

Performance enhancement of GaAs UTB pFETs by strain, orientation and body thickness engineering

CHALLENGE

- III-V materials have high electron mobility but low hole mobility.
- Performance enhancement of GaAs materials for PMOSFET.

OBJECTIVE

- Understanding the effect of compressive strain/orientation/body thickness in ON current in GaAs UTB.

APPROACH

- Calculated ON current using sp3s*d5 TB bandstructure model & capacitance model including quantum capacitance

IMPACT

- (110)/<110> provides highest I_{ON} with body thickness scaling.
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