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(19) **United States**(12) **Patent Application Publication****Diep et al.**(10) **Pub. No.: US 2022/0416744 A1**(43) **Pub. Date: Dec. 29, 2022**(54) **METHOD FOR MANUFACTURING
ACOUSTIC DEVICES WITH IMPROVED
PERFORMANCE**(71) Applicant: **Qorvo US, Inc.**, Greensboro, NC (US)(72) Inventors: **Buu Quoc Diep**, Murphy, TX (US);
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John Belsick, Bend, OR (US)(21) Appl. No.: **17/361,698**(22) Filed: **Jun. 29, 2021****Publication Classification**(51) **Int. Cl.**
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(57)

ABSTRACT

A method for manufacturing an acoustic device includes providing a substrate, providing a bottom electrode over the substrate, providing a sacrificial layer on the bottom electrode, patterning the bottom electrode and the sacrificial layer, polishing the sacrificial layer such that a portion of the sacrificial layer remains on the bottom electrode, and removing the remaining portion of the sacrificial layer via a cleaning process such that a surface roughness of the bottom electrode is maintained. By performing the polishing such that a portion of the sacrificial layer remains on the bottom electrode and subsequently removing that portion of the sacrificial layer via a cleaning process that maintains the surface roughness of the bottom electrode, the subsequent growth of a piezoelectric layer on the bottom electrode can be substantially improved.

