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(54) **VOID ELIMINATION FOR GAP-FILLING IN HIGH-ASPECT RATIO TRENCHES**

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(57) **ABSTRACT**

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(63) Continuation of application No. 17/140,897, filed on Jan. 4, 2021, now Pat. No. 11,610,982.

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A method of forming a semiconductor device includes: forming a dummy gate over a fin, where the fin protrudes above a substrate; surrounding the dummy gate with a dielectric material; and replacing the dummy gate with a replacement gate structure, where replacing the dummy gate includes: forming a gate trench in the dielectric material, where forming the gate trench includes removing the dummy gate; forming a metal-gate stack in the gate trench, where forming the metal-gate stack includes forming a gate dielectric layer, a first work function layer, and a gap-filling material sequentially in the gate trench; and enlarging a volume of the gap-filling material in the gate trench.

