

APDS-9500

Imaging-Based Proximity and Gesture Sensor



A Broadcom Limited Company

Data Sheet

Description

The APDS-9500 provides an imaging-based gesture recognition function with an I²C-bus interface in a single 18-pin package. It can recognize nine gestures, including move up, move down, move left, move right, move forward, move backward, circle-clockwise, circle-counter-clockwise and wave. This gesture information can be easily accessed via the I²C bus.

The APDS-9500 also provides built-in proximity detection for sensing objects approaching or departing.

Applications

- Gesture Detection
- Cell Phone Touch-Screen Disable
- Mechanical Switch Replacement

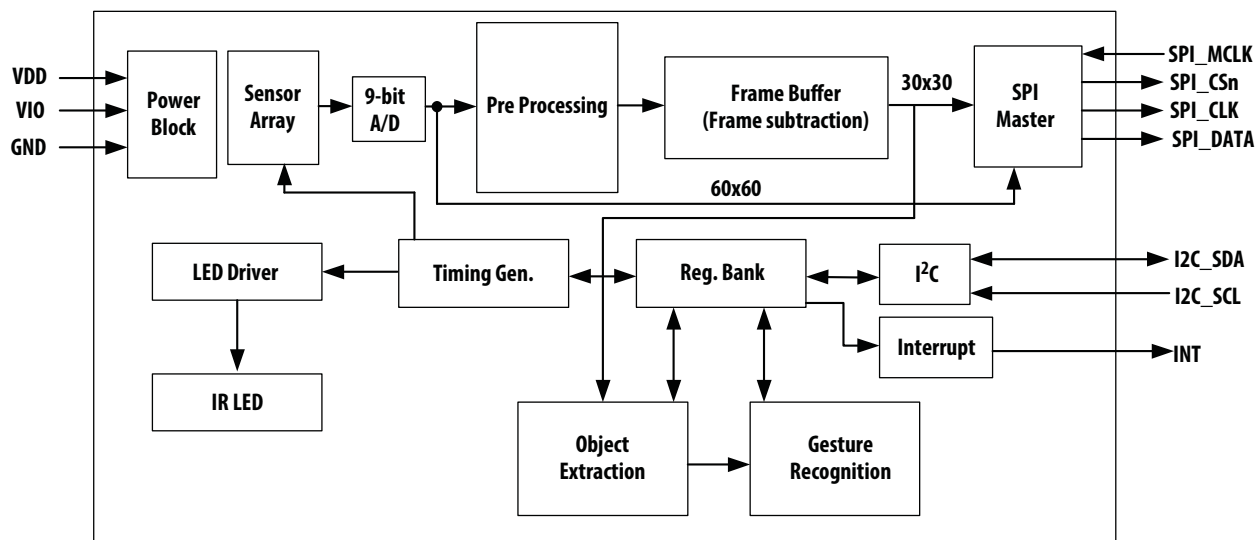
Ordering Information

Part Number	Packaging	Quantity
APDS-9500	Tape and Reel	2500 per reel

Features

- Imaging-based proximity and gesture sensor in an optical module
- Gesture output
 - Nine-gesture recognition
- Proximity output
 - Object brightness output
 - Object size output
- Cursor mode output
 - X and Y output
- Image output
 - SPI output
 - 30 × 30 pixels/60 × 60 pixels
 - 9-bit gray scale
- Ambient light immunity
- I²C-bus interface compatible
 - Data rates up to 400 kHz
 - Dedicated Interrupt pin
- Flexible power saving mode
- V_{DD} range from 2.8V to 3.3V
- I/O voltage range from 1.8V to 3.3V
- Small package: 6.87 × 3.76 × 2.86 mm (L × W × H)

Functional Block Diagram



I/O Pins Configuration

Pin	Name	Type	Description
1	NC		No connect
2	INT	O	Interrupt
3	GND		Power supply ground
4	SPI_DATA	O	SPI data
5	SPI_CLK	O	SPI clock
6	NC		No connect
7	LDR_2		LED Drive 2
8	LED-K_1		LED Cathode
9	LED-A		LED anode, connect to V _{LED} on PCB
10	VDDA_I/O		Connect to GND through decoupling capacitor
11	VDDAY_I/O		Connect to GND through decoupling capacitor
12	VDDA18_I/O		Connect to GND through decoupling capacitor
13	VDD		Power supply voltage
14	VIO		Power supply voltage
15	SPI_MCLK	I	SPI master clock
16	SPI_CS _n	O	SPI chip select
17	I2C_SDA	I/O	I ² C-bus serial data I/O terminal—serial data I/O for I ² C-bus
18	I2C_SCL	I	I ² C-bus serial clock input terminal—clock signal for I ² C-bus serial data