

## Design Guide



Lead (Pb) Free  
RoHS 6 fully  
compliant



### Introduction

The ADNK-2623 reference design mouse unit enables users to evaluate the performance of the Optical Tracking Engine (sensor, lens, LED assembly clip, LED) over both a USB or PS/2 connection, using Cypress enCoRe USB Controller. This kit also allows the user to understand the recommended mechanical assembly. (See Figure 1.)

The ADNK-2623 comprises of the plastic case, printed circuit board (PCB), lens, buttons, and USB cable. (See Figure 2.) Unscrewing the one screw located at the base of the unit can open the ADNK-2623. It can be further disassembled by lifting and pulling the PCB out of the base plate. The lens is not permanently attached to the sensor and will drop out of the assembly.

For more information, check out the Avago's optical mouse sensor website.

### Functionality

3-button, scroll wheel combi mouse.

### System Requirements

PCs using Windows® 95/Windows® 98/ Windows® NT/ Windows® 2000 with PS/2 port and standard 3-button USB mouse driver loaded.

### Operating (For PS/2 Mode)

Step 1: Turn off the PC.

Step 2: Plug the mouse unit's PS/2 connector into the PC's PS/2 port.

Step 3: Turn on the PC. All of the mouse buttons and scroll wheel will function exactly like a standard PS/2 mouse.

### Operating (For USB Mode)

Hot pluggable with USB port. The PC does not need to be powered off when plugging or unplugging the evaluation mouse.

### Kit Components

Refer to table on page 3.

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### Sensor

The sensor technical information is contained in the ADNS-2620 Data Sheet.

### USB Controller

Technical information on the Cypress enCoRe USB controller is contained in the CY7C63723 Data Sheet. The enclosed "Cypress Lab" CD-ROM contains the development tools for the CY7C63723. These tools will allow the designer to make changes and recompile the source code. To perform In-Circuit Emulation for easier debugging of new code development, contact Cypress to purchase the CY3654 Development Kit and the CY3654-P05 Personality Board.

Programming support and programmer adaptors for the Cypress CY7C63723-PC can be found through Cypress (CY3649-xxxV + CY3083-DP48 + CY3083-07) or through most 3rd party programming companies. For further information on this product, please contact Cypress Semiconductor.

### Lens

The lens technical information is contained in the HDNS-2100 Data Sheet. The flange on the standard HDNS-2100 lens is for ESD protection.

### LED Assembly Clip

The information on the assembly clip is contained in the HDNS-2200 Data Sheet.

### LED

The LED technical information is contained in the HLMP-ED80-XX000 Data Sheet and Application Note 1282. Additional application notes regarding Eye Safety Requirements are also available on Avago's website.

### Base Plate Feature — IGES File

The IGES file on the floppy disc provides recommended base plate molding features to ensure optical alignment.

### Reference Design Documentation — Gerber file

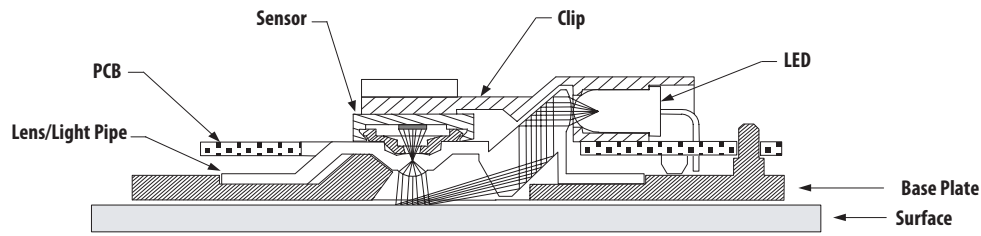


Figure 1. Sectional view of PCB assembly highlighting optical mouse components (optical mouse sensor, clip, lens, LED, PCB and base plate).

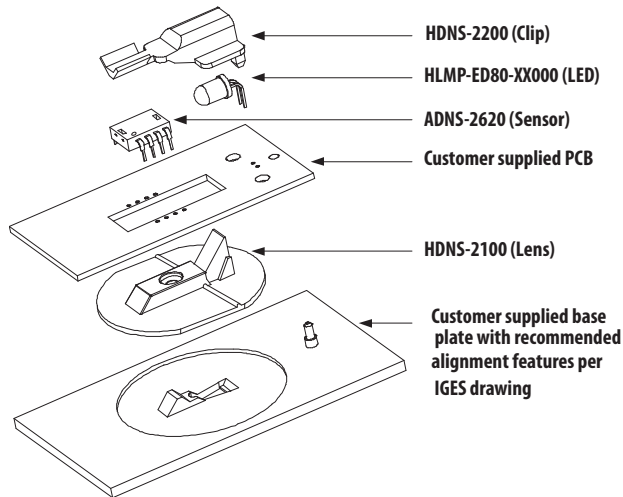


Figure 2. Exploded view drawing of optical tracking engine with ADNS-2620 optical mouse sensor.

## Regulatory Requirements

- Passes FCC B and worldwide analogous emission limits when assembled into a mouse with unshielded cable and following Avago recommendations.
- Passes EN61000-4-4/IEC801-4 EFTB tests when assembled into a mouse with shielded cable and following Avago recommendations.
- UL flammability level UL94 V-0.
- Provides sufficient ESD creepage/clearance distance to avoid discharge up to 15 kV when assembled into a mouse according to usage instructions above.
- For eye safety consideration, please refer to the technical report available on the web site at [www.Avago.com/semiconductors](http://www.Avago.com/semiconductors).

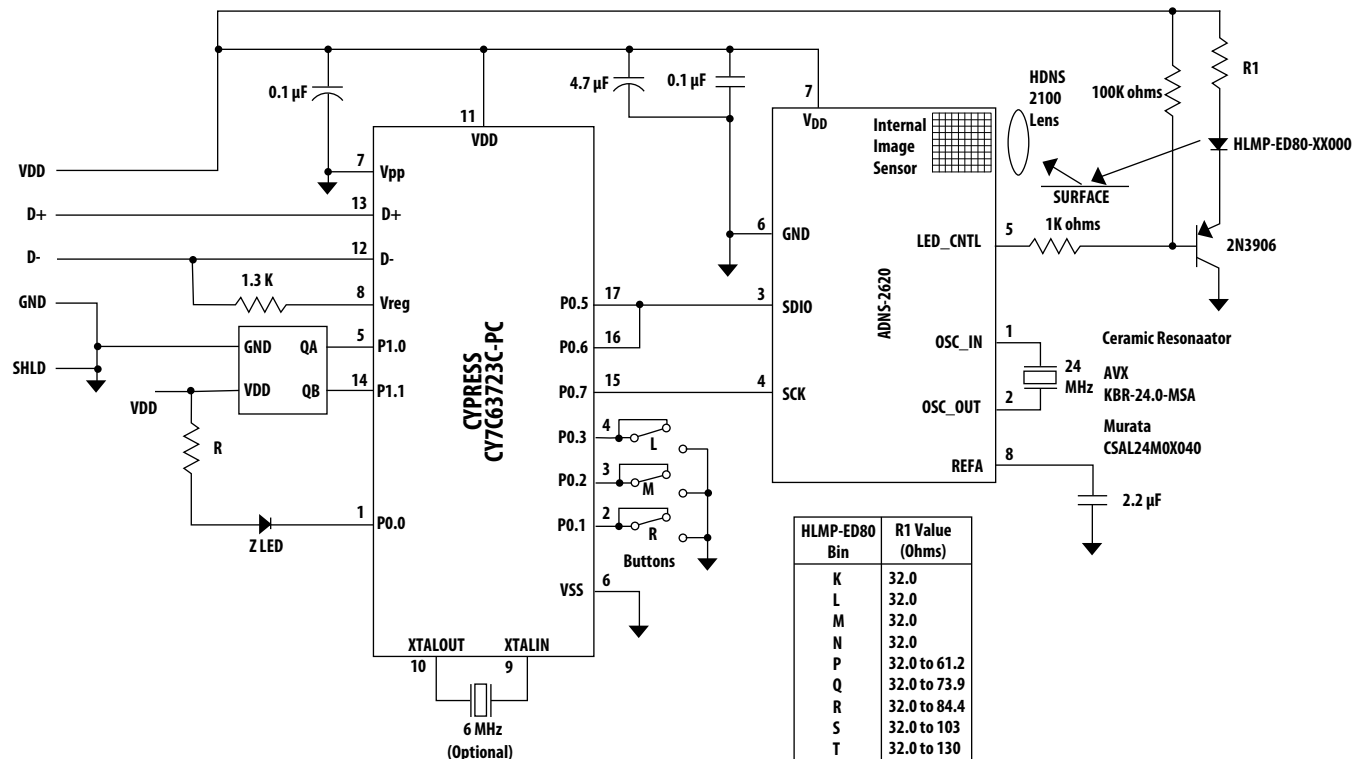


Figure 3. Circuit block diagram for ADNK-2623 designer's kit optical mouse using the Avago ADNS-2620 optical mouse sensor and Cypress CY7C63723 en-CoRe USB Controller.

## Kit Components

This designer's kit contains the following components:

Part Number	Description	Name	Quantity
ADNK-2623	Optical Mouse Reference Design Unit Includes: – Avago ADNS-2620 optical mouse sensor – Cypress CY7C63723 enCoRe™ USB controller	Reference Design Unit	1
ADNS-2620	Optical Mouse Sensor	Sensor	5
CY7C63723-PC	Cypress USB Controller	USB Controller	5
HDNS-2100	Round Lens Plate	Lens	5
HDNS-2100#001	Trimmed Lens Plate	Lens	5
HDNS-2200	LED Assembly Clip (Black)	LED Clip	5
HDNS-2200#001	LED Assembly Clip (Transparent)	LED Clip	5
HLMP-ED80-XX000	639 nm T1 $\frac{3}{4}$ (5 mm) Diameter LED	LED	5
ADNK-2623 CD-ROM	Includes Documentation and Support Files for ADNK-2623 Documentation a. ADNS-2620 Data Sheet b. CY7C63723 Data Sheet c. HDNS-2100 Data Sheet d. HDNS-2200 Data Sheet e. HLMP-ED80-XX000 Data Sheet f. Application Note 1228 Hardware Support Files a. ADNK-2623 BOM List b. ADNK-2623 Schematic c. 3D IGES Files Software Support Files a. Microcontroller Firmware		1
Cypress LAB™ CD-ROM	Includes Development Tools and Support Files for CY7C63723-PC • CY Debugger • CYASM Assembler Software • Code Examples • Users Manual		1

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For product information and a complete list of distributors, please go to our web site: [www.avagotech.com](http://www.avagotech.com)

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