

## 25-A And 40-A Buck Regulators Feature SVID And I<sup>2</sup>C/PMBus Interfaces

[Infineon Technologies'](#) TDA38640, TDA38740 and TDA38725 OptiMOS 5 IPOL devices are fully integrated POL single-output synchronous buck regulators featuring VR14-compliant SVID standard and I<sup>2</sup>C/PMBus digital interfaces for Intel/AMD server CPUs and network ASICs/FPGAs. Housed in 5- x 6-mm PQFN packages, these devices are described as easy-to-use, fully integrated, and highly efficient solutions for next-generation server, storage, telecom, and datacom applications, as well as distributed power systems (Fig. 1).

The OptiMOS IPOL single-voltage synchronous buck regulator TDA38640 supports up to 40-A output current. The device comes with Intel SVID and I<sup>2</sup>C/PMBus digital interfaces and can be used for Intel VR12, VR12.5, VR13, VR14, IMPVP8 designs, and DDR memory without significant changes to the bill of materials (Fig. 2). Infineon's TDA38740 and TDA38725 digital IPOL buck regulators support up to 40 A and 25 A output current, respectively and come with a PMBus interface. All three devices use Infineon's proprietary fast constant on time (COT) PWM engine to deliver industry-leading transient performance while simplifying the design development, according to the vendor.

The onboard PWM controller and OptiMOS FETs with integrated bootstrap diode make these devices a small footprint solution with highly efficient power delivery. In addition, they provide the required versatility by operating in a broad input and output voltage range while offering programmable switching frequencies from 400 kHz to 2 MHz.

A multiple time programming (MTP) memory allows customization during design and high-volume manufacturing, reducing design cycles and time-to-market. These regulators also offer a digitally programmable load line that can be set via configuration registers without external components, resulting in a simplified BOM. The device configuration can be easily defined using Infineon's XDP Designer GUI and is stored in the on-chip memory.

These OptiMOS fully integrated POL single-voltage synchronous buck regulators are now available. For more information, see the [TDA38640](#), [TDA38740](#) and [TDA38725](#) product pages.

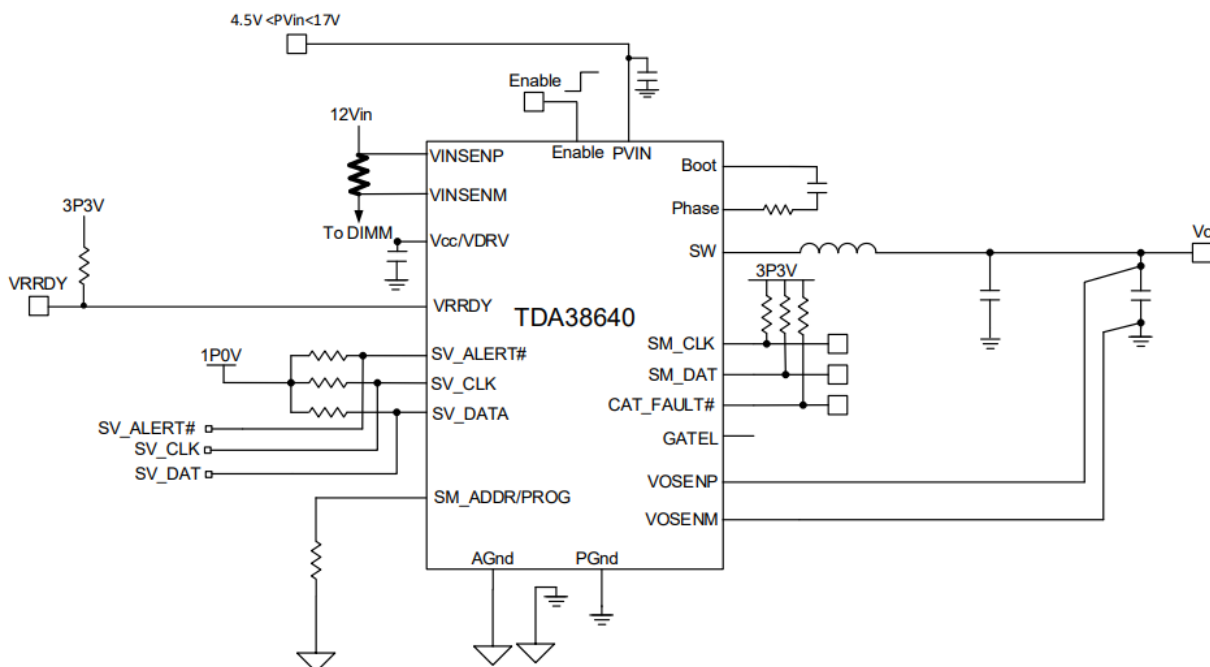


Fig. 1. The TDA38640, TDA38740 and TDA38725 are members of a new series of synchronous buck regulator ICs designed to power Intel/AMD and ASIC/FPGA devices used in server, storage, telecom and datacom applications. These OptiMOS IPOL devices support either 40 A or 25 A of output current and either Intel SVID or PMBus interfaces. A typical application circuit for the TDA38640 is shown here with current sense enabled.

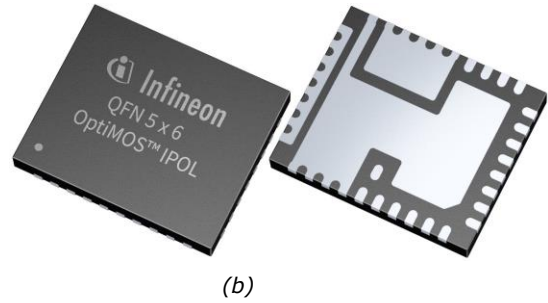
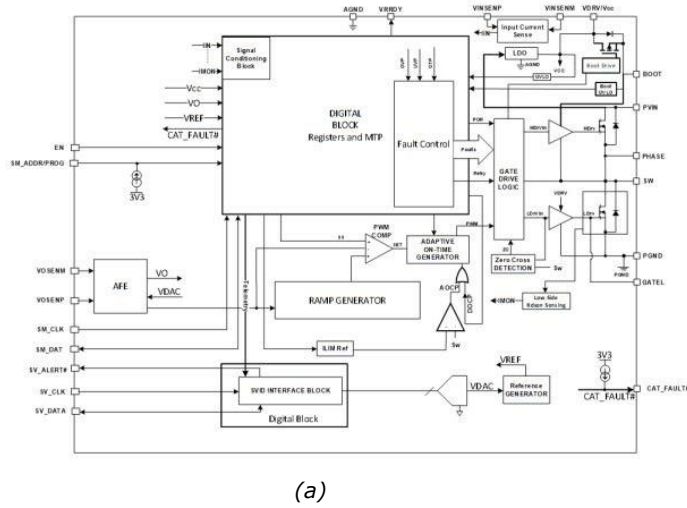


Fig. 2. The TDA38640 is a fully integrated and highly efficient dc-dc regulator with Intel SVID and I<sup>2</sup>C/PMBUs interfaces (a). The controller utilizes Infineon's fast COT engine which simplifies design efforts, and achieves faster transient response. The onboard PWM controller and OptiMOS FETs with integrated bootstrap diode make the TDA38640 a small footprint solution as the regulator is housed in a 5-mm x 6-mm PQFN (b).