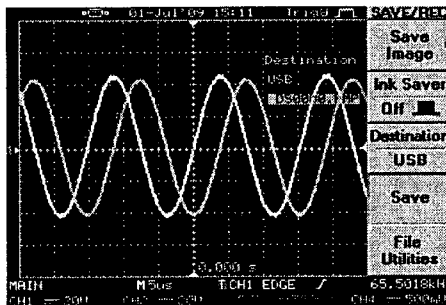


구동회로에 따른 박형 초음파모터의 동작특성

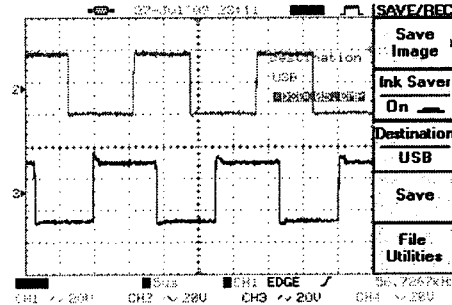
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Abstract : This paper represented driving characteristic of a thin-type ultrasonic motor by fabricating and utilizing two kinds of drivers which could generate sinusoidal wave, square wave, respectively. A thin brass plate was used as a cross shaped vibrator and sixteen ceramic plates were attached on upper and bottom side of the brass plate. From the thin stator, elliptical displacements of the four contact tips were obtained. Speed, torque, and current were measured by applying sinusoidal waves through driving equipment such as function generator, power amplifier: to measure characteristic of the motor. As a result, the speed and the torque changed linearly at either driving frequency of 88.6 ~ 87.6[kHz] or voltage of 24~36[V]. Two-drivers which generate sinusoidal waves and square waves were designed respectively, and then were compared through some experiments in order to be put to practical use. In conclusion, the drivers had similar characteristic of speed-torque at similar frequency and voltage. It was able to control the motor linearly by using the driver generating square wave among two-drivers. Besides, it also was possible to make the drivers smaller.

Key Words : thin ultrasonic motor, cross shaped stator, piezo actuator, USM driver



(a) 정현파출력 드라이버 파형



(b) 구형파출력 드라이버 파형

그림 1. 제작된 드라이버의 정현파 및 구형파 출력파형

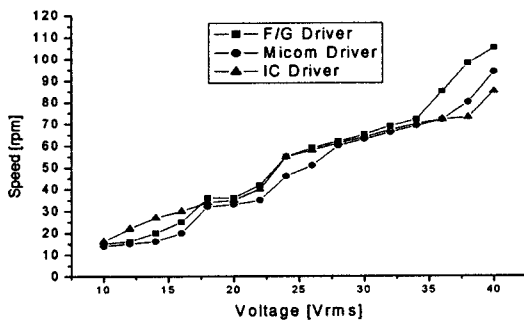


그림 2. 전압변화에 따른 속도특성

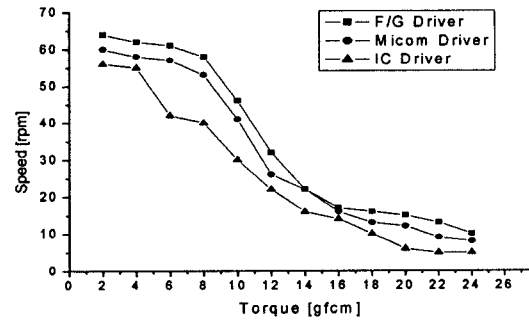


그림 3. 속도 및 토크 특성

감사의 글

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