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Display and backlight presentation

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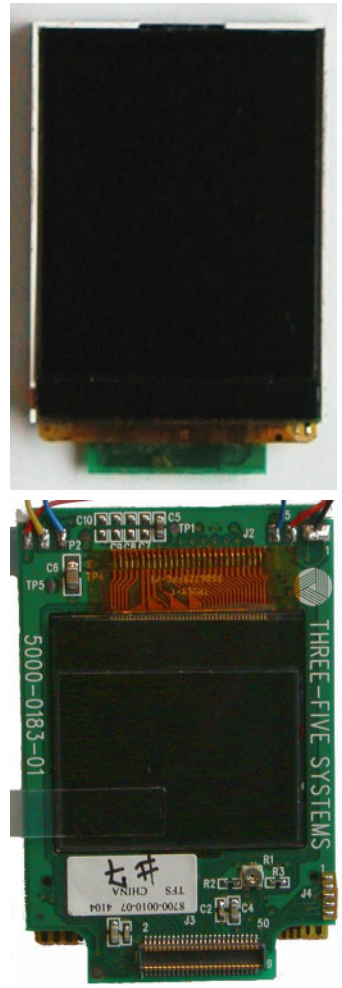
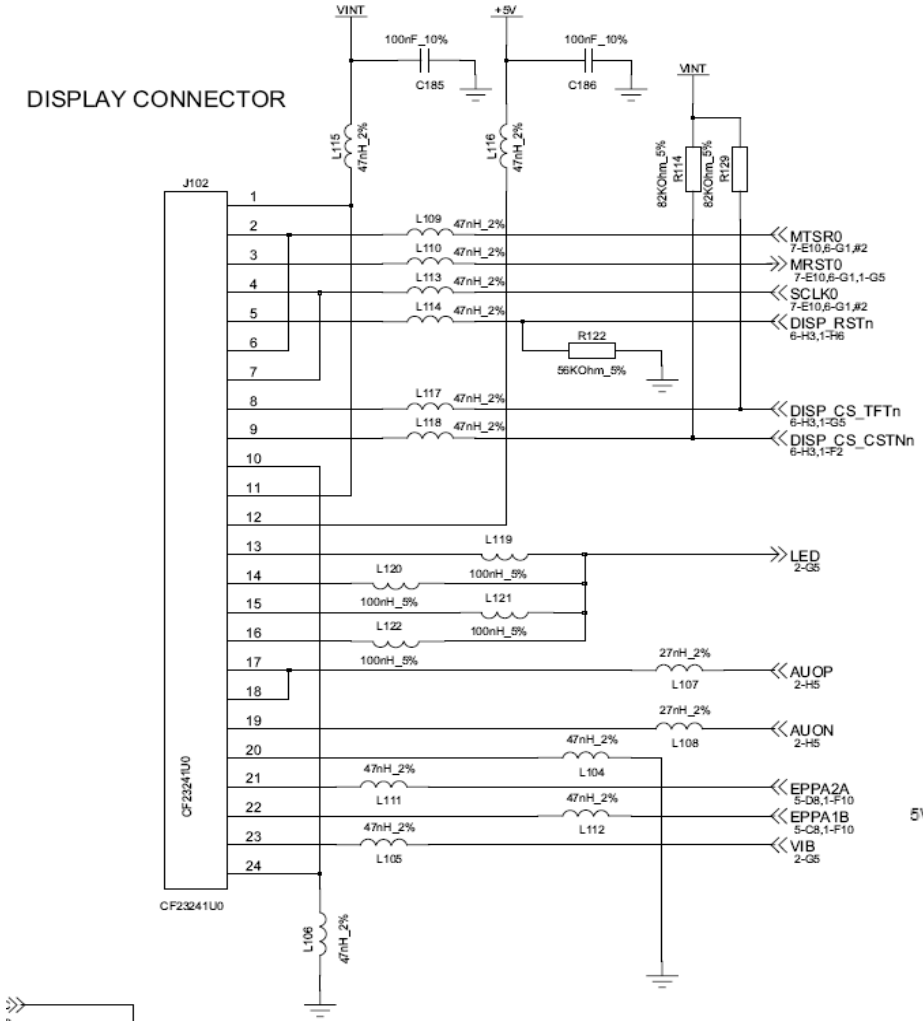
Type of display used on globe 6

- 128RGBx160 COLOR 1.8” TFT LCD MODULE WITH 96xRGBx64 0.95” CSTN SECONDARY DISPLAY
- TFT use HD66337
- CSTN use SSD1788
- display is customized



Display interface – Globe 6 signals



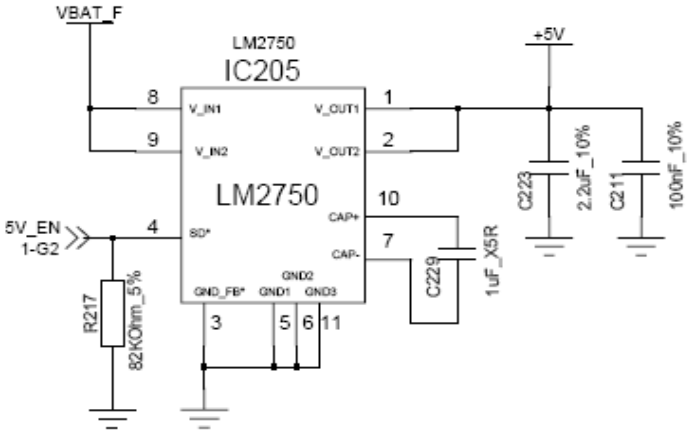
In our board both display are controlled with SPI signals.

Possibility to control the display through parallel line 18/16/9/8-bit for TFT and 8-bit for CSTN.

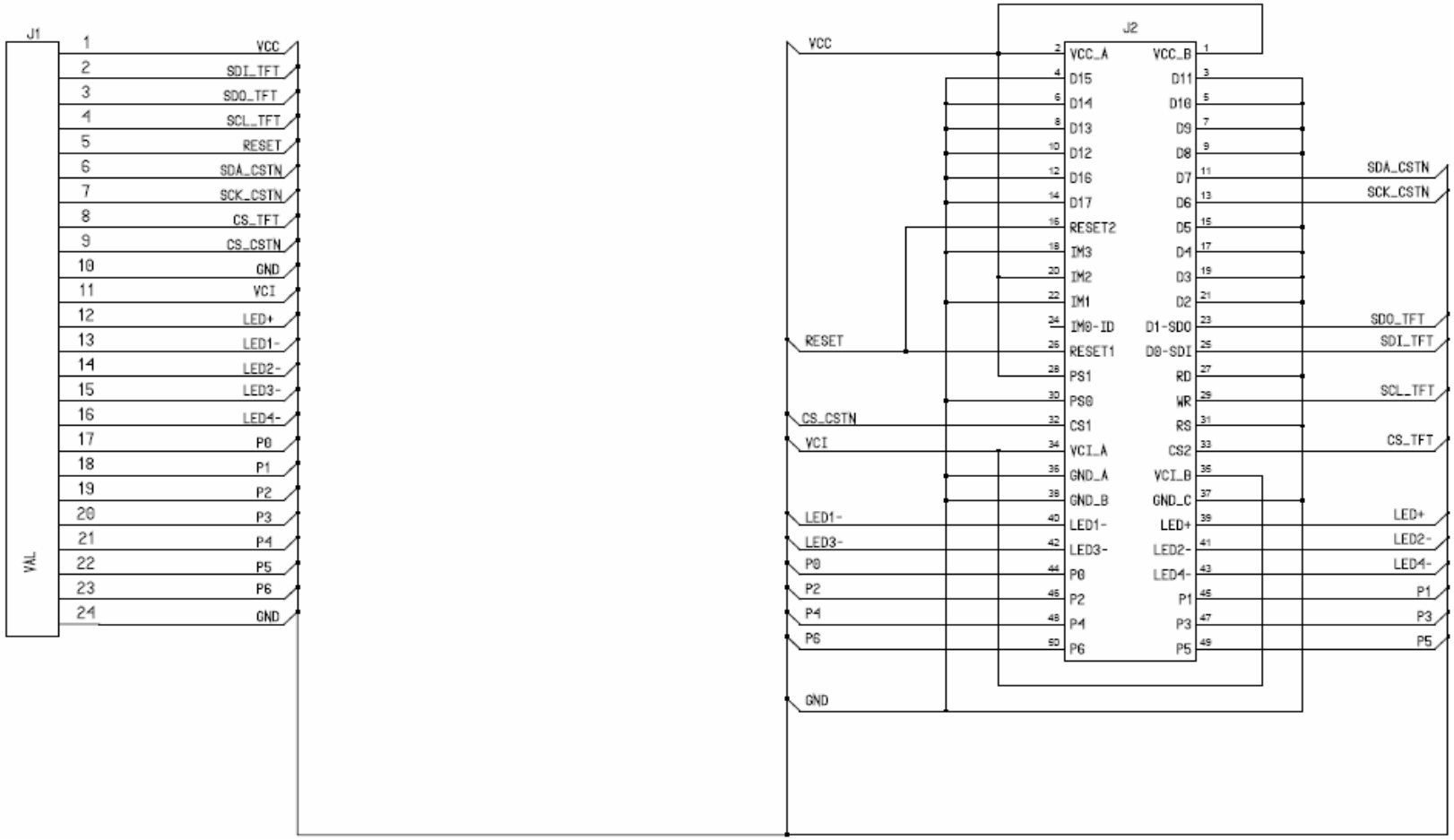
We have two CS to select the display.

Through the display path are take audio signal to the reviver and speaker and vibro.

Backlight is connected to +5V and controlled with LED signal from EPOWERLite.



Display interface - flex cable



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Main display interface

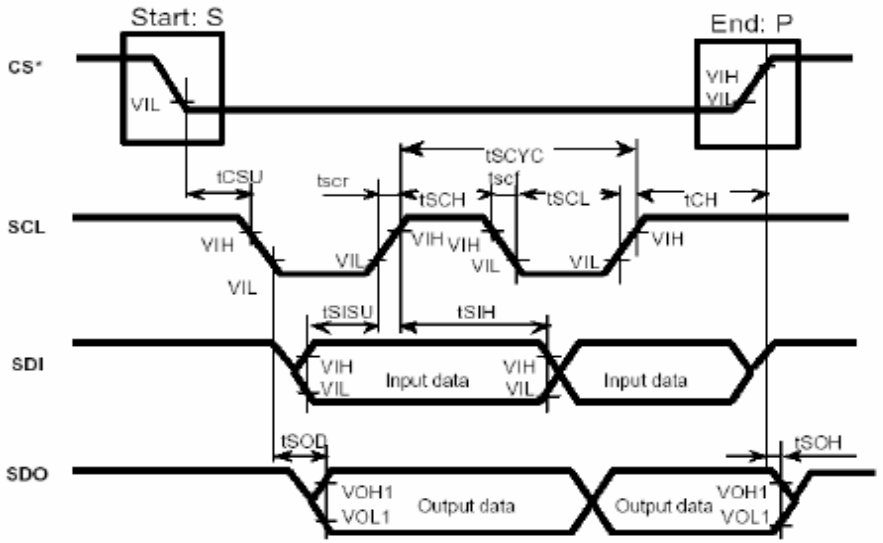
we have the possiblity to send data and read data from TFT display

we can only send data to CSTN display

Main display interface

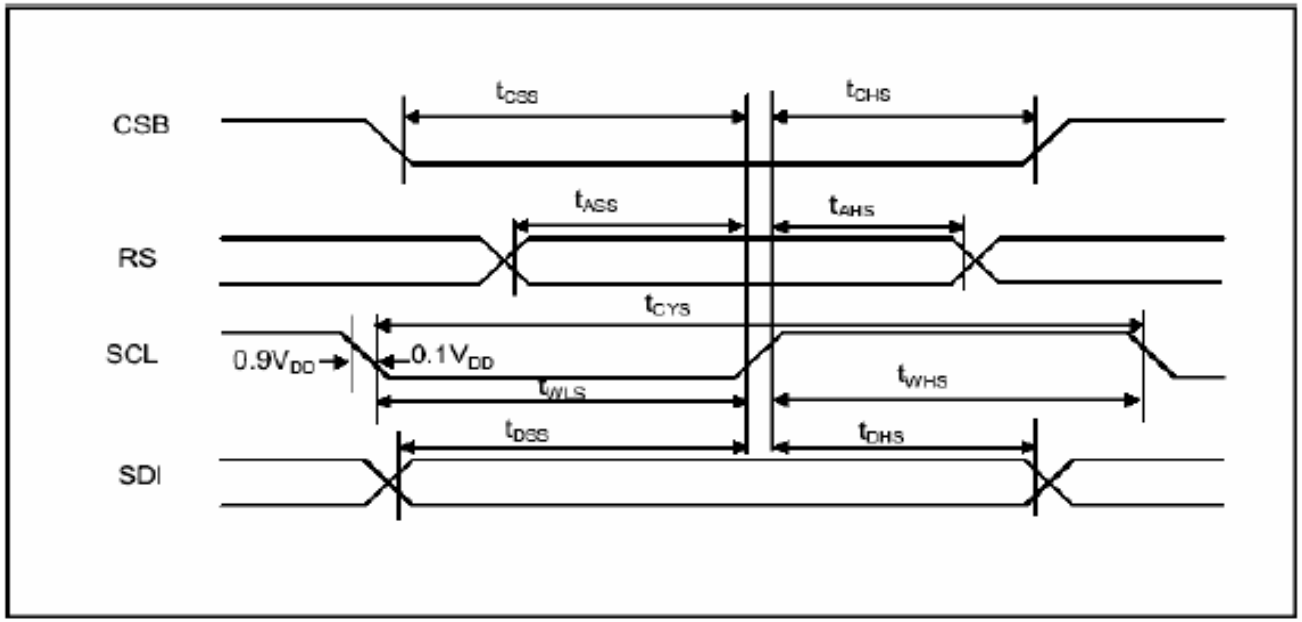
A.) Clock synchronized serial interface timing characteristics (VCC= 1.8V to 3.3V) - TFT

Item		Symbol	Unit	Min	Typ	Max
Serial clock cycle time	Write	tSCYC	µs	0.1	-	20
	Read			0.35	-	20
Serial clock 'high' level pulse width	Write	tSCH	ns	40	-	-
	Read			150	-	-
Serial clock 'low' level pulse width	Write	tSCL	ns	40	-	-
	Read			150	-	-
Serial clock rise/fall time		tscr, tscf	ns	-	-	20
Chip select set up time		tCSU	ns	20	-	-
Chip select hold time		tCH	ns	60	-	-
Serial input data set up time		tSISU	ns	30	-	-
Serial input data hold time		tSIH	ns	30	-	-
Serial output data delay time		tSOD	ns	-	-	130
Serial output data hold time		tSOH	ns	5	-	-



Second display interface

B.) Clock synchronized serial interface timing characteristics - CSTN



Write mode: VCC = 2.4V to 3.3V; VCI = 2.6V (4) to 3.3 V; VSS = 0V; Tamb = –20 to +50°C; unless otherwise specified.

Item	Signal	Symbol	Min.	Typ.	Max.	Unit	Remark
Serial clock cycle SCLK high pulse width SCLK low pulse width	SCL	tCYS tWHS tWLS	250 100 100	- - -	- - -	ns	
Address setup time Address hold time	RS	tASS tAHS	150 150	- -	- -	ns	
Data setup time Data hold time	SDI	tDSS tDHS	100 100	- -	- -	ns	
CSB setup time CSB hold time	CSB	tCSS tCHS	150 150	- -	- -	ns	

Second display interface

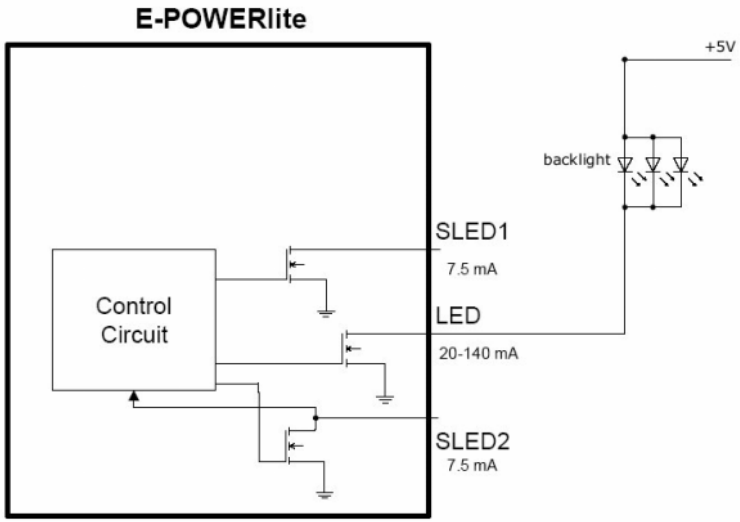
– DC electrical characteristics

Item	Symbol	Condition	Min	Typ	Max	Unit
Power supply voltage (logic)	VCC	-	1.80	2.8	3.30	V
Power supply voltage (analog)	VCI	-	2.60	2.8	3.30	V
Input voltage (logic) (note 1)	Vi	'H' level	0.8VCC	-	VDD	V
		'L' level	0	-	0.15VCC	
Power supply current consumption (note 2, 3, 4, 5, 6)	ICC	All white	-	TBD	-	µA
		B&W checker	-	TBD	-	
		Partial	-	TBD	-	
		Sleep	-	TBD	-	
		Standby	-	TBD	-	
Power supply current consumption (note 2, 3, 4, 5, 6)	ICI	All white	-	TBD	-	µA
		B&W checker	-	TBD	-	
		Partial	-	TBD	-	
		Sleep	-	TBD	-	
		Standby	-	TBD	-	
Frame frequency (TFT)	fFLM	-	-	88	-	Hz
Frame frequency (CSTN)	fFLM	-	35	70	95	Hz

Note: Items marked with an asterisk (*) are design targets.

Displays backlight

- Both display
  - display backlight is directly controlled from EPOWERlite
    - programable from 20mA to 140mA with setps of 20mA
    - duty cycle of LED current can be set from 0.5% to 100% in 63 steps



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End of story.

Thanks