

Highly Integrated Switching Regulator Delivers Fast Transient Response

[Empower Semiconductor](#) has released data on its IVR EP7010 10-A Integrated Voltage Regulator (IVR), which was originally introduced last June but with performance data only available under NDA. The IVR EP7010 is said to achieve the world's fastest transient response times. It can regulate through a load step from zero to 10 A in 500 ns with <15-mV droop, with no output capacitors (see the figure). News about the introduction of the EP70xx Integrated Voltage Regulator family was reported in "[Voltage Regulator ICs Take Monolithic Integration To Another Level](#)" in the July issue of this newsletter.

According to Empower Semiconductor, the company's patented digitally configurable hardware platform has simplified the adoption of dc-dc converters for designers. With a single footprint, no external components, extensive programmability, a wide range of current and output configurations, power designers can proliferate the EP70xx regulators across nearly all designs and platforms. By having multiple entire power supplies in a single IC package, the usual concerns of component variation and sourcing, synchronization and stability are all either eliminated or reduced significantly, according to the vendor.

With its product platform, the EP70xx, Empower has achieved the total integration of a triple-output dc-dc power supply with no external components into a single tiny 5-mm x 5-mm package, attaining up to 10x higher power density, 3x tighter accuracy during transients, and 1000x faster dynamic voltage scaling than leading competitors, according to Empower.

System designers are leveraging the EP70xx's tight voltage regulation through an ultra-fast load transient by lowering the operating voltage of the system, according to the company. The power consumption of a system is directly proportional to the operating voltage. By narrowing the window required for the voltage variation without additional components, Empower's IVRs are said to have enabled 10% or more power savings and a corresponding reduction in heat dissipation.

Product samples, demo boards, and reference designs of the EP70xx family are available immediately. To view product details, visit the [website](#).

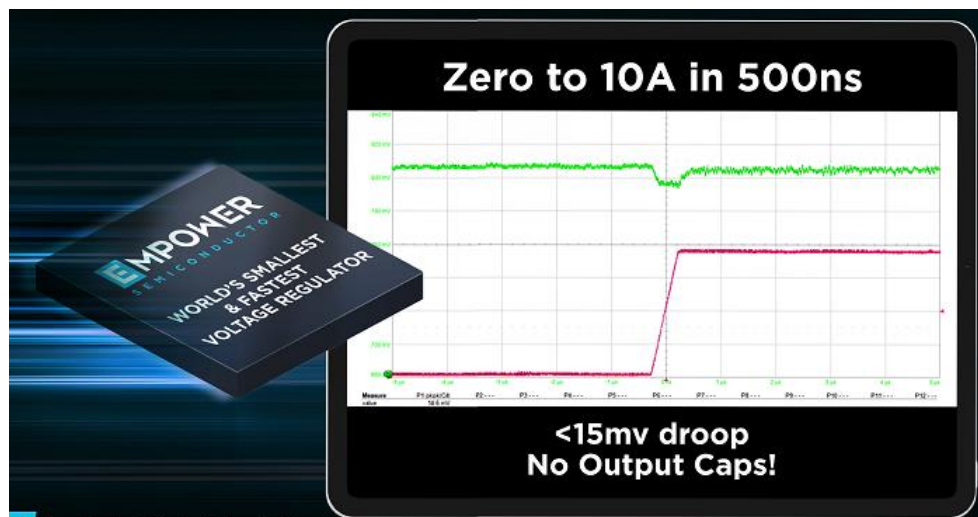


Figure. "The Empower EP70xx family achieves bandwidths higher than our competitors' switching speeds. Those experienced in the industry have to do a double-take at the time axis when looking at scope shots—we are used to dealing in microseconds, not nanoseconds. At typical load current ramp rates, our system regulates through the event instead of just trying to catch up." said Trey Roessig, chief technology officer & SVP of Engineering at Empower Semiconductor.