

Power ICs Extend Battery Life In Consumer, Industrial, Healthcare And IoT Designs

From [Maxim Integrated Products](#), the MAX17227A 2-A nanoPower boost converter, the MAX17291 high-voltage, 1-A boost converter and the MAX38911 500-mA LDO are said to provide the lowest quiescent current among competitive solutions to improve system efficiency and increase battery life. According to the vendor, designers can use these regulators to extend battery life and reduce solution size of consumer, industrial, healthcare and IoT systems (Fig. 1).

Next-generation systems must provide higher currents from small batteries to support advanced applications such as drug delivery, sensing, machine learning and artificial intelligence. Device limitations force developers into tradeoffs that either constrain functionality, shorten battery life or increase solution size. The three new Efficient Power ICs from Maxim's Essential Analog portfolio help ease these tradeoffs with both industry-leading lowest quiescent current and smallest solution size, says the company.

For battery-operated consumer accessories, IoT and medical wearable systems that need to boost power, the MAX17227A handles up to 2-A switch current, twice that of the closest competitive solution, while consuming half the quiescent current, at just 350 nA. This nanoPower boost converter features short-circuit protection, true shutdown and an input voltage range from 400 mV to 5.5 V, and it can extend battery system life up to 10%, according to the company (Fig. 2a).

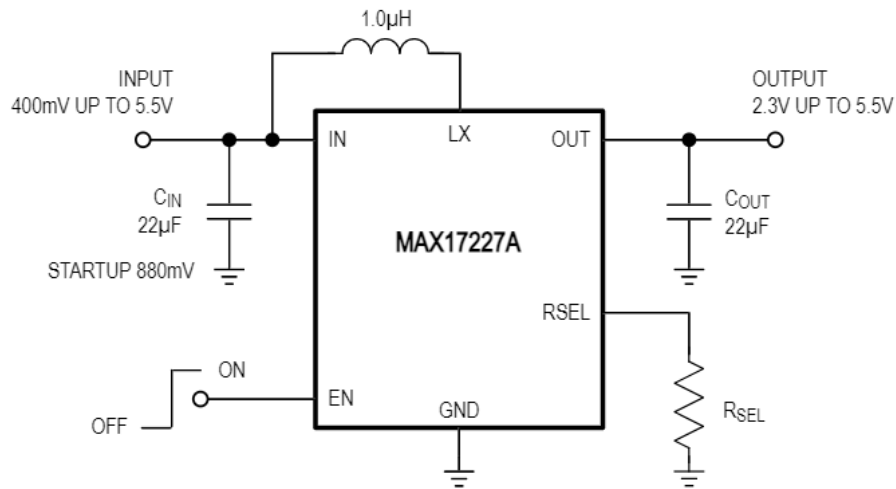
Delivering a high voltage boost up to 20 V, the MAX17291 offers a quiescent current that is said to be 80% lower and a solution size that is described as 60% smaller than the closest competitive offerings. Delivering up to 10X voltage conversion, this boost converter fits battery-operated systems with higher output voltage loads such as industrial energy hold-up, displays or sensors (Fig. 2b).

Described as up to 50% smaller than competitive solutions, the MAX38911 500-mV LDO for battery-operated IoT systems draws only 19 μ A during idle mode to extend battery life up to 10%. It also has the industry's best PSRR at a level 16 dB better than the closest competitor, according to Maxim, thus helping prevent noisy power supplies from interfering with critical functions such as precise measurements and communications (Fig. 3).

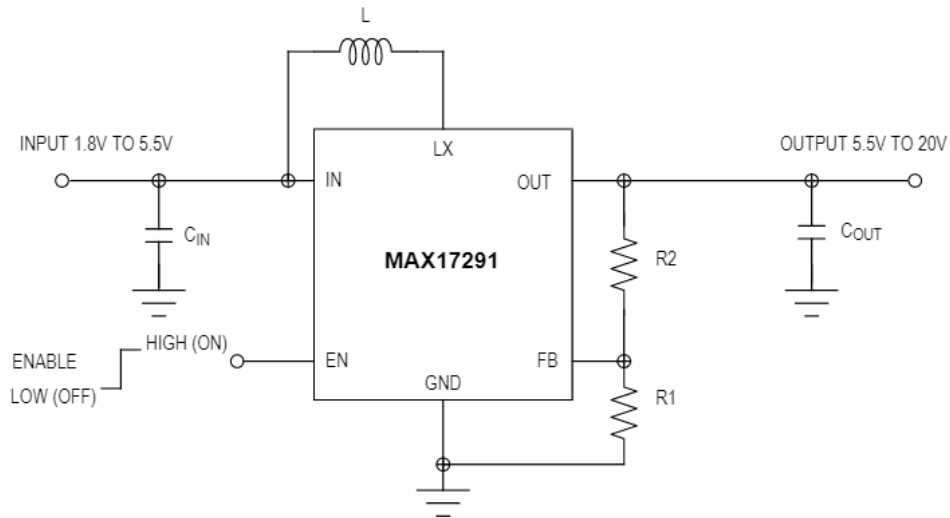
These device are available now from Maxim Integrated's website and from authorized distributors. In quantities of 1000, unit pricing is \$0.86 for the MAX17227A, \$0.74 for the MAX17291, \$0.67 for the MAX38911. Evaluation kits are also available for each device for \$69.99. In addition, [EE-Sim models](#) are available for the MAX17227A and MAX17291. For more information see the Essential Analog ICs [page](#) or individual product pages for the [MAX17227A](#), [MAX17291](#), and [MAX38911](#).



Fig. 1. The MAX17227A and MAX17291 boost converters and the MAX38911 LDO shrink size of battery-operated devices by offering what's described as the industry's lowest quiescent current and up to 50% smaller size than the closest competitive solutions. These devices also have features such as short-circuit protection and high PSRR to help IoT systems overcome disruptions in harsh environments.



(a)



(b)

Fig. 2. The MAX17227A shown in (a) is a 2-A nanoPower boost converter with short-circuit protection and true shutdown. The MAX17291 shown in (b) is a high-voltage, 1-A Micropower boost converter with short-circuit protection and true shutdown.

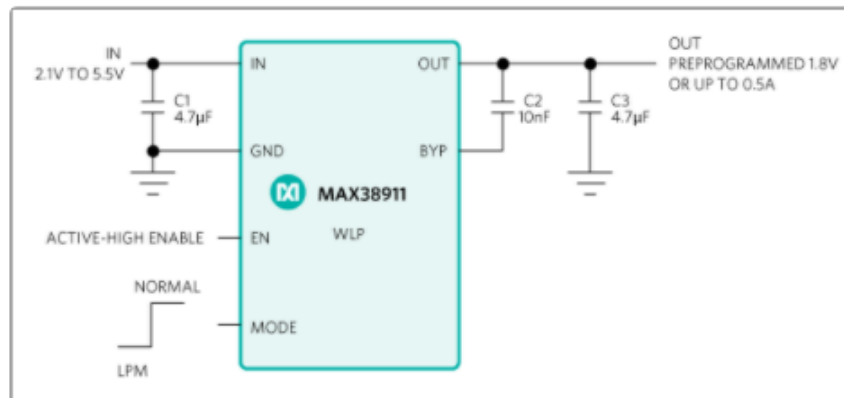


Fig. 3. The MAX38911 is an 11-µVRMS low-noise, 500-mA LDO linear regulator with low-power mode.