

ST7789S

ST7789S Application Note

**Ver 0.3
2012.07**

DISCLAIMER: THIS DOCUMENT IS PROVIDED TO YOU "AS IS" WITH NO WARRANTIES WHATSOEVER, INCLUDING ANY WARRANTY OF MERCHANTABILITY NON-INFRINGEMENT, OR FITNESS FOR ANY PARTICULAR PURPOSE. SITRONIX AND THE AUTHORS OF THIS DOCUMENT DISCLAIM ALL LIABILITY, INCLUDING LIABILITY FOR INFRINGEMENT OF ANY PROPRIETARY RIGHTS, RELATING TO USE OR IMPLEMENTATION OF INFORMATION IN THIS DOCUMENT. THE PROVISION OF THIS DOCUMENT TO YOU DOES NOT PROVIDE YOU WITH ANY LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE, TO ANY INTELLECTUAL PROPERTY RIGHTS

ST7789S

1	CMI Panel.....	3
1.1	CMI 2.4” Application FPC Circuit.....	3
1.2	CMI 2.8” Application FPC Circuit.....	5
2	CPT Panel.....	7
2.1	CPT 2.8” Application FPC Circuit.....	7
3	Hannstar Panel.....	9
3.1	HANNS 2.4” Application FPC Circuit.....	9
3.2	HANNS 2.6” Application FPC Circuit.....	11
3.3	HANNS 3.2” Application FPC Circuit.....	13
4	BOE Panel.....	15
4.1	BOE 2.4” Application FPC Circuit.....	15
5	History.....	17

ST7789S

1 CMI Panel

1.1 CMI 2.4” Application FPC Circuit

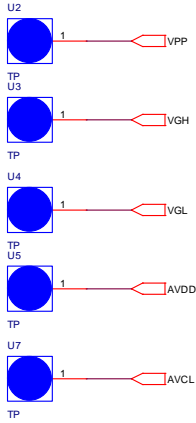
ST7789S Interface Selection:

IM3	IM2	IM1	IM0	MPU Interface Mode	Data pin
0	0	0	0	80-8bit parallel I/F	DB[7:0]
0	0	0	1	80-16bit parallel I/F	DB[15:0]
0	0	1	0	80-9bit parallel I/F	DB[8:0]
0	0	1	1	80-18bit parallel I/F	DB[17:0],
0	1	0	1	3-line 9bit serial I/F	SDA: in/out
0	1	1	0	4-line 8bit serial I/F	SDA: in/out
1	0	0	0	80-16bit parallel I/F II	DB[17:10], DB[8:1]
1	0	0	1	80-8bit parallel I/F II	DB[17:10]
1	0	1	0	80-18bit parallel I/F II	DB[17:0],
1	0	1	1	80-9bit parallel I/F II	DB[17:9]
1	1	0	1	3-line 9bit serial I/F II	SDA:in/ SDO: out
1	1	1	0	4-line 8bit serial I/F II	SDA:in/ SDO: out

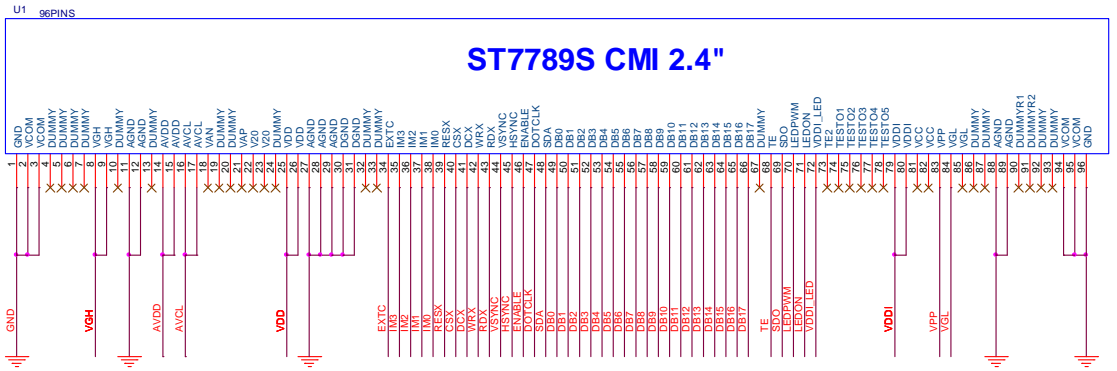
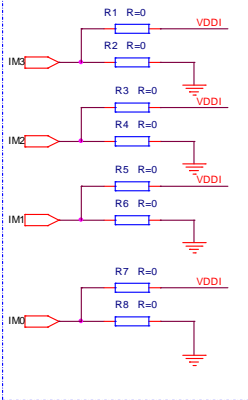
Panel Spec. Reference:

1. F02427-01U Product Spec_v1.1

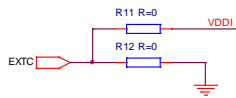
Test Pin



Interface Mode Select

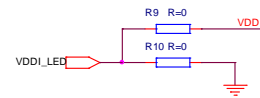


EXTC Selection



If program NVM, EXTC should connect to VDDI.

CABC Mode



If CABC mode is enabled, VDDI_LED should connect to VDDI.



FPC Output Pin

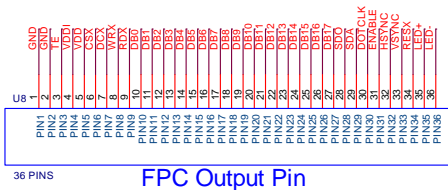
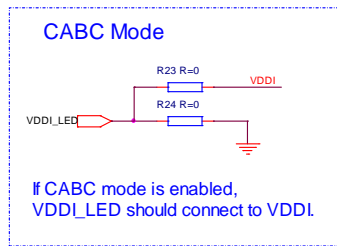
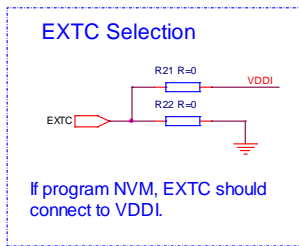
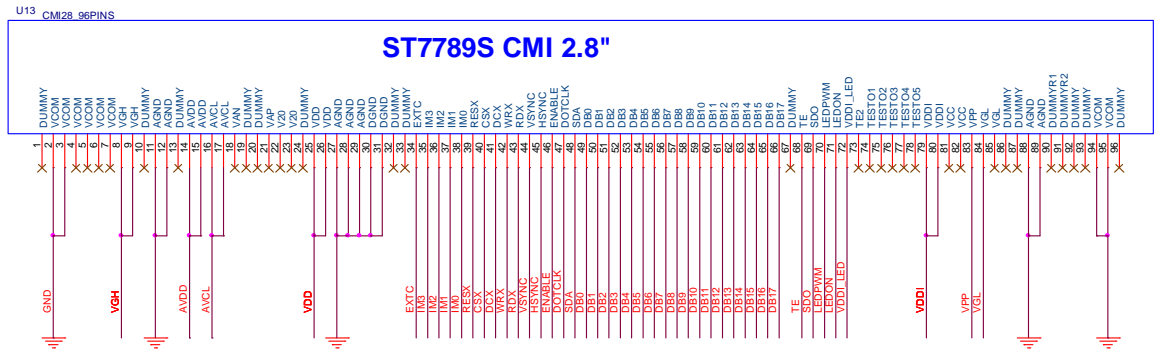
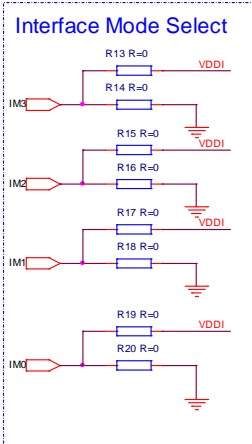
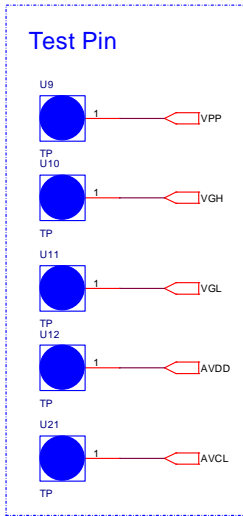
1.2 CMI 2.8” Application FPC Circuit

ST7789S Interface Selection:

IM3	IM2	IM1	IM0	MPU Interface Mode	Data pin
0	0	0	0	80-8bit parallel I/F	DB[7:0]
0	0	0	1	80-16bit parallel I/F	DB[15:0]
0	0	1	0	80-9bit parallel I/F	DB[8:0]
0	0	1	1	80-18bit parallel I/F	DB[17:0],
0	1	0	1	3-line 9bit serial I/F	SDA: in/out
0	1	1	0	4-line 8bit serial I/F	SDA: in/out
1	0	0	0	80-16bit parallel I/F II	DB[17:10], DB[8:1]
1	0	0	1	80-8bit parallel I/F II	DB[17:10]
1	0	1	0	80-18bit parallel I/F II	DB[17:0],
1	0	1	1	80-9bit parallel I/F II	DB[17:9]
1	1	0	1	3-line 9bit serial I/F II	SDA:in/ SDO: out
1	1	1	0	4-line 8bit serial I/F II	SDA:in/ SDO: out

Panel Spec. Reference:

1. F02812-01U TFT LCD Specification v1.5



2 CPT Panel

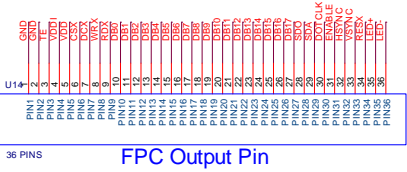
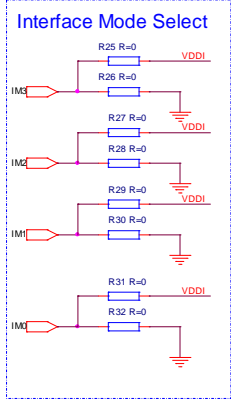
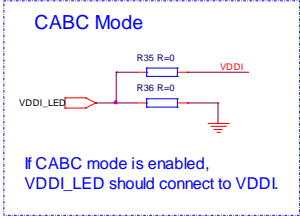
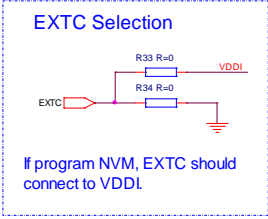
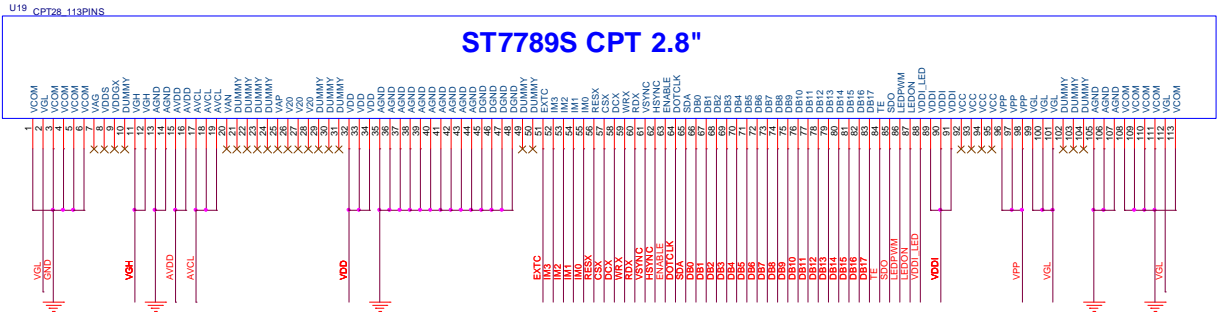
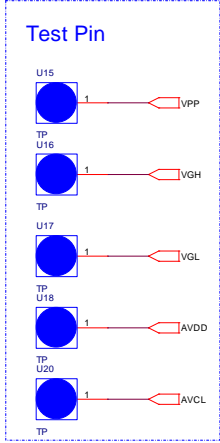
2.1 CPT 2.8” Application FPC Circuit

ST7789S Interface Selection:

IM3	IM2	IM1	IM0	MPU Interface Mode	Data pin
0	0	0	0	80-8bit parallel I/F	DB[7:0]
0	0	0	1	80-16bit parallel I/F	DB[15:0]
0	0	1	0	80-9bit parallel I/F	DB[8:0]
0	0	1	1	80-18bit parallel I/F	DB[17:0],
0	1	0	1	3-line 9bit serial I/F	SDA: in/out
0	1	1	0	4-line 8bit serial I/F	SDA: in/out
1	0	0	0	80-16bit parallel I/F II	DB[17:10], DB[8:1]
1	0	0	1	80-8bit parallel I/F II	DB[17:10]
1	0	1	0	80-18bit parallel I/F II	DB[17:0],
1	0	1	1	80-9bit parallel I/F II	DB[17:9]
1	1	0	1	3-line 9bit serial I/F II	SDA:in/ SDO: out
1	1	1	0	4-line 8bit serial I/F II	SDA:in/ SDO: out

Panel Spec. Reference:

1. CLAF028GJ0100XA_Ver.0.2_2011.05.10



3 Hannstar Panel

3.1 HANNS 2.4” Application FPC Circuit

ST7789S Interface Selection:

IM3	IM2	IM1	IM0	MPU Interface Mode	Data pin
0	0	0	0	80-8bit parallel I/F	DB[7:0]
0	0	0	1	80-16bit parallel I/F	DB[15:0]
0	0	1	0	80-9bit parallel I/F	DB[8:0]
0	0	1	1	80-18bit parallel I/F	DB[17:0],
0	1	0	1	3-line 9bit serial I/F	SDA: in/out
0	1	1	0	4-line 8bit serial I/F	SDA: in/out
1	0	0	0	80-16bit parallel I/F II	DB[17:10], DB[8:1]
1	0	0	1	80-8bit parallel I/F II	DB[17:10]
1	0	1	0	80-18bit parallel I/F II	DB[17:0],
1	0	1	1	80-9bit parallel I/F II	DB[17:9]
1	1	0	1	3-line 9bit serial I/F II	SDA:in/ SDO: out
1	1	1	0	4-line 8bit serial I/F II	SDA:in/ SDO: out

Panel Spec. Reference:

1. HSD024F3N5-A Preliminary Specification 1.0(14umIC)

3.2 HANNS 2.6” Application FPC Circuit

ST7789S Interface Selection:

IM3	IM2	IM1	IM0	MPU Interface Mode	Data pin
0	0	0	0	80-8bit parallel I/F	DB[7:0]
0	0	0	1	80-16bit parallel I/F	DB[15:0]
0	0	1	0	80-9bit parallel I/F	DB[8:0]
0	0	1	1	80-18bit parallel I/F	DB[17:0],
0	1	0	1	3-line 9bit serial I/F	SDA: in/out
0	1	1	0	4-line 8bit serial I/F	SDA: in/out
1	0	0	0	80-16bit parallel I/F II	DB[17:10], DB[8:1]
1	0	0	1	80-8bit parallel I/F II	DB[17:10]
1	0	1	0	80-18bit parallel I/F II	DB[17:0],
1	0	1	1	80-9bit parallel I/F II	DB[17:9]
1	1	0	1	3-line 9bit serial I/F II	SDA:in/ SDO: out
1	1	1	0	4-line 8bit serial I/F II	SDA:in/ SDO: out

Panel Spec. Reference:

1. HSD026B3N3-B

3.3 HANNS 3.2” Application FPC Circuit

ST7789S Interface Selection:

IM3	IM2	IM1	IM0	MPU Interface Mode	Data pin
0	0	0	0	80-8bit parallel I/F	DB[7:0]
0	0	0	1	80-16bit parallel I/F	DB[15:0]
0	0	1	0	80-9bit parallel I/F	DB[8:0]
0	0	1	1	80-18bit parallel I/F	DB[17:0],
0	1	0	1	3-line 9bit serial I/F	SDA: in/out
0	1	1	0	4-line 8bit serial I/F	SDA: in/out
1	0	0	0	80-16bit parallel I/F II	DB[17:10], DB[8:1]
1	0	0	1	80-8bit parallel I/F II	DB[17:10]
1	0	1	0	80-18bit parallel I/F II	DB[17:0],
1	0	1	1	80-9bit parallel I/F II	DB[17:9]
1	1	0	1	3-line 9bit serial I/F II	SDA:in/ SDO: out
1	1	1	0	4-line 8bit serial I/F II	SDA:in/ SDO: out

Panel Spec. Reference:

1. HSD032B3N5-A02

4 BOE Panel

4.1 BOE 2.4” Application FPC Circuit

ST7789S Interface Selection:

IM3	IM2	IM1	IM0	MPU Interface Mode	Data pin
0	0	0	0	80-8bit parallel I/F	DB[7:0]
0	0	0	1	80-16bit parallel I/F	DB[15:0]
0	0	1	0	80-9bit parallel I/F	DB[8:0]
0	0	1	1	80-18bit parallel I/F	DB[17:0],
0	1	0	1	3-line 9bit serial I/F	SDA: in/out
0	1	1	0	4-line 8bit serial I/F	SDA: in/out
1	0	0	0	80-16bit parallel I/F II	DB[17:10], DB[8:1]
1	0	0	1	80-8bit parallel I/F II	DB[17:10]
1	0	1	0	80-18bit parallel I/F II	DB[17:0],
1	0	1	1	80-9bit parallel I/F II	DB[17:9]
1	1	0	1	3-line 9bit serial I/F II	SDA:in/ SDO: out
1	1	1	0	4-line 8bit serial I/F II	SDA:in/ SDO: out

Panel Spec. Reference:

1. 2.4QVGA PRODUCT SPEC BT024QVME104(Cell)(NEW)

5 History

ST7789S Application Note Revision History		
Version	Date	Description
0.1	2012/07	First issue
0.2	2012/07	Add CPT Panel FPC suggestion
0.3	2012/07	Add Hannstar and BOE Panel suggestion

With collaboration of <https://www.displayfuture.com>