Multi-Chip Module has Wide Input Voltage Range

Toshiba America Electronic Components, Inc. (TAEC) expanded its power multi-chip modules (MCM) with a single package, 35A, 30V synchronous step-down converter switching module for high-current, low-voltage applications such as servers, server point-of-load modules, desktop PCs, and game machines. The 56-pin TB7004FL is compatible with Intel's DrMOS 1.0 specifications. The main components are MOSFET gate drivers and high-side and low-side MOSFETs produced from an UMOS V-H process. The low-side MOSFET is optimized by minimizing the on-state resistance (RDSON), gate-to-drain capacitance, Cgd/Cgs ratio, and gate resistance (Rg); the high-side MOSFET is enabled for fast switching, achieved through low gate switch charge and gate resistance; and the driver IC includes a high-speed MOS gate driver and level shifter functions to drive the high-side MOSFET. The device also features an input range up to 19V, with a maximum rating of 30V, a high operating frequency up to 1 MHz, and a QFN56 package that measures 8 mm x 8 mm x 0.85 mm. Additional features include a built-in thermal shut-down function, built-in under voltage lockout function for the supply voltage to the internal driver IC, tri-state logic for the PWM terminal, and internal dead-time control for dead time optimization. At a switching frequency of 1MHz and output current of 30A, the TB7004FL achieves approximately 83 percent efficiency.
Toshiba America Electronic Components
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