

ABSTRACTBRUSHLESS DC MOTOR WITHOUT POSITION SENSOR AND ITS CONTROLLER:

A brushless DC motor related to the first invention is characterized in that rotary pole surfaces (14, 15, 16 and 17) of rotor magnetic poles (8, 9, 10 and 11) are respectively formed on convex surface, and the rotary pole surfaces (14, 15, 16 and 17) are formed so that the distance between each of them and a fixed pole surface (6) is minimized at a predetermined point in the circumferential direction. A controller related to the second invention is characterized by restarting the motor when a commutation timing signal is mismatched with an output pattern mode. A controller related to the third invention

is characterized by comparing the motor speed with the reference signal to change the chopper frequency in accordance with the compared value. A controller related to the fourth invention is characterized by continuously changing the chopper frequency in accordance with the motor speed. Controllers related to the fifth and sixth inventions are characterized by inhibiting the position of a rotor (3) from being detected immediately after commutation to a motor (1) in accordance with the current flowing through the motor (1). A controller related to the seventh invention is characterized by detecting the position of the rotor (3) in accordance with the waveform of the current flowing through the motor (1).

