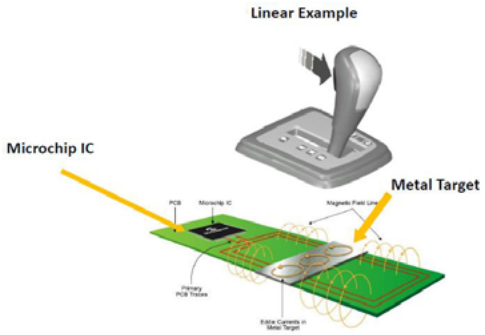
LX3301A for Gear Selector Lever Applications

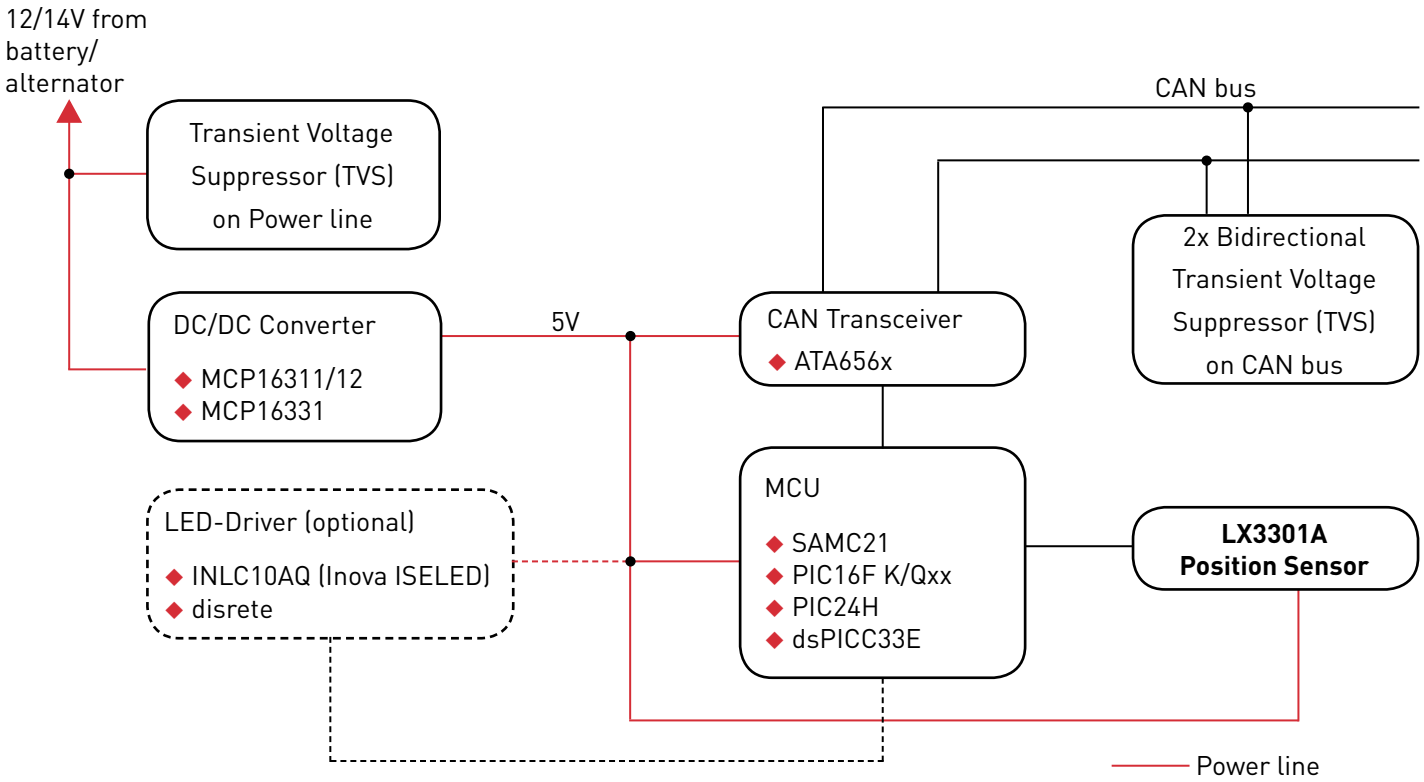
Position sensors realized with the LX3301A IC are perfect fit for automotive gear selector lever applications. It has many advantages vs. magnetic position sensors:

- Higher Accuracy
- Better Noise Immunity
- Lower Cost



Besides the sensor many other parts are needed and suitable for such design.

Block diagram – Gear Selector Lever parts



Position Sensor

The sensor is made up of the LX330xA sensor IC (from Microchip), a primary and two secondary coils on a simple PCB (based on LVDT principle). Via a simple metal target, placed on the lever in front of the sensor coils, the position is determined. For most applications designing fitting coils for the position sensor is relatively complex and needs some experience. This is usually done by engineers from Microchip in cooperation with the customer's engineers (who define the specifications).

Besides there is also a library with some reference designs available from Microchip: Besides there is also a library with some reference designs available from Microchip: Getting Started

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Power Conversion

The MCP16311 or the MCP16331 from Microchip are appropriate DC/DC converters for converting the 12V/ 14V from the battery/ alternator to 5V or 3.3V. These parts are AEC-Q100 qualified.

Microcontroller (MCU) + CAN Communication

Microchip offers a lot of MCUs with integrated CAN2.0 A/B or CAN-FD controller and with 5V supply voltage, suitable for this application. Besides the controllers ISO11898 and SAE J2962-2 compliant **CAN Transceivers** are also offered by Microchip.

MCU	CAN2.0 A/B	CAN-FD	CANbedded Stack
8-bit PIC18F Q8x Series	✓	✓	✓
16-bit PIC24H Series	✓	-	✓
16-bit dsPIC33E/F Series	✓	-	✓
16-bit dsPIC33C Series	✓	✓	-
32-bit ATSAMC21 (Cortex-M0+)	✓	✓	✓

Transceiver		
ATA6562/3/4/5/6	✓	✓

CAN Software Stack

Many CAN-featured microcontroller families from Microchip are supported by the CANbedded Software Stack from Vector which is used in almost every car today for CAN communication. MCAL CAN drivers are available on request for Automotive Applications.

LED indicator

For realizing a feedback via LEDs on the gear selector the ISELED LED drivers INLC10AQ from Inova combined with a suitable microcontroller from Microchip could be a suitable solution: ISELED

For LED drivers made up of discrete parts Microchip offers a wide range of automotive qualified analog parts like operational amplifiers (for different usage with different specification): Automotive Analog Products