A1340: High Precision Programmable Linear Hall Effect Sensor IC with EEPROM, Analog Output, and Advanced Output Linearization

The A1340 device is a high precision, programmable Hall effect linear sensor integrated circuit (IC) for both automotive and non-automotive applications. The signal path of the A1340 provides flexibility through external programming that allows the generation of an accurate, and customized output voltage from an input magnetic signal. The A1340 provides 12 bits of output resolution, and supports a maximum bandwidth of 3 kHz.

The BiCMOS, monolithic integrated circuit incorporates a Hall sensor element, precision temperature-compensating circuitry to reduce the intrinsic sensitivity and offset drift of the Hall element, a small-signal high-gain amplifier, proprietary dynamic offset cancellation circuits, and advanced output linearization circuitry.

With on-board EEPROM and advanced signal processing functions, the A1340 provides an unmatched level of customer reprogrammable options for characteristics such as gain and offset, bandwidth, and output clamps. Multiple input magnetic range and signal offset choices can be preset at the factory. In addition, the device supports separate hot and cold, 1st and 2nd order temperature compensation.

A key feature of the A1340 is its ability to produce a highly linear device output for nonlinear input magnetic fields. To achieve this, the device divides the output into 32 equal segments and applies a unique linearization coefficient factor to each segment. Linearization coefficients are stored in a look-up table in EEPROM.

The A1340 sensor is available in a lead (Pb) free 4-pin single in-line package (KT suffix), with 100% matte tin leadframe plating.

DATASHEETS

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- Advanced 32-segment output linearization functionality enables high output accuracy and linearity in the presence of non-linear input magnetic fields
- Customer adjustable sensitivity and offset, bandwidth, output clamps, and 1st and 2nd order temperature compensation
- Simultaneous programming of all parameters for accurate and efficient system optimization
- Factory trimmed magnetic input range (coarse sensitivity) and signal offset
- Sensitivity temperature coefficient and magnetic offset drift preset at Allegro, for maximum device accuracy without requiring customer temperature testing
- Temperature-stable, mechanical stress immune, and extremely low noise device output via proprietary four-phase chopper stabilization and differential circuit design techniques
- Diagnostics for open circuit and undervoltage
- Wide ambient temperature range: –40 °C to 150 °C
- Operates with 4.5 to 5.5 V supply voltage

Product Image

Click the image to view larger

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Part Number Specifications and Availability

Part Number	Package Type	Temperature	RoHS Compliant	Part Composition / RoHS Data	Comments	Samples	Check Distributor Stock
A1340LKT-T	4-pin SIP	-40 ° C to 150 ° C	Yes	View Data	New	Contact your local sales rep	Check Distributor Stock
A1340LKTTN-4-T	4-pin SIP	-40 ° C to 150 ° C	Yes	View Data	New	Contact your local sales rep	Check Distributor Stock
A1340LKTTN-T	4-pin SIP	-40 ° C to 150 ° C	--	--	New	Contact your local sales rep	Check Distributor Stock

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