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(19) **United States**(12) **Patent Application Publication****Shin et al.**(10) **Pub. No.: US 2022/0368311 A1**(43) **Pub. Date: Nov. 17, 2022**(54) **ACOUSTIC WAVE DEVICES WITH  
COMMON CERAMIC SUBSTRATE**(71) Applicant: **Skyworks Global Pte. Ltd.**, Singapore  
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**Hiroyuki Nakamura**, Osaka-Fu (JP)(21) Appl. No.: **17/877,075**(22) Filed: **Jul. 29, 2022****H03H 9/145** (2006.01)**H03H 9/25** (2006.01)**H03H 9/54** (2006.01)**H03H 9/64** (2006.01)**H03H 9/70** (2006.01)**H03H 9/72** (2006.01)(52) **U.S. Cl.**CPC ..... **H03H 9/56** (2013.01); **H03H 9/17**  
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(57)

**ABSTRACT**

An acoustic wave component is disclosed. The acoustic wave component can include a bulk acoustic wave resonator and a surface acoustic wave device. The bulk acoustic wave resonator can include a first portion of a ceramic substrate, a first piezoelectric layer positioned on the ceramic substrate, and electrodes positioned on opposing sides of the first piezoelectric layer. The surface acoustic wave device can include a second portion of the ceramic substrate, a second piezoelectric layer positioned on the ceramic substrate, and an interdigital transducer electrode on the second piezoelectric layer.

