matronic

A8904

Three-phase brushless DC motor controller/driver IC

The new A8904 from Allegro MicroSystems Europe is a 3-phase brushless DC motor controller/driver integrated circuit designed for applications where accurate control of high-speed motors is required.

Key features of the new device include direction control, two transconductance gain options, and the facility for external speed control from a tachometer signal. A programmable digital frequency-locked-loop speed control circuit together with linear current control circuitry provides precise motor speed regulation.

The A8904 incorporates back-EMF sensing, motor startup and running algorithms. A serial port allows the user to program various features and modes of operation, such as the speed control parameters, startup current limit, sleep mode, direction and diagnostic modes.

The three half-bridge outputs are low on-resistance n-channel DMOS devices capable of driving up to 1.25 A at supply voltages up to 14 V. The transconductance gain options are 500 and 250 mA/V, and the internal oscillator operates at up to 20 MHz.

System diagnostic data is transmitted in real time, and dynamic braking is provided through the serial port or an external pin.

The A8904 is fabricated in Allegro's BCD (Bipolar/CMOS/DMOS) process, an advanced mixed-signal technology that combines bipolar, analogue and digital CMOS, and DMOS power devices.

Typical applications include office automation, industrial control, colour wheel drives, projection TV systems and hard disk drives.

The A8904 is available in the 24-lead wide-body SOIC package or the 28-lead thin (1.2 mm) SSOP package with an external pad.