

ABRIDGED DATA SHEET

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MAX25205

Gesture Sensor for Automotive Applications

General Description

The MAX25205 is a low-cost data-acquisition system for gesture and proximity sensing. The MAX25205 recognizes the following independent gestures:

- Hand swipe gestures (left, right, up, and down)
- Finger and hand rotation (CW and CCW)
- Proximity detection

The proximity, hand detection, and gesture recognition functions of the MAX25205 operate by detecting the light reflected from the controlled IR-LED light source with an integrated 6x10-element optical sensor array. The MAX25205 can detect these gestures even when exposed to bright ambient light. A low-power, low-cost CPU, such as the MAX32630, is required to process the data from the sensor.

This discrete light source is created externally with one or more FETs driven directly from the MAX25205. The light source's PWM duty cycle is programmable from 1/16 to 16/16. The LEDs are pulsed on one or more times in a programmable sequence that is repeated for every sample.

For flexibility, the MAX25205 supports two different serial communication protocols: I²C (400kHz) and SPI (6MHz).

The MAX25205 is available in a 4mm x 4mm, 20-pin, optical QFN package.

Applications

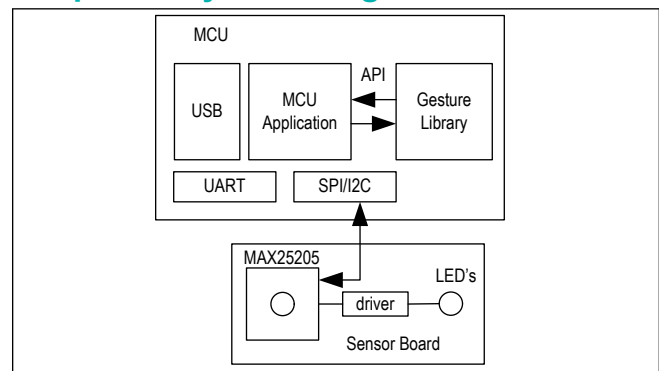
- Central Information Display Control
- Rear-Seat Entertainment Systems
- Door, Moon Roof, and Trunk Control
- Mechanical Switch Replacement
- Occupant Detection

Benefits and Features

- Low-Cost, Flexible Gesture-Sensing Solution for Automotive Applications
- Low-Power, Low-Cost External CPU Processes Sensor Output
- Supports Swipe, Rotation, and Proximity Gestures
- Highly Integrated
 - 60-Pixel IR Photodiode Array
 - Integrated LED Driver
 - 400kHz I²C and 6MHz SPI Serial Interfaces
- Operates in 120k Lux Ambient Light
- AEC-Q100 Qualified
 - -40°C to +85°C Operation
 - MSL3
- Ultra-Low-Power Operation
 - 1mA at 3.3V
- Compact 4mm x 4mm x 1.35mm, 20-Pin, Side-Wettable QFN Package

Ordering Information appears at end of datasheet.

Simplified System Diagram



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Typical Application Circuits

Typical Application Circuit with External FET LED Drive

