

S2D13515 Display Controller

**Interfacing the Sharp
LQ043xxx 480x272 TFT
Panel**

NOTICE

No part of this material may be reproduced or duplicated in any form or by any means without the written permission of Seiko Epson. Seiko Epson reserves the right to make changes to this material without notice. Seiko Epson does not assume any liability of any kind arising out of any inaccuracies contained in this material or due to its application or use in any product or circuit and, further, there is no representation that this material is applicable to products requiring high level reliability, such as, medical products. Moreover, no license to any intellectual property rights is granted by implication or otherwise, and there is no representation or warranty that anything made in accordance with this material will be free from any patent or copyright infringement of a third party. This material or portions thereof may contain technology or the subject relating to strategic products under the control of the Foreign Exchange and Foreign Trade Law of Japan and may require an export license from the Ministry of International Trade and Industry or other approval from another government agency.

All other product names mentioned herein are trademarks and/or registered trademarks of their respective companies.

©SEIKO EPSON CORPORATION 2008, All rights reserved.

Table Of Contents

- Chapter 1 Interfacing the Sharp LQ043xxx 480x272 TFT Panel 5**
 - 1.1 Overview 5
 - 1.1.1 Electrical Interface 6
 - 1.1.2 S2D13515 Register Settings for Sharp LQ043xxx, 480x272 TFT Panel 7
- Chapter 2 Change Record 8**

Chapter 1 Interfacing the Sharp LQ043xxx 480x272 TFT Panel

This document describes the hardware and software environment required to interface the S2D13515 Display Controller and Sharp LQ043xxx 480x272 TFT Panel.

The designs described in this document are presented only as examples of how such interfaces might be implemented.

In the following example, the Sharp LQ043xxx panel is connected to FP2IO LCD interface of S2D13515.

1.1 Overview

The S2D13515 directly supports the Sharp LQ043xxx and requires no additional hardware and minimal programming. The S2D13515 register settings and electrical interface is described in the following sections.

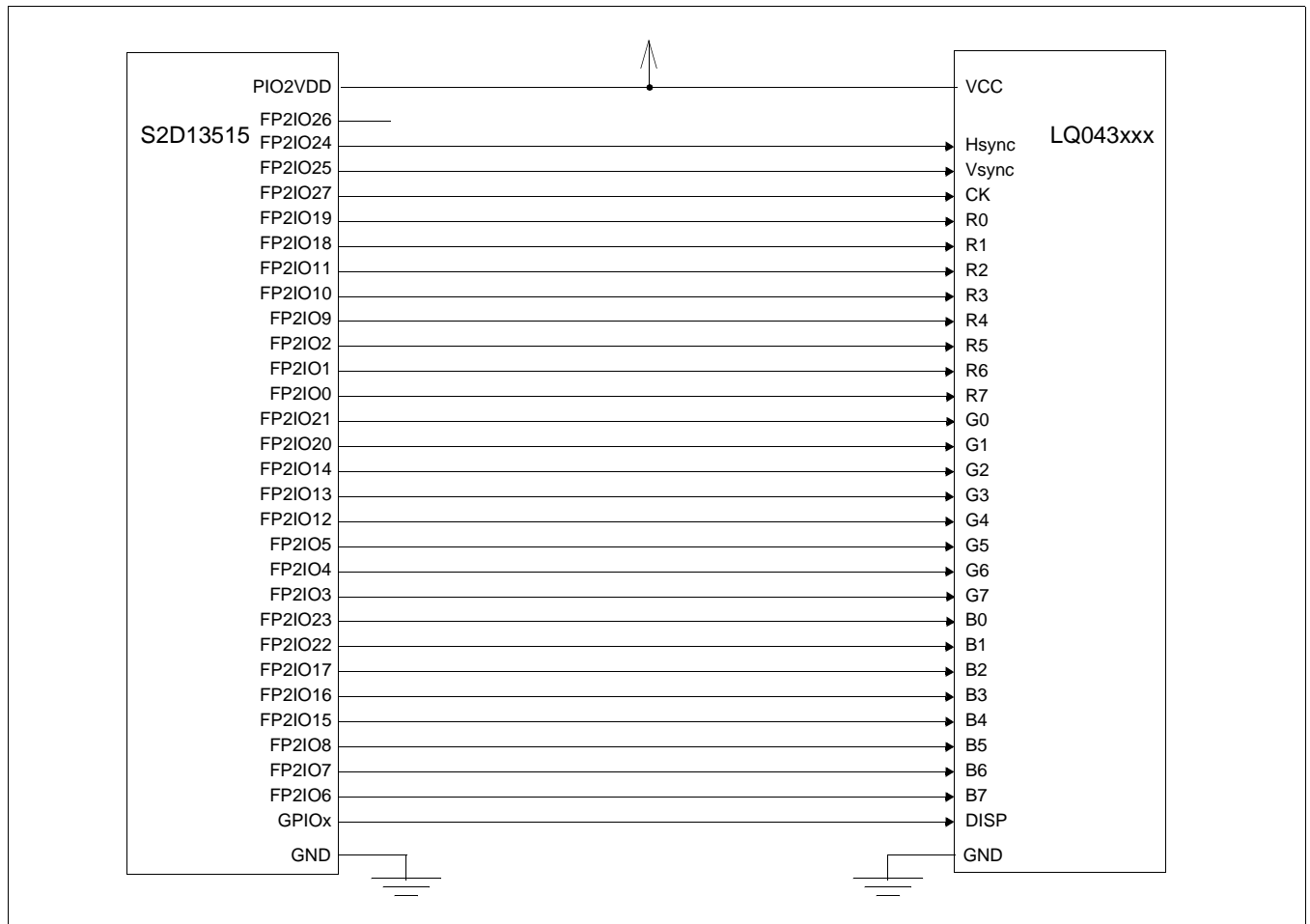


Figure 1-1: S2D13515 to Sharp LQ043xxx Connection Diagram

1.1.1 Electrical Interface

Table 1-1: Pin Mapping

S2D13515 Pin Name	LQ043xxx Pin Name
FP2IO24	Hsync
FP2IO25	Vsync
FP2IO27	CK
FP2IO26	-
FP2IO19	R0
FP2IO18	R1
FP2IO11	R2
FP2IO10	R3
FP2IO9	R4
FP2IO2	R5
FP2IO1	R6
FP2IO0	R7
FP2IO21	G0
FP2IO20	G1
FP2IO14	G2
FP2IO13	G3
FP2IO12	G4
FP2IO5	G5
FP2IO4	G6
FP2IO3	G7
FP2IO23	B0
FP2IO22	B1
FP2IO17	B2
FP2IO16	B3
FP2IO15	B4
FP2IO8	B5
FP2IO7	B6
FP2IO6	B7
GPIOx (any GPIO pin)	DISP

The same power must be connected to PIO2VDD pins of S2D13515 and to VCC pins of Sharp LQ043xxx panel.

Display ON/OFF signal is provided by one of S2D13515 GPIO pins and it is under application software control. The LCD2 VNDP Status bit can be used to comply with the Sharp LQ043xxx requirement that DISP signal does not change while Vsync is low.

1.1.2 S2D13515 Register Settings for Sharp LQ043xxx, 480x272 TFT Panel

The registers listed below are only those associated with panel specific timing issues. All other registers are not shown here.

Table 1-2: Example Register Settings for Sharp LQ043xxx 480x272 TFT Panel

Register	Value	Comment
REG[0031h]	31h	set LCD2PCLK divide, LCD2PCLK = 8MHz assuming LCDCLK=80MHz
REG[4000h]	0Xh	LCD2 RGB8:8:8), generic RGB
REG[4001h]	BXh	Display data is latched on falling edge of PCLK, 24-bit panel
REG[4020h]	0Ch	Hsync period = 525 pixels
REG[4021h]	02h	
REG[4022h]	EFh	horizontal display period = 480 pixels
REG[4023h]	00	
REG[4024h]	2Ah	horizontal display period start position = 43 pixels
REG[4025h]	00h	
REG[4026h]	28h	Hsync width = 41 pixels, active low pulse
REG[4027h]	00h	
REG[4028h]	00h	Hsync start position = 0 pixels
REG[4029h]	00h	
REG[402Ah]	1Dh	Vsync period = 286 lines
REG[402Bh]	01h	
REG[402Ch]	0Fh	vertical display period = 272 lines
REG[402Dh]	01h	
REG[402Eh]	0Ch	vertical display period start position = 12 lines
REG[402Fh]	00h	
REG[4030h]	09h	Vsync width = 10 lines
REG[4031h]	00h	Vsync active low
REG[4032h]	00h	Vsync start position = 0 lines
REG[4033h]	00h	
REG[4070h]	01h	enable LCD2 output

The above values are intended as examples. This example assumes that CLKI = 20MHz and that the PLL2 is used to generate LCDCLK. Actual settings can vary and still remain within the LCD panel timing requirements.

Chapter 2 Change Record

X83A-A-001-00 Revision 1.0 - Issued: June 11, 2008

- all changes from the last revision are highlighted in Red
- initial release

AMERICA

EPSON ELECTRONICS AMERICA, INC.**HEADQUARTERS**

2580 Orchard Parkway
San Jose, CA 95131, USA
Phone: +1-800-228-3964 FAX: +1-408-922-0238

SALES OFFICES**Northeast**

301 Edgewater Place, Suite 210
Wakefield, MA 01880, U.S.A.
Phone: +1-800-922-7667 FAX: +1-781-246-5443

EUROPE

EPSON EUROPE ELECTRONICS GmbH**HEADQUARTERS**

Riesstrasse 15
80992 Munich, GERMANY
Phone: +49-89-14005-0 FAX: +49-89-14005-110

ASIA

EPSON (CHINA) CO., LTD.

23F, Beijing Silver Tower 2# North RD DongSanHuan
ChaoYang District, Beijing, CHINA
Phone: +86-10-6410-6655 FAX: +86-10-6410-7320

SHANGHAI BRANCH

7F, High-Tech Bldg., 900, Yishan Road,
Shanghai 200233, CHINA
Phone: +86-21-5423-5522 FAX: +86-21-5423-5512

EPSON HONG KONG LTD.

20/F., Harbour Centre, 25 Harbour Road
Wanchai, Hong Kong
Phone: +852-2585-4600 FAX: +852-2827-4346
Telex: 65542 EPSCO HX

EPSON Electronic Technology Development (Shenzhen) LTD.

12/F, Dawning Mansion, Keji South 12th Road,
Hi-Tech Park, Shenzhen
Phone: +86-755-2699-3828 FAX: +86-755-2699-3838

EPSON TAIWAN TECHNOLOGY & TRADING LTD.

14F, No. 7, Song Ren Road,
Taipei 110
Phone: +886-2-8786-6688 FAX: +886-2-8786-6660

EPSON SINGAPORE PTE., LTD.

1 HarbourFront Place,
#03-02 HarbourFront Tower One, Singapore 098633
Phone: +65-6586-5500 FAX: +65-6271-3182

SEIKO EPSON CORPORATION**KOREA OFFICE**

50F, KLI 63 Bldg., 60 Yooido-dong
Youngdeungpo-Ku, Seoul, 150-763, KOREA
Phone: +82-2-784-6027 FAX: +82-2-767-3677

GUMI OFFICE

2F, Grand B/D, 457-4 Songjeong-dong,
Gumi-City, KOREA
Phone: +82-54-454-6027 FAX: +82-54-454-6093

SEIKO EPSON CORPORATION**SEMICONDUCTOR OPERATIONS DIVISION****IC Sales Dept.****IC International Sales Group**

421-8, Hino, Hino-shi, Tokyo 191-8501, JAPAN
Phone: +81-42-587-5814 FAX: +81-42-587-5117

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



Тел: +7 (812) 336 43 04 (многоканальный)

Email: org@lifeelectronics.ru