

## The Design of PFM Mode DC-DC Converter with DT-CMOS Switch

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**Abstract :** The high efficiency power management IC (PMIC) with switching device is presented in this paper. PMIC is controlled with PFM control method in order to have high power efficiency at high current level. Dynamic Threshold voltage CMOS (DT-CMOS) with low on-resistance is designed to decrease conduction loss. The threshold voltage of DT-CMOS drops as the gate voltage increase, resulting in a much higher current handling capability than standard MOSFET. PFM control circuits consist of a generator, AND gate and comparator. The generator is made to have 1.2MHz oscillation voltage. The DC-DC converter based on PFM control circuit and low on-resistance switching device is presented in this paper.

**Keywords :** DT-CMOS, PMIC, PFM, DC-DC converter

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