

# 一种基于恒 $\beta$ PNP 结构的大电流 LDO 稳定性设计

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**摘 要:** 本文在分析了传统 LDO 补偿方式的基础上, 介绍了一种基于恒  $\beta$  PNP 结构的适用于大电流、双极性 LDO 的稳定性设计技术. 该结构有效地克服了传统的靠增大输出电容而牺牲瞬态性能和 ESR 补偿方式对输出电容要求苛刻的缺点. 采用该结构设计的 LDO 采用  $3\ \mu\text{m}$  18V 双极工艺进行了流片验证, 效果显著.

**关键词:** LDO; 稳定性; PNP; 电流放大倍数  $\beta$

## A stability design of the large current LDO based on the constant $\beta$ PNP structure

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**Abstract:** Based on the analysis of the traditional LDO compensation methods, this paper introduces a stability structure based on constant  $\beta$  PNP structure. It is suitable for high current and bipolar LDO. This structure effectively overcomes the drawbacks of relying on increasing the output capacitance while sacrificing transient performance and the harsh demand for output capacitance of ESR compensation method. The LDO adopting the structure is verified by  $3\ \mu\text{m}$  18V bipolar process, and the effect is remarkable.

**Key words:** LDO; stability; PNP; current amplifier  $\beta$

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