

ABSTRACT

A vibrating device is provided which is capable of sufficiently reducing an absolute value of the temperature coefficient of resonant frequency (TCF).

In a vibrating device 1 that is in the form of a rectangular plate having long sides and short sides when looked at in a plan view, and that utilizes an expanding and contracting vibration mode in a direction of the short sides, the vibrating device includes a Si layer 2 made of a degenerate semiconductor, a silicon oxide layer 3, a piezoelectric layer 5, and first and second electrodes 6 and 7 through which a voltage is applied to the piezoelectric layer 5, and given that a total thickness of the Si layer is denoted by T1, a total thickness of the silicon oxide layer 3 is denoted by T2, and the TCF in the vibrating device when the silicon oxide layer 3 is not provided is denoted by x (ppm/K), $T2/(T1+T2)$ is within a range of $(-0.0003x^2 - 0.0256x + 0.0008) \pm 0.05$.