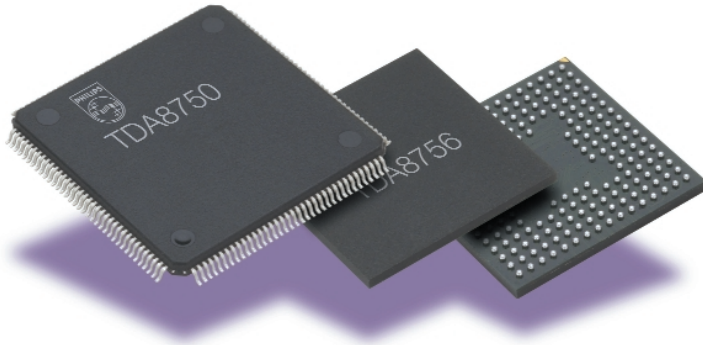# TDA8750/TDA8751/TDA8754/ TDA8756/TDA8759

Universal Data Converter Interface Products for Flat Panel Applications

Philips Standard Analog's portfolio has recently expanded its Data Converter product range with several Analog-to-Digital Interface products to support the technology evolution of Video and Graphic receiver equipment such as Monitors, Projectors, LCD and plasma TV… from Analog only to Dual-mode (Analog-RGB/YUV and Digital-DVI) input interface.

Semiconductors

Description

Philips Standard Analog's portfolio of Video Data Converters provides the best-in-class solutions for applications requiring to convert Video or Graphic signals coming from Analog or Digital (DVI)[1] sources into triple 8 or 10-Bit parallel data stream which are digitally processed for addressing various display technologies.

The TDA8756 is optimized for Monitor and projector applications using RGB based processors or scalers. It converts RGB or YUV analog signals under 8-bit up to 250 MSPS, into one or two demultiplexed 24-bit RGB or YUV banks of data. Its DVI receiver can be configured into two single-link interfaces or one Dual-Link interface allowing QXGA resolution under DVI. The device is packaged in a compact LBGA208 with a body size of 17 mm x 17 mm reaching the smallest PCB area available on the market for these functions. It is available in 110, 140, 170, 210 and 250 MSPS versions. TDA8754 is the Analog only interface version packaged in LQFP144.

The TDA8750 is optimized for TV applications using YUV based processors either in CCIR656 or CCIR601 formats. It combines as well an Analog path with a triple 8-Bit ADC up to 110 MSPS and a digital path with two single link DVI receivers. Both signal paths are processed through a highly flexible digital formatter having a RGB to YUV—and reverse—matrix, leading to RGB or YUV 4:4:4, YUV 4:2:2 (CCIR601 or 656) outputs what ever the inputs are, RGB, YUV or DVI. Moreover like the TDA8756, TDA8750 includes a robust and highly configurable sync separator avoiding the use of an external device, thanks to compliance with all standard analog video sources from VCR to HDTV thru DVD and Set Top Box. TDA8750 is packaged in a HLQFP176 device. TDA8751 is the higher performance device with 10-bit resolution TDA8759 is 8-bit analog interface only.
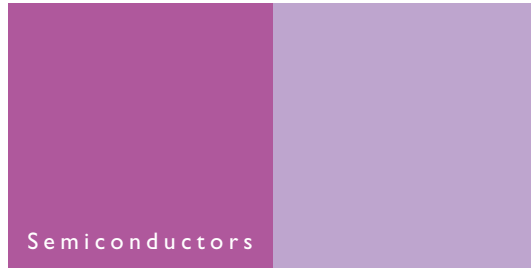
Features

- Wide speed range (from 80 MSPS to 250 MSPS)
- Sync separator/extractor to comply with all analog Video formats
- Multiple signal inputs (Analog RGB or YUV, and DVI)
- Internal static switch allows to select between input sources
- PLL programmable via I2C
- Low PLL jitter for high accuracy sampling and picture quality
- Flexible configurations via I2C
- Compliance with DVI standard
- Embedded HDCP[2] function with software encryption for secure loading of the keys
- 3.3 V/1.8 V dual power supplies

Applications

- LCD Monitors
- Video Projectors
- TV (LCD, Projection, Rear Projection, Plasma, 100 Hz/Feature CRT)
- Video digitizing and processing (High-end recording and digital recording, Studio equipment)

	TDA8754	TDA8759	TDA8756	TDA8750	TDA8751
Analog inputs, only	Yes	Yes	No	No	No
Analog and DVI inputs	No	No	Yes	Yes	Yes
Digital YUV output formats	Yes	No	No	Yes	Yes

[1] DVI specification published by Digital Working Group (DDWG) promoters and may have related patents and/or patent applications.
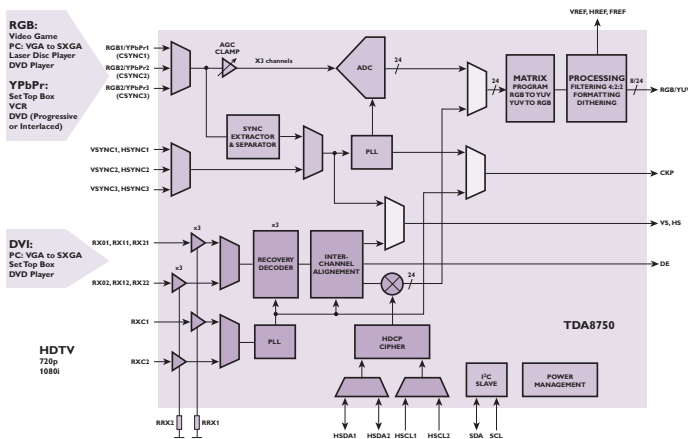
[2] HDCP is software designed by Intel/Silicon Image. All trademark rights belong to the respective producers.
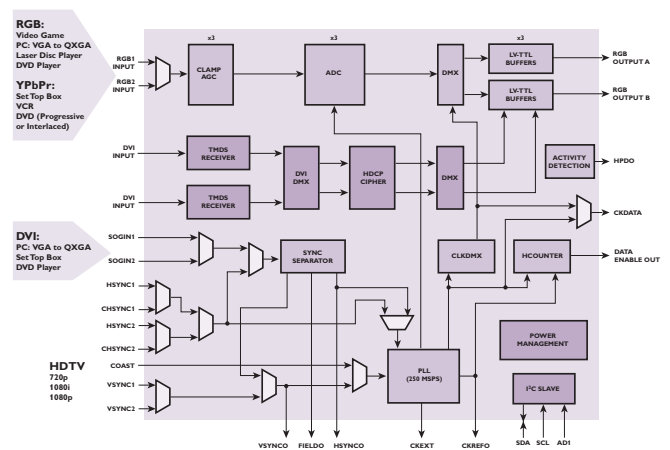
PHILIPS

TDA8750/TDA8751/TDA8754/TDA8756/TDA8759

Universal Data Converter Interface Products for Flat Panel Applications

www.semiconductors.philips.com

TDA8750: 8-Bit 80/110 MSPS Video Converter Interface + DVI

TDA8756: 8-Bit 110/250 MSPS Video Converter Interface + DVI

Summary Table of Data Converter Interface Products and Features for Displays Systems

Features	TDA8706A	TDA8752B	TDA8757C	TDA8754	TDA8759	TDA8756	TDA8750	TDA8751
Analog Path								
Resolution	6-Bit	8-Bit	8-Bit	8-Bit	8-Bit	8-Bit	8-Bit	10-Bit
Analog Supply	3.3 V	5 V	5 V	3.3 V	3.3 V	3.3 V/1.8 V	3.3 V/1.8 V	3.3 V/1.8 V
Speed (MSPS)	40	110	170, 205	110, 140, 170, 205, 250	81, 110	110, 140, 170, 205, 250	81, 110	81
Analog Input	1(RGB)	1(RGB/YUV)	1(RGB/YUV)	2(RGB/YUV)	3(RGB/YUV)	2(RGB/YUV)	3(RGB/YUV)	3(RGB/YUV)
PGA	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AGC	No	No	No	No	Yes	No	Yes	Yes
Sync-on Green	N/A	No	Yes	Yes	Yes	Yes	Yes	Yes
Sync Separator	N/A	No	No	Yes	Yes	Yes	Yes	Yes
RGB <->YUV Matrix	No	No	No	No	Yes	No	Yes	Yes
YUV output formatting	No	No	No	No	Yes	No	Yes	Yes
Frame/field detection	N/A	No	No	Yes	Yes	Yes	Yes	Yes
Input activity detection				Yes	Yes	Yes	Yes	Yes
DVI Path								
Two Link	N/A	N/A	N/A	N/A	N/A	Yes	Yes	Yes
Dual link	N/A	N/A	N/A	N/A	N/A	Yes	No	No
Speed per link (MSPS)	N/A	N/A	N/A	N/A	N/A	165	110	110
HDCP	N/A	N/A	N/A	N/A	N/A	Yes	Yes	Yes

Philips Semiconductors

Philips Semiconductors is a worldwide company with over 100 sales offices in more than 50 countries. For a complete up-to-date list of our sales offices please e-mail sales.addresses@www.semiconductors.philips.com.

A complete list will be sent to you automatically. You can also visit our website http://www.semiconductors.philips.com/sales

PHILIPS