Leg-angle 변화에 따른 V-type 초음파모터의 특성

Characteristics of V-type Ultrasonic Motor with the Change Angle of Legs

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Abstract : In the case of existing ultrasonic motors, they have characteristics such as outstanding response speed, speed and high efficiency. However, it's very hard to use practically them as small motors due to complicated structure and expensive cost. This paper proposed v-type ultrasonic linear motor. Stator of the motor is composed of thin elastic body and four ceramics attached to upper and bottom areas of the body. The ceramics have each direction of polarization. When two harmonic voltages which had 90° phase difference were applied to the ceramics, the symmetric and anti-symmetric displacements were generated at the tip to make the elliptical motion. To find out a model that generates maximum displacement at contact tip, FEM program was used with change of leg-angle. In addition, optimal model was chosen by considering magnitude and shape of displacement according to change of frequency.

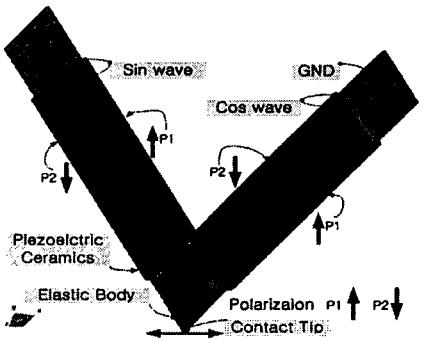

Fig. 1 Structure of V-type ultrasonic motor

Key Words : Ultrasonic Motor, Piezo Actuator, FEM, ATILA, Leg-angle

감사의 글

The authors of this paper were partly supported by the Second Stage of Brain Korea21 Projects.

This work was supported by the National Research Foundation of Korea Grant funded by the Korean Government (Grant No. 2009-0088570)

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