

高速雷射二極體驅動電路之設計

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摘要

本篇論文包含兩個雷射二極體驅動電路，其中一個是可操作在 1.25GBPS 的雷射二極體驅動電路，另外一個是位元傳輸速率可達 4.0GBPS 的雷射二極體驅動電路，雷射二極體驅動電路包含 PECL TO CMOS 邏輯電路、緩衝電路、調變電路、及具自動功率控制的偏壓電路；另外，我們在 4.0GBPS 雷射二極體驅動器加上脈衝整形電路來改善電路，使雷射二極體驅動電路模擬結果最高可達 4.0GBPS。這兩個電路都是透過 CIC 以 TSMC 0.35 μ M 1P4M 製程來製作品片。為了設計雷射二極體驅動電路，也探討有關雷射二極體驅動電路輸出介面的問題，也建立模擬時需要使用到的雷射二極體模型。

關鍵詞：雷射二極體驅動電路、雷射二極體模型、光纖通訊、高速率。

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