

用于植入式心脏起搏器可编程电荷平衡脉冲产生电路

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摘要: 提出了一种基于电荷泵的植入式心脏起搏器的可编程高压脉冲产生电路, 能够保证刺激脉冲对心脏充放电时的电荷平衡, 大大降低了起搏器的应用风险. 该电路主要包括一个高效率电荷泵、开关电容 DAC 和基于比较器的脉冲电压检测控制电路, 能够精确地调节起搏脉冲的幅值, 从而适应不同情况病人的需求. 此电路基于 HHNEC 0.35 μm BCD 工艺设计, 并用 Spectre 进行了仿真.

关键词: 心脏起搏器; 高压; 电荷泵; 数模转换器

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A Charge-balanced Programmable Pulse Generator Circuit for Implantable Cardiac Pacemaker

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Abstract: A charge-balanced programmable pulse generator is proposed. This circuit has overcome the problem that the amount of charges pass through cardiac unequal between charge and stimulate phase, and deduces the security risk. This circuit mainly includes a high efficiency charge pump circuit, DAC and pulse control circuit based on comparator, and its adjustable character suits for different patients. This circuit is based on HHNEC 0.35 BCD technology and simulated through Spectre.

Key words: cardiac pacemaker; high voltage; charge pump; DAC

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