

다결정 실리콘과 백금 전극사이의 접촉저항 특성

The contact properties between Platinum and poly-silicon

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The new electrode structures of Pt/RuO₂/Ru on polysilicon were prepared by metalorganic chemical vapor deposition (MOCVD). The barrier layers of RuO₂/Ru deposited by MOCVD showed a stable interface and did not affect the surface morphology of the platinum bottom electrode even at high annealing temperature. The barrier layers effectively alleviated the interdiffusion of Pt, O, and Si at annealing temperature above 700°C in O₂ ambient. Contacts in the as-deposited state exhibited linear current-voltage characteristics with a specific contact resistance of $5.0 \times 10^{-5} \Omega \cdot \text{cm}^2$. Contacts subjected to thermal annealing up to 800°C for 1h in oxygen ambient showed almost constant contact resistance.