一种新型高速低功耗电平移位电路

王 霞，周泽坤，王 卓，张 波
（电子科技大学 电子薄膜与集成器件国家重点实验室，四川 成都 610054）

摘 要：设计了一种电平移位电路，包括快速响应电路和低功耗电平维持电路，通过快速响应电路的快速响应输入的低压控制信号，产生一窄脉冲来驱动输出信号电平的建立；然后通过低功耗电平维持电路在窄脉冲结束后维持输出信号的电平．该电路适用于新一代功率器件的驱动电路，具有响应速度快和低功耗的特点，可以充分发挥新一代功率器件高工作频率和低功耗的优势．基于 HHNEC 0.35 μm 80V CD 工艺，对提出的电平移位电路进行仿真验证，结果表明所设计的电平移位电路响应时间为 2.8 ns 左右，功耗为 21.5 μA 左右．

关键词：电平移位；快速响应；低功耗
中图分类号：TN432 **文献标识码**：A **文章编号**：1000－7180(2015)11－0158－04

A Novel High-Speed and Low Power Level Shifter

WANG Xia, ZHOU Ze-kun, WANG Zhuo, ZHANG Bo
(State Key Laboratory of Electronics Thin Films and Intergration Device, University of Electronics Science and Technology of China, Chengdu 610054, China)

Abstract: A level shifter circuit, including fast response circuit and low power level sustain circuit, is proposed in this paper. A narrow pulse to drive the output signal level established is generated by quick response of the low voltage input control signal in the fast response circuit. And then the low power level sustain circuit maintains the level of the output signal after the end of a narrow pulse. The circuit is suitable for driving a new generation of power devices, with fast response and low power, can give full play to their advantages of high operating frequency and low power consumption. This circuit is based on the HHNEC 0.35 μm 80 V CD process, the simulation result shows that the level shifter can response within 2.8 ns and has low power consumption with 21.5 μA.

Key words: level shiter; high-speed; low-power

作者简介：

王 霞 女，(1989-)，硕士研究生．研究方向为模拟集成电路与智能功率集成电路．E-mail：wxuestc@163.com.

张 波 男，(1964-)，教授，博士生导师．研究方向为功率半导体技术、电源管理集成电路及专用集成电路．

收稿日期：2015－01－15；**修回日期**：2015－03－03
基金项目：国家自然科学基金(61306035)；中央高校基本科研业务费(ZYGX2013J031)