Agilent ADNK-3061
Optical Mouse Designer's Kit
Product Overview

Description

Agilent Technologies and Cypress Semiconductor have joined forces again to produce a new optical mouse reference design kit. Based on the new Agilent ADNS-3060 high performance optical mouse sensor and the powerful Cypress CY7C63743-PC enCoRe™ USB microcontroller, this reference design kit provides a low cost feature-rich solution in one neat package.

The Agilent ADNS-3060 optical mouse sensor, a 20-pin staggered dual inline package (DIP), is based on a new, faster architecture with improved navigation performance. It is able to measure changes in position by optically acquiring sequential surface images of over 6400 fps and mathematically determining the direction and magnitude of movement.

The ADNS-3060 along with the ADNS-2120 lens, ADNS-2220 clip and HLMP-ED80-XX000 form a complete, compact optical mouse tracking system. There are no mechanical parts, which means high reliability and less maintenance for the end user. In addition, precision optical alignment is not required, facilitating high volume assembly. The sensor is programmed via registers through a four-wire serial port.

The Cypress CY7C63743-PC enCoRe is a revolutionary chip that integrates numerous common components, including breakthrough crystal-less oscillator. The result is an overall reduction in board components and reduced system cost. The EPROM based microcontroller allows easy firmware modification, as well as storage of Vendor and Product ID™s without an external EEPROM.

This kit is connectable to a PC via the USB or PS/2 ports. A single cable with a USB connector and a PS/2 adapter is also provided. The design automatically detects the type of interface is attached, allowing further development of a USB or PS/2 only mouse.

Features

- **Complete optical mouse reference design kit**
- **ADNS-3060 high performance optical mouse sensor**
- **High speed motion detection – up to 40 ips and 15g**
- **New architecture for greatly improved optical navigation technology**
- **No mechanical moving parts for easy maintenance and high reliability**
- **Programmable frame rate over 6400 frames per second**
- **SmartSpeed self-adjusting frame rate for optimum performance**
- **Serial port burst mode for fast data transfer**
- **400 or 800 cpi selectable resolution**
- **Single 3.3 volt power supply**
- **Four-wire serial port along with Chip Select, Power Down, and Reset pins**
- **Cypress enCoRe™ CY7C63743-PC USB controller**
- **USB and PS/2 interface combination for PC connection**
- **Proprietary 8-bit RISC processor, USB and PS/2-optimized interface for high system performance**
- **8K Bytes of internal EPROM provided to enable easy customization of firmware and lower cost**
- **Conforms to USB suspend mode specifications**

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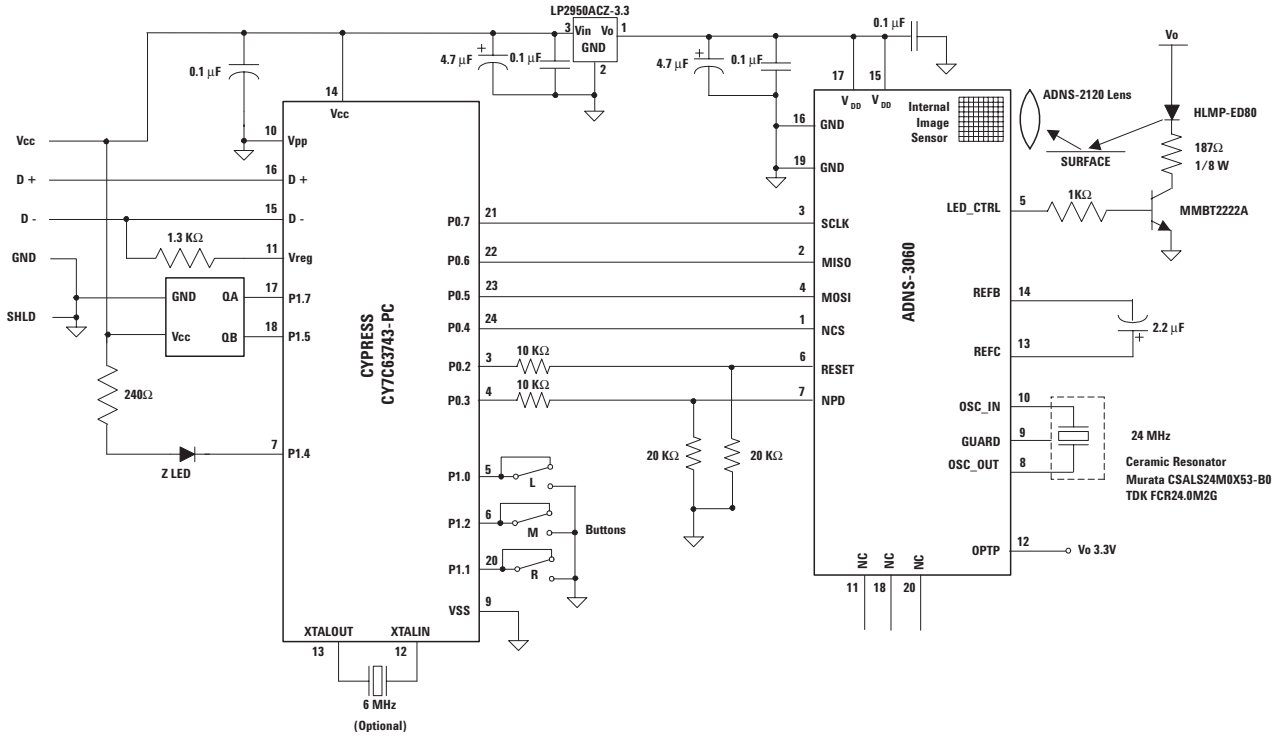

Figure 1. Circuit-level block diagram for ADNK-3061 designer's kit optical mouse using the Agilent ADNS-3060 optical mouse sensor and Cypress CY7C63743-PC enCoRe USB Controller.

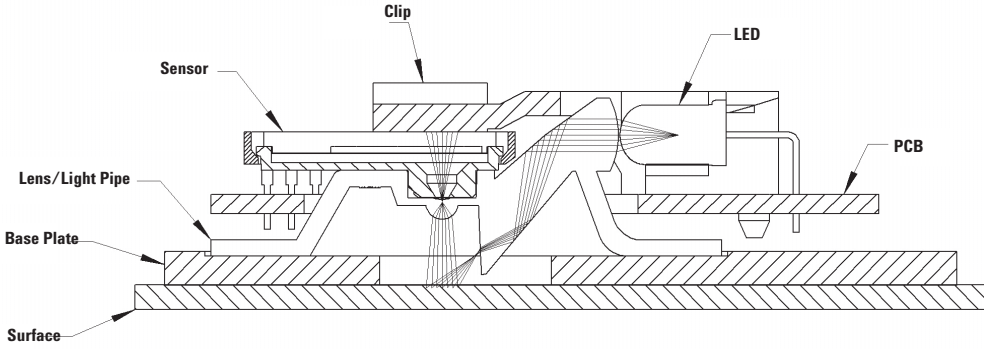

Figure 2. Sectional view of PCB assembly highlighting all optical mouse components (optical mouse sensor, clip, lens, LED, PCB, and base plate).

Kit Components

The designer's kit contains components as follows:

Part Number	Description	Name	Quantity
ADNS-3060	Solid-State Optical Mouse Sensor	Sensor	5
CY7C63743-PC	Cypress USB Controller	USB Controller	5
ADNS-2120	Round Lens Plate	Lens	5
ADNS-2120-001	Trim Lens Plate	Lens	5
ADNS-2220	LED Assembly Clip (Black Clip)	LED Clip	5
ADNS-2220-001	LED Assembly Clip (Transparent)	LED Clip	5
HLMP-ED80-XX000	639 nm T 1 _ (5 mm) Diameter LED	LED	5
ADNK-3061 CD	Includes Documentation and Support Files for ADNK-3061 Documentation • ADNS-3060 Data Sheet • CY7C63743-PC Data Sheet • ADNS-2120 Data Sheet • ADNS-2220 Data Sheet • HLMP-ED80-XX000 LED Data Sheet • AN 5035 – PCB Mounting Method for ADNS-3060 Optical Sensor • AN 5034 – ADNS-3060 Power Saving Methodology • AN 5036 – ADNS-3060 Eye Safety Calculations Hardware Support Files • ADNK-3061 BOM List • ADNK-3061 Schematic • IGES Base Plate Feature File • Gerber File Software Support Files • Microcontroller Firmware Cypress LAB™ Support Files • CY Debugger • CYASM Assembler Software • Code Examples • User Manual		1
ADNK-3061 Mouse	High Performance Reference Design Mouse	Optical Mouse	1

Ordering Information

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Data subject to change.

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