



Synchronous Rail-to-Rail, Single Resistor Step-Down Regulator Sinks/Sources $\pm 5A$ from 0V to $14.5V_{OUT}$

MILPITAS, CA – August 16, 2016 – Linear Technology Corporation announces the [LTC3623](#), a $\pm 5A$ high efficiency, current mode synchronous buck regulator that is adjustable from 14.5V down to 0V output with a single resistor. Proven on Linear Technology's prior linear regulators and switching regulators, this innovative architecture uses a 50 μA current reference, combined with a single resistor, to set the output voltage. Its unique design enables easy current sharing between multiple regulators, setting the output voltage for all of the regulators with a single external resistor. The LTC3623's bipolar $\pm 5A$ sink and source capability, wide V_{IN} and V_{OUT} capability, current mode control for tight line and load regulation, high efficiency, low external parts count and parallel capability make it ideal for modern multirail systems, in addition to tracking supplies, ASIC substrate biasing, DDR memory supplies, point-of-load power supplies, portable instruments, distributed power supply systems, battery-powered equipment and thermo electric cooler systems.

The LTC3623's wide 4V to 15V input voltage range is ideal for dual-cell Li-Ion applications, and fixed 5V and 12V intermediate bus systems. Low $R_{DS(ON)}$ integrated N-channel power MOSFETs and synchronous rectification deliver efficiencies as high as 96%. The device's novel design allows dynamic adjustment of output voltage from 0V to $V_{IN} - 0.5V$, offering virtually rail-to-rail performance. The LTC3623's ability to sink up to 5A down to 0V_{OUT} enables it to power down individual rails in the system as needed. Its on-chip trimmed reference achieves high accuracy of $\pm 1\%$. Furthermore, output regulation and transient response are independent of output voltage. The user can directly drive the LTC3623's ISET pin with an external voltage supply to program the converter's V_{OUT} . Additionally, output voltage tracking or soft-start is easily programmed via the ISET pin for applications that require power sequencing.

The LTC3623's 400kHz to 4MHz switching capability enables the use of tiny, low cost capacitors and inductors, and combined with its compact QFN package, offers a very compact

solution footprint for multirail applications. Additional device features include: programmable wire drop compensation, an input supply voltage regulation loop for extracting power from high impedance sources such as solar panels, an output current monitor, a power good voltage monitor, external synchronization capability and thermal protection.

The LTC3623 is available in a thermally enhanced, 24-lead 3mm x 5mm QFN package, with both E and I grades specified for an operating junction temperature of $-40^{\circ}C$ to $125^{\circ}C$. Devices are in stock, and pricing for the E grade starts at \$3.95 each in 1,000-piece quantities. For more information, visit www.linear.com/product/LTC3623.

Photo Caption: 15V, $\pm 5A$ Monolithic Synchronous Step-Down Regulator Offers Outputs to 0V


Summary of Features: LTC3623

- Single Resistor Programmable V_{OUT} : 0V to $V_{IN} - 0.5V$
- ISET Accuracy: $\pm 1\%$
- Tight V_{OUT} Regulation Across V_{OUT} Range
- Output Current Monitor Accuracy: $\pm 5\%$
- Programmable Wire Drop Compensation
- Easy to Parallel for Higher Current & Heat Spreading
- Input Supply Voltage Regulation Loop
- High Efficiency: Up to 96%
- Output Current: $\pm 5A$
- Integrated Power N-MOSFETs (60m Ω Top & 30m Ω Bottom)
- Adjustable Switching Frequency: 400kHz to 4MHz
- V_{IN} Range: 4V to 15V
- Current Mode Operation for Excellent Line & Load Transient Response
- Shutdown Mode Draws Less Than 1 μA Supply Current
- Thermally Enhanced, 24-Lead 3mm x 5mm QFN Package

Pricing shown is for budgetary use only and may differ due to local duties, taxes, fees and exchange rates.

About Linear Technology

Linear Technology Corporation, a member of the S&P 500, has been designing, manufacturing and marketing a broad line of high performance analog integrated circuits for major companies worldwide for over three decades. The Company's products provide an essential bridge between our analog world and the digital electronics in communications, networking, industrial, automotive, computer, medical, instrumentation, consumer, and military and aerospace systems. Linear Technology produces power management, data conversion, signal conditioning, RF and interface ICs, μ Module[®] subsystems, and wireless sensor network products. For more information, visit www.linear.com

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