Errata to TFP510, Datasheet Literature Number SLDS146B

This document describes errata to the TFP510 and its datasheet.

Revision history:

Revision	Date	Description
A	Initial	DE generator
B	7/2003	MSEN, V_{IH}, V_{IL} clarification, pad size update, revision history

1. 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).

2. MSEN output:

The MSEN output description is incorrect in the “Terminal Functions” table. MSEN behavior of the 510 with manual configuration is to output the receiver connected status as a high, receiver not connected as a low.

Changes in the document text:

In the “Terminal Functions” table, page 5, for the MSEN pin, middle paragraph of the “Description” column, change the second paragraph

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.

3. 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:

PARAMETERS			TEST CONDITIONS	MIN	TYP	MAX	UNIT
V_{IH}	High-level input voltage	Data, DE, VSYNC, HSYNC and IDCK+/-	$V_{REF} = DV_{DD}$	$0.7V_{DD}$			V
			$0.55V \leq V_{REF} \leq 0.9V$	$V_{REF} + 0.2$			V
		Other inputs		$0.7V_{DD}$			V
V_{IL}	Low-level input voltage	Data, DE, VSYNC, HSYNC and IDCK+/-	$V_{REF} = DV_{DD}$			$0.3V_{DD}$	V
			$0.55V \leq V_{REF} \leq 0.9V$			$V_{REF} - 0.2$	V
		Other inputs				$0.3V_{DD}$	V

4. PowerPad size and routing consideration:

The size of the exposed metal on the PowerPad package figure is shown as larger than on production devices. When providing a thermal land, it may be smaller than assumed from the package drawing. If routing traces under the power pad, some method of protection from shorts between the traces or vias and the PowerPad should be used.

Changes to document:

Sheet 25, change the package figure as described:
a) Re-size the thermal pad dashed box from its present size to 5.35mm, centered in the package.
b) Note the dimensions and change note D by either:

Add dimensions to re-sized pad showing: 5.35 SQ
4.25

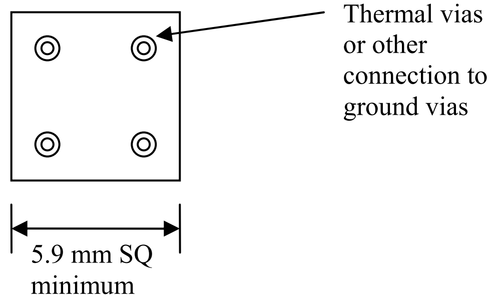
and
Change note D to read:
The package thermal performance may be enhanced by bonding the thermal pad to an external thermal plane.
This pad is centered on the package and is electrically and thermally connected to the backside of the die.

Sheet 24, add sentence to paragraph 1, revise paragraph 2 and add figure and paragraphs between existing paragraphs 2 &3 to read:

… soldering the back side of the TFP510 to the application board is not required thermally as the device power dissipation is well within the package capability when not soldered. If traces or vias are located under the back side pad, they should be protected by suitable solder mask or other assembly technique to prevent inadvertent shorting to the exposed back side pad.

Soldering the backside of the device to thermal land connected to the PCB ground plane is recommended for electrical and EMI considerations. The thermal land may be soldered to the exposed PowerPAD using standard reflow soldering techniques.

The recommended pad size for the grounded thermal land is 5.9mm minimum, centered in the device land pattern. When vias are required to ground the land, multiple vias are recommended for a low impedance connection to the ground plane. Vias in the exposed pad should be small enough or filled to prevent wicking the solder away from the interface between the package body and the thermal land on the surface of the board during solder reflow.



More information on this package and other requirements for using thermal lands and thermal vias are detailed in the TI application note *PowerPAD Thermally Enhanced Package Application Report*, TI literature number SLMA002, available via the TI Web pages beginning at URL: http://www.ti.com

Table 2 outlines the thermal properties…

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

Products Applications

Amplifiers amplifier.ti.com Audio www.ti.com/audio
Data Converters dataconverter.ti.com Automotive www.ti.com/automotive
DSP dsp.ti.com Broadband www.ti.com/broadband
Interface interface.ti.com Digital Control www.ti.com/digitalcontrol
Logic logic.ti.com Military www.ti.com/military
Power Mgmt power.ti.com Optical Networking www.ti.com/opticalnetwork
Microcontrollers microcontroller.ti.com 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 . 2003, Texas Instruments Incorporated