

A3245/6

Omnipolar Hall-effect devices for reed-switch replacement

A new family of Hall-effect switch ICs from Allegro MicroSystems can act as high-reliability replacements for reed switches in automotive and other demanding applications.

The new A3245/6 devices are omnipolar, ultra-sensitive Hall-effect switches with digital outputs. The omnipolar feature allows operation with either a north or a south magnetic pole of sufficient strength to turn the output 'on'. In the absence of a magnetic field, the output is 'off'.

The magnetic polarity independence allows the device family to easily replace reed switches for superior reliability and ease of manufacturing, while the digital output eliminates the requirement for signal conditioning.

Superior high-temperature performance (up to +150°C) is made possible through Allegro's patented dynamic offset cancellation circuitry, which reduces the residual offset voltage normally caused by device overmoulding, temperature dependencies and thermal stress.

Each A3245/6 device includes, on a single silicon chip, a voltage regulator, Hall-voltage generator, small-signal amplifier, chopper stabilisation circuitry, a Schmitt trigger circuit, and a short-circuit protected open-collector output. Allegro's advanced BiCMOS wafer-fabrication process is used to offer the benefits of low-voltage operation, accurate component matching, very low input offset errors, and small component geometries.

Other features include reverse battery protection, robust EMC capability and high electrostatic discharge ratings. The devices are rated for operation over the temperature range -40° to +150°C and voltage range 3.6- 24 V.

Two package styles are available to provide a magnetically optimised configuration for most applications: suffix 'LH' is a miniature low-profile surface-mount package, while suffix 'UA' is a 3-lead ultra-miniature single-inline package for through-hole or surface mounting.
