buck-boost power supply. Package includes the switching controller, power FETs, and support components. Operating

over an input voltage range of 4.5V - 36V, the LTM4607 supports an output voltage range of 0.8V to 24V, set by a resistor. This high efficiency design delivers up to 5A continuous current in boost mode (10A in buck mode). Only the inductor, sense resistor, bulk input and output capacitors are needed to finish the design. **LTM4608:** Operates from a supply range of 2.375V - 5.5V and regulates the output voltage from 0.8V - 5V. The complete circuit is housed in 9mm x 15mm LGA package. **LTM4616:** A complete dual 2-phase 8A per channel switch mode DC/DC power regulator system in a 15mm x 15mm surface mount LGA package. Included in the package are the switching controller, power FETs, inductor and all support components. Operating from an input voltage range of 2.375V - 5.5V, the LTM4616 supports two outputs within a voltage range of 0.6V - 5V, each set by a single external resistor. This high efficiency design delivers up to 8A continuous current (10A peak) for each output. Only bulk input and output capacitors are needed, depending on ripple requirement. The part can also be configured for a two phase output at up to 16A. **LTM8020:** Is a complete 200mA, DC/DC step down power supply. Package includes the switching controller, power switches, inductor, and all support components. Operating over an input voltage range of 4V - 36V, the LTM8020 supports an output voltage range of 1.25V - 5V, set by a single resistor. Only bulk capacitors are needed to finish the design. **LTM8021:** A 36VIN 500mA, step-down DC/DC μModule. Included in the package are the switching controller, power switches, inductor and all support components. Operating over an input voltage range of 3V - 36V, the LTM8021 supports an output voltage range of 0.8V - 5V, set by a single resistor. Only an output and bulk input capacitor are needed to finish the design. **LTM8022:** Is a complete 1A, DC/DC step-down power supply. Package includes the switching controller, power switches, inductor, and all support components. Operating over an input voltage range of 3.6V - 36V, the LTM8022 supports an output voltage range of 0.8V - 10V, and a switching frequency range of 200kHz - 2.4MHz, each set by a single resistor. Only the bulk input and output filter capacitors are needed to finish the design. **LTM8023:** Is a complete 2A, DC/DC step-down power supply with an input voltage range of 3.6V - 36V. It will support an output voltage range of 0.8V - 10V, and a switching frequency range of 200kHz - 2.4MHz, each set by a single resistor.

Vin Min	Vin Max	Vout Min	Vout Max	Output Current (A)	Supply Current (mA)	Remote Current Sense Amp	Tracking	Temperature Range	Package	Digi-Key Part No.	1	Price Each 25	100
4.5	20	0.6	5	10	1.2	No	No	0°C - 70°C	104-LGA	LTM4600EV#PBF-ND	31.25	22.32	18.38
	20	0.6	5	10	1.2	No	No	-40°C - 85°C	104-LGA	LTM4600IV#PBF-ND	34.43	24.59	20.25
	28	0.6	5	10	1.2	No	No	0°C - 70°C	104-LGA	LTM4600HVEV#PBF-ND	38.25	27.32	22.50
	28	0.6	5	10	1.2	No	No	-40°C - 85°C	104-LGA	LTM4600HVIV#PBF-ND	42.08	30.05	24.75
	20	0.6	5	12	3.8	Yes	Yes	-40°C - 85°C	133-LGA	LTM4601AHVEV#PBF-ND NEW!	43.35	29.14	24.77
	20	0.6	5	12	3.8	Yes	Yes	-40°C - 85°C	133-LGA	LTM4601AHVIV#PBF-ND NEW!	47.68	32.06	27.26
	20	0.6	5	12	3.8	Yes	Yes	-40°C - 85°C	133-LGA	LTM4601AHVMPV#PBF-ND NEW!	65.53	57.50	48.88
	20	0.6	5	12	3.8	Yes	Yes	0°C - 70°C	118-LGA	LTM4601EV#PBF-ND	35.13	25.05	20.63
	20	0.6	5	12	3.8	No	Yes	0°C - 70°C	118-LGA	LTM4601EV-1#PBF-ND	33.90	24.21	19.94
	20	0.6	5	12	3.8	Yes	Yes	-40°C - 85°C	118-LGA	LTM4601IV#PBF-ND	38.58	27.55	22.69
	20	0.6	5	12	3.8	No	Yes	-40°C - 85°C	118-LGA	LTM4601IV-1#PBF-ND	37.30	26.64	21.94
	28	0.6	5	12	3.8	Yes	Yes	0°C - 70°C	118-LGA	LTM4601HVEV#PBF-ND	42.78	30.56	25.19
	28	0.6	5	12	3.8	Yes	Yes	-40°C - 85°C	118-LGA	LTM4601HVIV#PBF-ND	47.10	33.65	27.72
	20	0.6	5	6	1.2	No	No	0°C - 70°C	104-LGA	LTM4602EV#PBF-ND	25.40	18.14	14.94
	20	0.6	5	6	1.2	No	No	-40°C - 85°C	104-LGA	LTM4602IV#PBF-ND	27.95	19.96	16.44
	2.375	28	0.6	5	6	1.2	No	No	0°C - 70°C	104-LGA	LTM4602HVEV#PBF-ND	30.98	22.13
28		0.6	5	6	1.2	No	No	-40°C - 85°C	104-LGA	LTM4602HVIV#PBF-ND	34.10	24.36	20.06
20		0.6	5	6	3.8	Yes	Yes	0°C - 70°C	118-LGA	LTM4603EV#PBF-ND	28.70	20.49	16.88
20		0.6	5	6	3.8	No	Yes	0°C - 70°C	118-LGA	LTM4603EV-1#PBF-ND	27.53	19.66	16.19
20		0.6	5	6	3.8	Yes	Yes	-40°C - 85°C	118-LGA	LTM4603IV#PBF-ND	31.55	22.54	18.56
20		0.6	5	6	3.8	No	Yes	-40°C - 85°C	118-LGA	LTM4603IV-1#PBF-ND	30.28	21.63	17.82
28		0.6	5	6	25	Yes	Yes	0°C - 70°C	118-LGA	LTM4603HVEV#PBF-ND	35.00	24.99	20.59
28		0.6	5	6	25	Yes	Yes	-40°C - 85°C	118-LGA	LTM4603HVIV#PBF-ND	36.93	26.38	21.74
4.5	2.3	5.5	0.8	5	4	35	Yes	0°C - 70°C	66-LGA	LTM4604EV#PBF-ND	18.08	12.90	10.63
	20	0.8	16	5	2.8	No	No	-40°C - 85°C	141-LGA	LTM4605EV#PBF-ND NEW!	40.05	26.86	22.12
	20	0.8	16	5	2.8	No	No	-40°C - 85°C	141-LGA	LTM4605IV#PBF-ND	44.05	29.55	24.33
3.0	36	0.8	24	5	2.8	No	No	-40°C - 85°C	141-LGA	LTM4607EV#PBF-ND	45.60	30.79	25.35
	5.5	0.6	5	8	35	No	No	-40°C - 85°C	68-LGA	LTM4608EV#PBF-ND	50.38	33.87	27.89
	5.5	0.6	5	8	35	No	Yes	-40°C - 85°C	68-LGA	LTM4608IV#PBF-ND	26.43	18.86	15.53
	5.5	0.6	5	8	40	No	Yes	-40°C - 125°C	144-LGA	LTM4616EV#PBF-ND NEW!	41.33	27.79	23.62
	5.5	0.6	5	8	40	No	Yes	-40°C - 125°C	144-LGA	LTM4616IV#PBF-ND NEW!	45.48	30.57	26.00
4.0	36	1.25	5	0.2	.01	No	No	-40°C - 85°C	21-LGA	LTM8020EV#PBF-ND	10.50	7.07	5.82
	36	1.25	5	0.2	.01	No	No	-40°C - 85°C	21-LGA	LTM8020IV#PBF-ND NEW!	11.58	7.79	6.62
3.0	36	0.8	5	0.5	1.5	No	No	-40°C - 125°C	35-LGA	LTM8021IV#PBF-ND NEW!	13.68	9.20	7.82
	36	0.8	10	1	.085	No	No	-40°C - 125°C	50-LGA	LTM8022EV#PBF-ND	10.50	7.07	5.82
3.6	36	0.8	10	2	.085	No	No	0°C - 70°C	50-LGA	LTM8023EV#PBF-ND	16.90	11.36	9.35

More Product Available Online: www.digikey.com