

A3979 Microstepping motor driver IC with built-in translator circuitry

The new A3979 from Allegro MicroSystems Europe is a complete microstepping motor driver IC with built-in translator circuitry.

The new device is designed to operate bipolar stepper motors in full-, half-, quarter- and sixteenth-step modes, with output drive capability of 35 V and ± 2.5 A, and is a higher-performance drop-in replacement for Allegro's earlier A3977SLP.

The built-in translator makes the A3979 very easy to use. The user has simply to input one pulse on the device's 'step' input and the motor will take one microstep. There are no phase sequence tables, high-frequency control lines or complex interfaces to program.

The simple, two-input 'step' and 'direction' interface of the A3979 makes it ideal for applications involving multiple motors which would normally stretch the I/O capability of most microprocessor-based controllers. Internal synchronous rectification control circuitry is included in the A3979 to improve power dissipation during PWM operation. The power dissipation savings (typically greater than 20%) result in lower-temperature operation and eliminate the need for external Schottky diodes. The A3979 includes a fixed off-time current regulator that has the ability to operate in slow or mixed decay modes. This patented current decay scheme results in reduced audible noise, increased step accuracy and reduced power dissipation.

Internal circuit protection includes thermal shutdown with hysteresis, undervoltage lockout and crossover-current protection. Special power-up sequencing is not required. The device has a 'sleep' mode current of less than 20 μ A.

Targeted at the office automation and industrial markets, the A3979 is offered in an industry-standard low-profile (less than 1.2 mm), 28-lead eTSSOP with an exposed thermal pad. A lead (Pb) free version is also available.
