ISSUE: June 2010

DrMOS Module Delivers Over 90% Efficiency

From Alpha and Omega Semiconductor (AOS), the AOZ5006 is a high efficiency 6-mm x 6-mm power module that is fully compliant with Intel's DrMOS specifications. The AOZ5006 integrates a dual gate driver and two optimized MOSFETs that together provide a high-efficiency synchronous buck power stage. The device enables high power density voltage-regulator solutions for servers, graphic cards and high-end desktop PC applications.

AOZ5006 uses the company's state-of-the-art Trench MOSFET technology to achieve an optimal balance between switching and conduction losses. At the same time, the product leverages AOS' advanced packaging capability to further improve efficiency and thermal performance. The resulting efficiency is over 90% up to 21 A of output current in a typical 12-V input to 1.2-V output application switching at 300 kHz.

"The AOZ5006 meets the ever increasing power density requirements of high-end computing applications by reducing the solution size by two-thirds compared to discrete solutions. In addition, the parasitic inductance between the driver and MOSFETs is minimized, allowing switching frequencies to 1-MHz and faster dynamic response times," says Song Qu, director of product marketing for Power IC Products at AOS.

AOZ5006 works with a variety of analog and digital PWM controllers and is available in two options to support both 3.3-V and 5-V logic inputs (see the figure). The module comes in a 40-pin QFN package. Available now, the AOZ5006 is priced at $2.85 each in quantities of 1000.

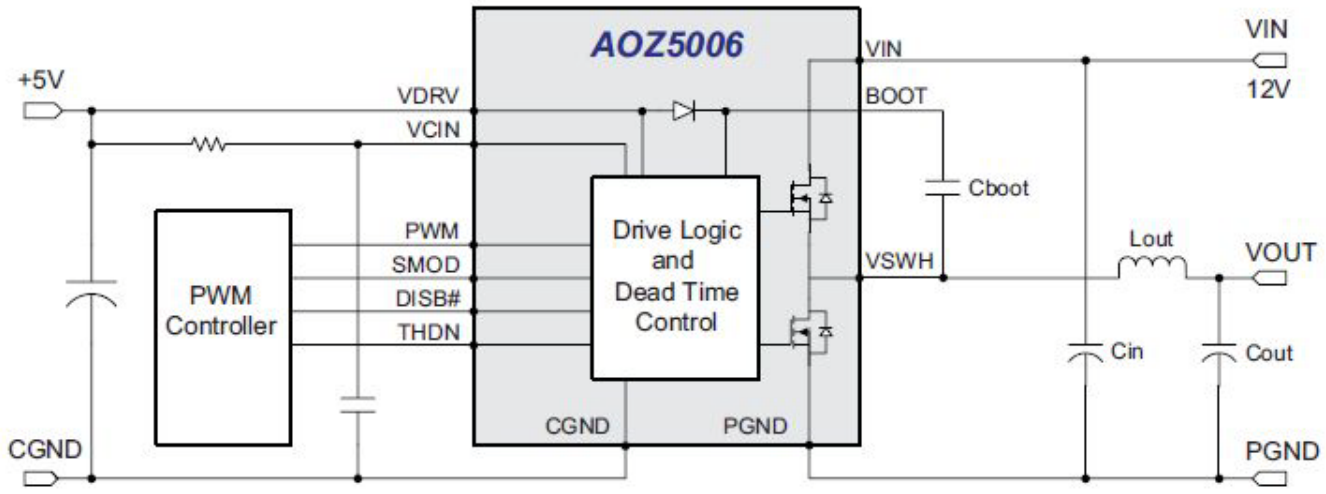

Fig. When combined with a PWM controller, inductor, and other external passives, the AOZ5006 DrMOS module completes a high-efficiency buck converter.