

Errata to TFP410 Datasheet

This document describes errata to the TFP410 and its datasheet (literature number [SLDS145](#)).

Revision History

VERSION	DATE	DESCRIPTION
1.0	Initial	DE generator
1.1	1/22/2003	Items 2-4
1.2	5/20/2003	V _{IH} , V _{IL} clarification, CTL3 encoding, pad size update, revision history
A	4/17/2009	Removed pad size information

DE Generator

The DE generator function has a limitation which limits its use in high pixel count formats. The DE_DLY and DE_CNT values are limited by DE_DLY + DE_CNT < 2047.

For resolutions where the timing allows, it may be possible to work around this limitation by using the inactive edge of HSYNC as the starting point for DE_DLY. Appropriate timing allowances may be needed for the vertical count starting location.

Changes in the Document Text

In the “register descriptions” section, under the pictorial for DE_DLY (Page 20), add after the existing sentence: The value must be less than or equal to (2047 - DE_CNT).

In the “register descriptions” section, under the pictorial for DE_CNT (Page 21), add after the existing sentence: The value must be less than or equal to (2047 - DE_DLY)

MSEN Output

The MSEN output description is incorrect in the “Terminal Functions” table. MSEN behavior of the 410 with manual configuration is to output the receiver connected status as a high, receiver not connected as a low.

Changes in the Document Text

From: When I²C is disabled (ISEL = low), a low level indicates a powered on receiver is detected at the differential outputs. A high level indicates a powered on receiver is not detected. This function is only valid in dc-coupled systems.

To: When I²C is disabled (ISEL = low), a high level indicates a powered on receiver is detected at the differential outputs. A low level indicates a powered on receiver is not detected. This function is only valid in dc-coupled systems.

Error in Register Capability

Changes in the Document Text

Sheet 17, in the register map for sub-address 0B, change the RW column value

From: RW **To:** R

Error in Default Value

Changes in the Document Text

Sheet 18, Reg sub-address 08 change register default

From: FE **To:** BE

CTL3 Not Encoded in Output

The CTL3 input from the device pin or register value is not encoded into the DVI stream. The current TFP410 is aware of HDCP and encodes the CTL3 signal as 0 in the output. When the device is configured for manual input with pins 6-8 selected as CTL[3:1], pin 6 is not encoded. When the device is configured for I2C operation, bit 3 of the CTL_# MODE register at Sub-Address 0A can be written and read, but the bit is not encoded.

Changes in the Document Text

Sheet 2, change pin 6 label

From: CTL3/A3/DK3 **To:** A3/DK3

Sheet 4, in the Terminal Functions table, change the name of pin 6

From: CTL3/A3/DK3 **To:** A3/DK3

Sheet 4, in the Terminal Functions table, change pin 6 Description

From: When the I²C bus is disabled (ISEL = low) and the de-skew mode is disabled (DKEN = low), these three inputs become the control inputs, CTL[3:1], which can be used to send additional information across the DVI link during the blanking interval (DE = low). The CTL3 input is reserved for HDCP compliant DVI TXs (TFP510) and the CTL[2:1] inputs are reserved for future use.

To: When the I²C bus is disabled (ISEL = low) and the de-skew mode is disabled (DKEN = low), pins 7 and 8 become the control inputs, CTL[2:1], which can be used to send additional information across the DVI link during the blanking interval (DE = low). Pin 6 is not used.

Sheet 10, in the first paragraph of the T.M.D.S. pixel data and control signal encoding section, change the sentence

From: These same three channels are also used to transmit HSYNC, VSYNC, and three user definable control signals, CTL[3:1], during the inactive display or blanking interval (DE = Low).

To: These same three channels are also used to transmit HSYNC, VSYNC, and the control signals, CTL[3:1], during the inactive display or blanking interval (DE = Low).

Sheet 10, in note 8, change the second sentence

- From:** The CTL3 input is reserved for HDCP compliant DVI TXs and the CTL[2:1] inputs are reserved for future use.
- To:** CTL3 is reserved for HDCP and is always encoded as 0. The CTL[2:1] inputs are reserved for future use.

Sheet 19, register CTL_3_MODE, change definition of bits 3:1 in the diagram

From:	3	2	1
	CTL[3:1]		
To:	3	2	1
	RSVD	CTL[2:1]	

In the text below the diagram, change the CTL bit definition name

- From:** CTL[3:1]: This read/write register contains the values of the three CTL[3:1] bits that are output on the DVI port during the blanking interval.
- To:** CTL[2:1]: This read/write register contains the values of the three CTL[2:1] bits that are output on the DVI port during the blanking interval.

Input Voltage Clarifications

In the DC specification table, V_{IH} and V_{IL} are not clear for signals that are not part of the video input bus.

Changes in the Document Text

Sheet 7, in the dc specifications table, change the V_{IH} and V_{IL} specifications to contain the following information:

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
V_{IH}	High-level input voltage	Data, DE, VSYNC, HSYNC and IDCK+/-	$V_{REF} = DV_{DD}$		$0.7 \times V_{DD}$	V
			$0.5 \text{ V} \leq V_{REF} \leq 0.95 \text{ V}$		$V_{REF} + 0.2$	
		Other inputs			$0.7 \times V_{DD}$	
V_{IL}	Low-level input voltage	Data, DE, VSYNC, HSYNC and IDCK+/-	$V_{REF} = DV_{DD}$		$0.3 \times V_{DD}$	V
			$0.5 \text{ V} \leq V_{REF} \leq 0.95 \text{ V}$		$V_{REF} - 0.2$	
		Other inputs			$0.3 \times V_{DD}$	

IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

TI assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using TI components. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any TI patent right, copyright, mask work right, or other TI intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information published by TI regarding third-party products or services does not constitute a license from TI to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of TI information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. Reproduction of this information with alteration is an unfair and deceptive business practice. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Resale of TI products or services with statements different from or beyond the parameters stated by TI for that product or service voids all express and any implied warranties for the associated TI product or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

TI products are not authorized for use in safety-critical applications (such as life support) where a failure of the TI product would reasonably be expected to cause severe personal injury or death, unless officers of the parties have executed an agreement specifically governing such use. Buyers represent that they have all necessary expertise in the safety and regulatory ramifications of their applications, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of TI products in such safety-critical applications, notwithstanding any applications-related information or support that may be provided by TI. Further, Buyers must fully indemnify TI and its representatives against any damages arising out of the use of TI products in such safety-critical applications.

TI products are neither designed nor intended for use in military/aerospace applications or environments unless the TI products are specifically designated by TI as military-grade or "enhanced plastic." Only products designated by TI as military-grade meet military specifications. Buyers acknowledge and agree that any such use of TI products which TI has not designated as military-grade is solely at the Buyer's risk, and that they are solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI products are neither designed nor intended for use in automotive applications or environments unless the specific TI products are designated by TI as compliant with ISO/TS 16949 requirements. Buyers acknowledge and agree that, if they use any non-designated products in automotive applications, TI will not be responsible for any failure to meet such requirements.

Following are URLs where you can obtain information on other Texas Instruments products and application solutions:

Products

Amplifiers	amplifier.ti.com
Data Converters	dataconverter.ti.com
DLP® Products	www.dlp.com
DSP	dsp.ti.com
Clocks and Timers	www.ti.com/clocks
Interface	interface.ti.com
Logic	logic.ti.com
Power Mgmt	power.ti.com
Microcontrollers	microcontroller.ti.com
RFID	www.ti-rfid.com
RF/IF and ZigBee® Solutions	www.ti.com/lprf

Applications

Audio	www.ti.com/audio
Automotive	www.ti.com/automotive
Broadband	www.ti.com/broadband
Digital Control	www.ti.com/digitalcontrol
Medical	www.ti.com/medical
Military	www.ti.com/military
Optical Networking	www.ti.com/opticalnetwork
Security	www.ti.com/security
Telephony	www.ti.com/telephony
Video & Imaging	www.ti.com/video
Wireless	www.ti.com/wireless

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2009, Texas Instruments Incorporated