



High Speed Inductive Position Sensor IC with SIN/COS Outputs

LX34050



Inductive Position Sensor IC

Status: In Production
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Device Overview

Summary

The LX34050 is a integrated programmable data conversion IC designed for interfacing to and managing printed circuit board (PCB) based inductive position sensors. Inductive position sensors are ideal replacements for magnet based position and speed sensors (i.e. Hall Effect Sensors), optical encoders, and Magnetic resolvers. They excel with improved accuracy, magnetic noise immunity and don't require a magnet as a target.

The sensor itself is just a PCB, with primary and secondary windings placed to detect the movement of a metal target. The device includes an integrated oscillator circuit for driving the primary coil of an inductive sensor, along with two independent analog conversion paths for conditioning, converting, and processing of two analog signals from the secondary coils of the sensor. Each path includes an EMU filter, de-modulator, and programmable amplifier.

Great for embedded applications, the LX34050 output interface include two single ended Sin(x) and Cos(x) signals that change as the metal target is moved over the sensor. The position of the target is then calculated by using the ratio of these signals.

The propagation delay and bandwidth of the analog paths have been optimized for high speed automotive, industrial and medical sensor applications. The LX34050 is specified over a temperature range of -40°C to +150°C (Automotive Grade 0) and contains a 32-BIT Cortex AP51 MCU for fault detection and system monitoring.

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The below list of technical documents, software and reference designs are available upon request, for more information, please contact your local Microchip sales representative.

- LX34050 Datasheet
- LX34050 Auto Calibration User Guide
- Magnetic Resolver Replacement Guide: A complete reference design to implement accurate position sensing.
- IPCE Sensor Evaluation and Calibration Software Version (2.x)

Microchip can help with your own sensor design with its own unique mechanical constraints. You can start with one of our Kits, but Microchip is ready to help you from day one. Talk with our sales team and describe your sensor requirement. We will work with you on getting a design up and running to take advantage of this advanced technology.

Additional Features

- -40°C to 150°C Operation
- AEC-Q100 Grade 0 Certification
- ISO26262 ASIL B Support
- Built-in Oscillator for Driving Primary Coil
- Two Independent Analog Channels With Demodulation
- Low Temperature Drift
- Excellent Long Term Stability

Parametrics

Name	Value
Operating Temperature	-40C to 150C (Grade 0)
ISO26262 Support	ASIL B
Output Interface	SIN/COS
EEPROM Program	VIN, GPIO
Operating Voltage Range	4V to 6V
Max Rated Voltage	20V
Reverse Voltage Rating	-7V
MaxRefreshRate	100kHz



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