

Thinner & Smaller Power Circuits for PCIe Boards

Ultrathin μ Module Power Products

1.82mm to 1.91mm LGA



16mm × 16mm × 1.91mm
LTM4631
DUAL 10A OR SINGLE 20A



15mm × 9mm × 1.82mm
LTM4643
QUAD 3A



6.25mm × 6.25mm × 1.82mm
LTM4622
DUAL 2.5A OR SINGLE 5A
LTM4623
SINGLE 3A
LTM4632
TRIPLE OUTPUT FOR DDR/QDR MEMORY



3.2mm × 1.6mm × 1.6mm
CERAMIC CAPACITOR
(1206 CASE SIZE)

Ultrathin Side View →

Benefits of Ultrathin μ Module Regulators

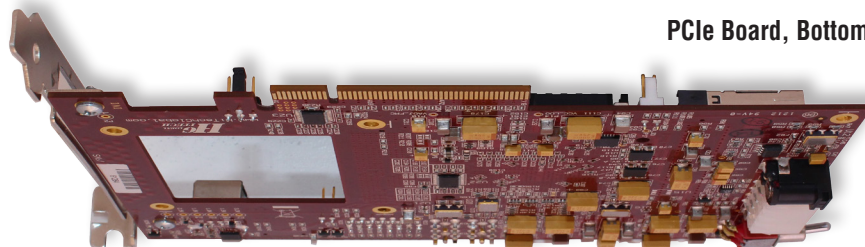
- 1) Place Near GPU, FPGA or ASIC *Under* Common Heat Sink or Liquid Cold Plate

PCIe Board, Side View



- 2) Place on *Backside* of PCB for More Room on Topside of PCB

PCIe Board, Bottom View



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Function	Number of Outputs	Input Voltage (V)		Output Voltage (V)		Output Current (A)	Parallelable Outputs** (Total I _{OUT})	Package Dimensions (mm)	Package	Part Number
		Min	Max	Min	Max					
Step-Down	1	4*	20	0.6	5.5	3	× 2 (6A)	6.25 × 6.25 × 1.82	LGA	LTM4623
	2	3.6*	20	0.6	5.5	Dual : 2.5	× 2 (10A)	6.25 × 6.25 × 2.42	BGA	LTM4622
	2	4.5	15	0.6	1.8	Dual : 10	× 2 (40A)	16 × 16 × 1.91	LGA	LTM4631
	4	4*	20	0.6	3.3	Quad : 3	× 1 (12A)	9 × 15 × 1.82	LGA	LTM4643
DDR Termination	3	3.6*	15	0.6	1.8	Dual 3A and 10mA for VREF	× 2 (12A)	6.25 × 6.25 × 1.82 6.25 × 6.25 × 2.42	LGA BGA	LTM4632

new
new

*See data sheet for lower voltage operation.

**Number of devices in parallel tested and verified by Linear Technology.

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Ultrathin μ Module Power Products

Ultrathin 1.82mm 20V_{IN} μ Module Regulators

The new family of ultrathin μ Module[®] regulators (power modules) are 1.82mm tall and designed to fit on the backside of a PCB or under an FPGA or CPU heat sink. This family is designed for 3.3VIN, 3VIN and 12VIN power rails used in PCIe and similar cards. The short package profile (height) meets the height restriction of PCIe cards for mounting these devices on the backside of the PCB. Another unique advantage is that Ultrathin μ Module regulators can be placed on a PCB very close to FPGAs or microcontrollers while sharing one heat sink (passive heat sink or liquid cooled cold plate) covering both the digital IC and the μ Module regulator.

Product	Number of Outputs	Vin Min (V)	Vin Max (V)	Output Current (A)	Vout Min (V)	Vout Max (V)	Packages	Parallelable Output Current (A)	Features	Package Height (mm)
<input type="checkbox"/> LTM4622 New	2	3.1	20	2.5	0.6	5.5	6.25mm x 6.25mm x 1.82mm LGA, 6.25mm x 6.25mm x 2.42mm BGA	x2 (5A)	Ultrathin Package, Resistor Set Frequency, External Synchronization, PolyPhase, Burst Mode, Power Good	1.82mm (6.25mm x 6.25mm x 1.82mm LGA), 2.42mm (6.25mm x 6.25mm x 2.42mm BGA)
<input type="checkbox"/> LTM4623 New Featured	1	4	20	3	0.6	5.5	6.25mm x 6.25mm x 1.82mm LGA, 6.25mm x 6.25mm x 2.42mm BGA	x2 (6A)	Ultrathin Package, Low EMI, EN55022 Class B Certified, Resistor Set Frequency, External Synchronization, PolyPhase, Tracking, Power Good	1.82mm (6.25mm x 6.25mm x 1.82mm LGA), 2.42mm (6.25mm x 6.25mm x 2.42mm BGA)
<input type="checkbox"/> LTM4632 New	3	3.1	15	3	0.6	2.5	6.25mm x 6.25mm x 1.82mm LGA, 6.25mm x 6.25mm x 2.42mm BGA		Ultrathin Package, PolyPhase, External Synchronization, Power Good, Burst Mode, Tracking	1.82mm (6.25mm x 6.25mm x 1.82mm LGA), 2.42mm (6.25mm x 6.25mm x 2.42mm BGA)
<input type="checkbox"/> LTM4643 New	4	4	20	3	0.6	3.3	15.00mm x 9.00mm x 1.82mm LGA		Ultrathin Package, Tracking, Power Good, External Synchronization	1.82mm (15.00mm x 9.00mm x 1.82mm LGA)
<input type="checkbox"/> LTM4631 (dual output) New Featured	2	4.5	15	10	0.6	1.8	16mm x 16mm x 1.91mm LGA	40A (x2)	Ultrathin Package, Differential Remote Sense, PolyPhase, Tracking, Resistor Set Frequency, External Synchronization, Temperature Monitor, Burst Mode, Power Good	1.82mm (16mm x 16mm x 1.91mm LGA)
<input type="checkbox"/> LTM4631 (single output) New Featured	1	4.5	15	20	0.6	1.8	16mm x 16mm x 1.91mm LGA	40A (x2)	Ultrathin Package, Differential Remote Sense, PolyPhase, Tracking, Resistor Set Frequency, External Synchronization, Temperature Monitor, Burst Mode, Power Good	1.82mm (16mm x 16mm x 1.91mm LGA)