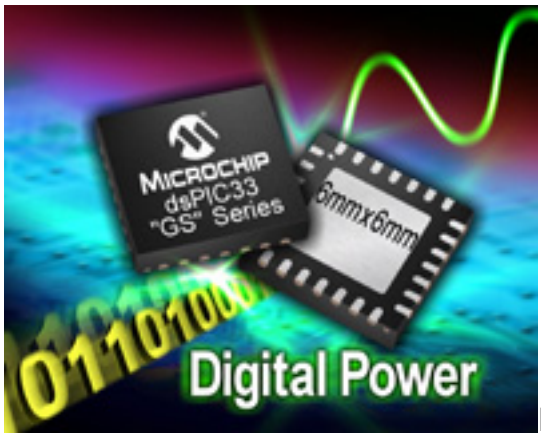
DSCs Bring Digital Power to Mainstream Applications



Microchip Technology announced the first seven next-generation 16-bit dsPIC Digital Signal Controllers (DSCs) for common, multi-loop Switch-Mode Power Supplies (SMPSs) and other power-conversion applications. The new dsPIC33F “GS” series digital-power DSCs enable digital control loops with four to eight high-speed, 1 ns resolution pulse-width-modulators (PWMs) and one or two 10-bit, on-chip ADCs, providing 2 to 4 MSPS for low latency and high-resolution control. They range from 18 to 44 pins and 6 KB to 16 KB Flash memory, and are pin compatible with the company’s initial digital-power DSC family. The devices feature interactive peripherals that both minimize the intervention of the processor and are able to handle the real-time needs of high-speed current-mode control. These DSCs are appropriate for AC/DC converters, DC/DC power-converters and other power-conversion applications, such as embedded power-supply controllers, power inverters, UPSs and digital lighting. Additionally, their 1 ns duty-cycle resolution PWMs can easily handle the precise timing requirements of all switching power-supply topologies, including the precise synchronous rectifier timing requirements. These devices, offered in small DSC packages (with as small as a 6 mm x 6 mm footprint), allow power-supply designers to optimize for specific product applications. Their in-circuit programming capabilities enable common SMPS platforms can be differentiated late in the production process.

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