

ABSTRACT OF THE DISCLOSURE

For the purpose of utilizing the characteristic in a vibration energy entrapping mode of a higher order symmetric or asymmetric mode vibration generated when a piezoelectric resonator is excited, a portion having a cutoff frequency f_2 is provided about an energy entrapping portion having a cutoff frequency f_1 ($f_1 < f_2$) for strongly exciting a higher order symmetric or asymmetric mode vibration. The size of the energy entrapping portion (electrode), amount of plateback $(f_2 - f_1)/f_2$, and the substrate thickness are selected such that the vibration energy of the overtone vibration of an order higher than the n -th overtone is substantially entrapped in a portion near the periphery of the energy entrapping portion, while the overtone vibration energy of an order lower than the $(n-2)$ th order and including the fundamental wave vibration is caused to spread over the entire surface of the substrate.

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