

恒流LDO型白光LED驱动芯片的设计研究

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摘要 完成了一种具有极低脱落电压(LDO)的白光LED恒流驱动芯片的设计. 利用一级温度补偿和二次比例电阻分压技术在内部集成了0.75V带隙基准源, 可在2.7V到7.0V的工作电压范围内提供350mA的恒定驱动电流. 当环境温度从-10℃到100℃变化时, 驱动电流变化小于5.06%; 电源电压有±10%跳变的情况下, 驱动电流变化小于±0.8%; 最小脱落电压可达120mV; 控制电路功耗小于1.75mW, 整个电路转换效率可达75%.

关键词 [低脱落电压](#) [恒流驱动](#) [带隙基准](#) [转换效率](#)

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The design research on the constant current LDO driver of the white light LED

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Abstract

A constant current driver with a very low dropout voltage for the white light LED is designed. A 0.75V band-gap reference, based on the first order temperature compensation and resistive subdivision technology, is constructed in the chip. A 350mA constant driving current can be provided at the supply voltage from 2.7V to 7.0V. When temperature changes from -10℃ to 100℃, the variation in the output current is less than 5.06%. The driving current varies by less than ±0.8% when the supply voltage changes by ±10%. The dropout voltage of the power MOSFET is about 120mV. The power dissipation of the control circuit is less than 1.75mW, and the efficiency of the chip can reach up to 75%.

Key words [low dropout voltage](#) [constant-current driving](#) [band-gap reference](#) [conversion efficiency](#)

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