

# **Overview and Challenges in Advanced Activation Process**

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## Outline

1. Requirements for activation technology in devices
2. Design of thermal budget for activation annealing
3. Improvement of abruptness of impurity profiles
3. Issues in advanced activation technology
5. Summary

# Summary

\*Source and drain technologies are reviewed.

---Ultra-shallow extension requires higher activation as well as smaller diffusion length and abruptness of impurity profiles.

---Deep junction requires higher thermal budget for defect recovery

Therefore, the design of thermal budget is a key technology for the activation of source and drain.

\*Another important point in doping technology is to improve the productivity in low energy ion implantation. Plasma doping is one of promising candidates for improving the through-put of doping process.