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### (54) TRANSDUCER STRUCTURE FOR SINGLE-PORT RESONATOR WITH TRANSVERSE MODE SUPPRESSION

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#### (57)**ABSTRACT**

The present invention relates to a transducer structure with transverse mode suppression means, in particular for a single-port resonator, comprising a piezoelectric substrate (120, 170), at least a pair of inter-digitated comb electrodes (102, 112) formed on the piezoelectric substrate (120, 170), wherein the first comb electrode (102) comprises a first bus bar (108) and a plurality of electrode fingers (104) alternating with shorter dummy electrode fingers (106), both extending from the first bus bar (108), wherein the second comb electrode (112) comprises a second bus bar (118) and a plurality of electrode fingers (114) extending from the second bus bar (118), wherein the dummy electrode fingers (106) of the first bus bar (108) face the electrode fingers (114) of the second bus bar (118) and are separated from the electrode fingers (114) by first gaps (110a), characterized in further comprising a transverse mode suppression layer (122, 132, 222, 232, 422, 432) provided partially underneath the first gap (110a) and chosen such that the phase velocity of a guided wave is smaller in the region of the transverse mode suppression layer (122, 132, 222, 232, 422, 432) compared to the phase velocity of the guided wave in the central region (136) underneath the alternating electrodes fingers (104, 114) of the first and second electrodes (102, 112). The present invention also relates to a method for fabricating the transducer structure as previously described and to a single-port resonator comprising at least one structure as previously described.

