



ABSTRACT OF THE DISCLOSURE

A drive circuit for a sensorless three-phase brushless DC motor provides
5 improved drive characteristics by detecting voltages changes in the stator coils, and
then comparing the voltage changes to a timing diagram of the back-electromotive
signal to commutate the current through the stator coils before maximums in the
back-electromotive force, thereby providing smoother motor rotation. The drive
circuit includes comparators for generating rectangular difference signals by
10 comparing the voltage of the stator coils, an edge detector and control circuit for
generating a pulse signal that is delayed from the difference signals, signal
generators for generating a trapezoidal signal and three step signals responsive to
the pulse signal, and an output control circuit for generating drive signals for a
commutator drive circuit responsive to the trapezoidal step signals. By setting the
15 voltage differences between the trapezoidal and step signals to values less than the
Hall bias level, the drive signals can be made to change linearly, thereby providing
soft switching of the transistor switches in the commutator drive circuit.