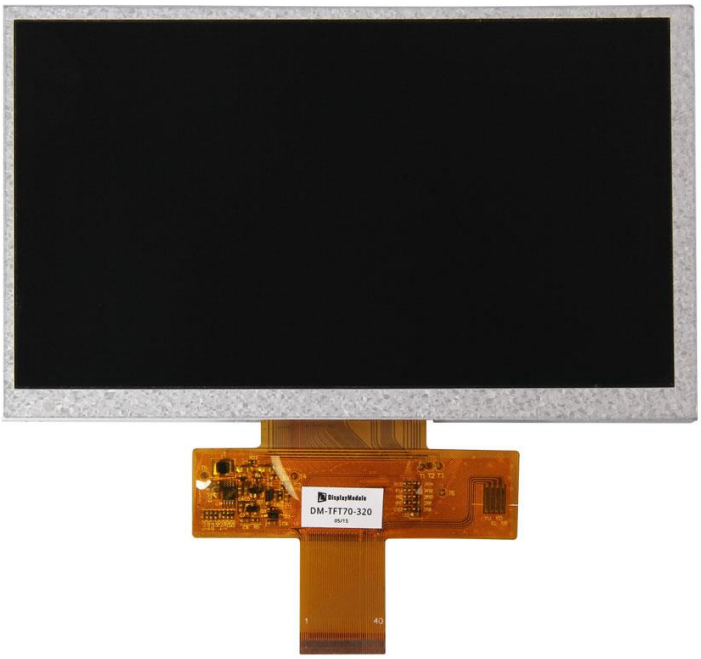
DisplayModule



DM-TFT70-320

7.0” TFT DISPLAY WITH 16/18/24 BIT RGB INTERFACE

Contents

1 Revision History

Date	Changes
2015-02-28	First release

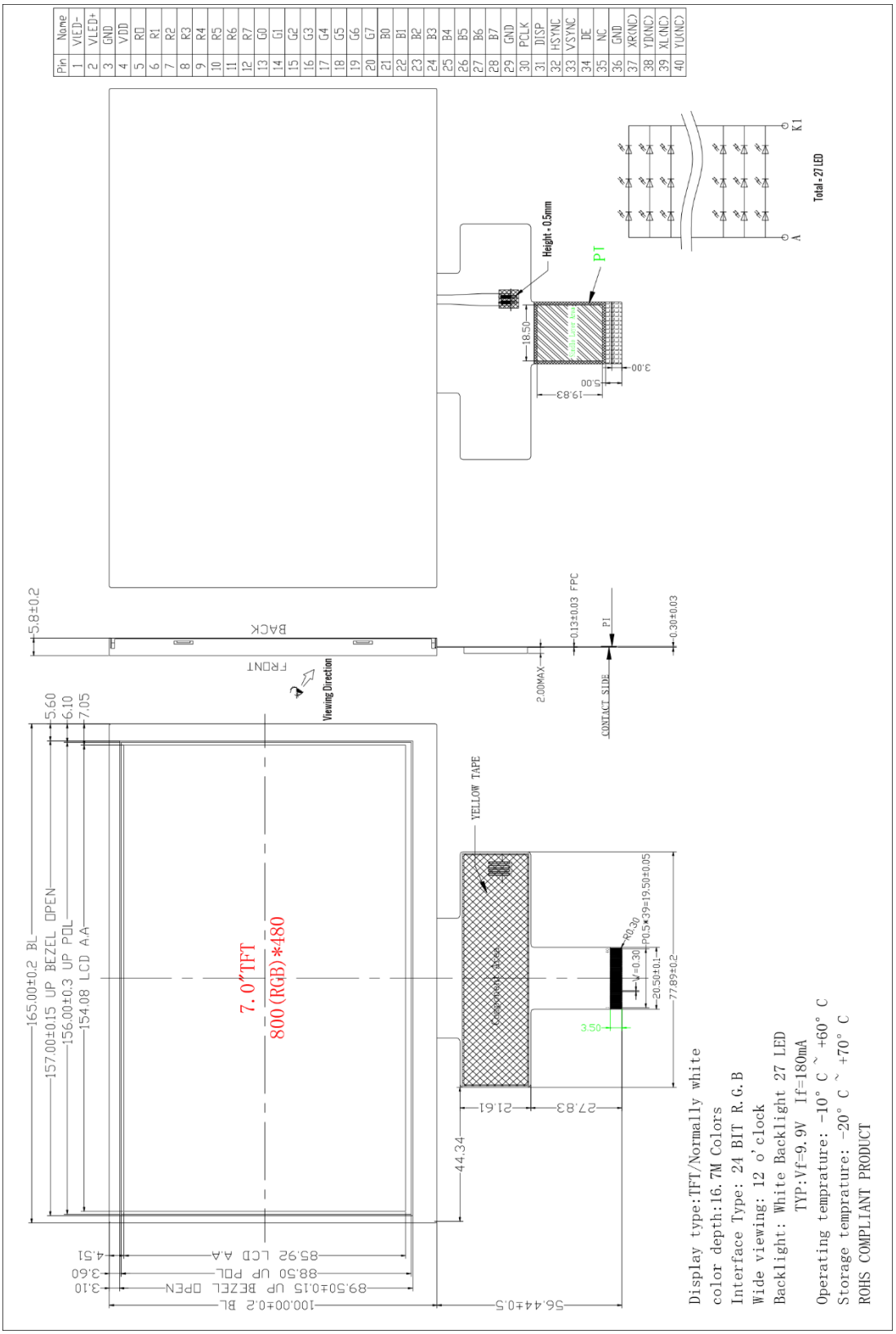
2 Main Features

Item	Specification	Unit
Screen Size	7.0	inch
Driver Mode	Transmissive	-
Display Colors	65K/262K/16.7M	colors
Resolution	800 x 480	dots
Controller IC	EK9713/EK7330	-
Interface	16/18/24 bit RGB	-
Power Supply	3.3	V
View Direction	12 o'clock	-
Background LED	27 LED Normally White	-
Weight	144.7	g

3 Pin Description

Pin No.	Symbol	Function Description
1	VLED-	Cathode pin of backlight.
2	VLED+	Anode pin of backlight.
3	GND	Ground.
4	VDD	Supply voltage (3.3V).
5	R0	Red data input.
6	R1	Red data input.
7	R2	Red data input.
8	R3	Red data input.
9	R4	Red data input.
10	R5	Red data input.
11	R6	Red data input.
12	R7	Red data input.
13	G0	Green data input.
14	G1	Green data input.
15	G2	Green data input.
16	G3	Green data input.
17	G4	Green data input.
18	G5	Green data input.
19	G6	Green data input.
20	G7	Green data input.
21	B0	Blue data input.
22	B1	Blue data input.
23	B2	Blue data input.
24	B3	Blue data input.
25	B4	Blue data input.
26	B5	Blue data input.
27	B6	Blue data input.
28	B7	Blue data input.
29	GND	Ground
30	PCLK	Dot clock signal for RGB interface operation. Fix this pin at VCI or GND when not in use.
31	DISP	Standby setting for testing, it should be connected to VDDIO in normal operation mode. If connected to GND, the IC is in standby mode.
32	HSYNC	Line synchronizing signal for RGB interface operation.
33	VSYNC	Frame synchronizing signal for RGB interface operation.
34	DE	Data enable signal for RGB interface operation.
35	NC	NC
36	GND	Ground.
37	XR	NC
38	YD	NC
39	XL	NC
40	YU	NC

4 Mechanical Drawing



5 Electrical Characteristics

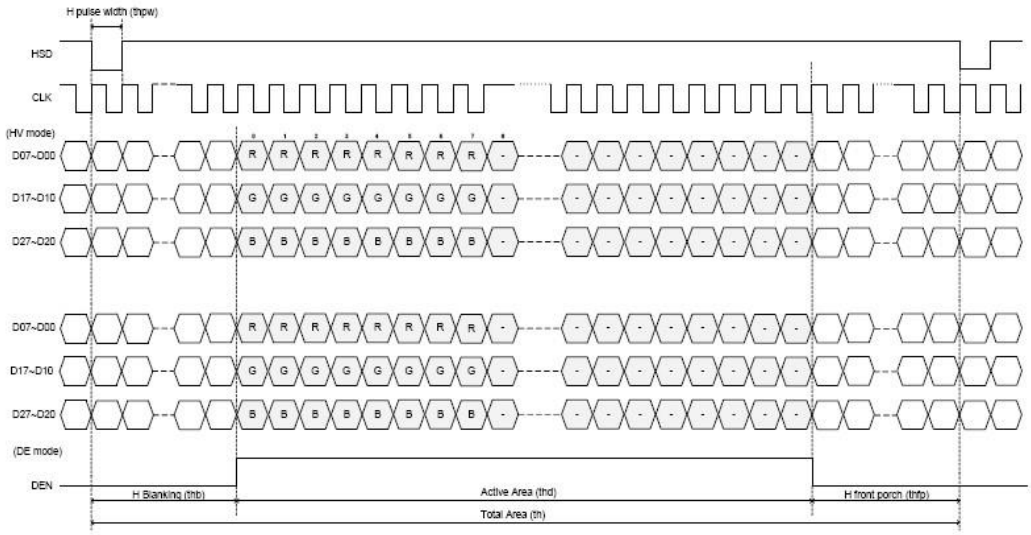
Item	Symbol	Condition	Min	Typ.	Max	Unit
Supply Voltage For Logic	VDD		3.0	3.3	3.6	V
Digital Operation Current	IDD	VDD=3.3V	-	150	-	mA
Low Level Input Voltage	V_{IL}		GND	-	0.3VDD	V
High Level Input Voltage	V_{IH}		0.7VDD	-	VDD	V
Low Level Output Voltage	V_{OL}		GND		0.2VDD	V
High Level Output Voltage	V_{OH}		0.8VDD		VDD	V
Backlight Forward Voltage	V_{LED}		-	9.6	-	V
Backlight Forward Current	I_{LED}		135	180	-	mA
Operating Temperature	TOP	Absolute Max	-20	-	+70	℃
Storage Temperature	TST	Absolute Max	-30	-	+80	℃

6 Optical Characteristics

Item	Symbol	Min	Typ	Max	Unit	Note
View Angles Top		40	50		°	
View Angles Bottom		60	70		°	
View Angles Left		60	70		°	
View Angles Right		60	70		°	
Response Time (25°C)	Tr + Tf		25	50	ms	
Uniformity		80			%	
Contrast Ratio	CR	400	500			
Luminance	L_V	450	-		cd/m²	

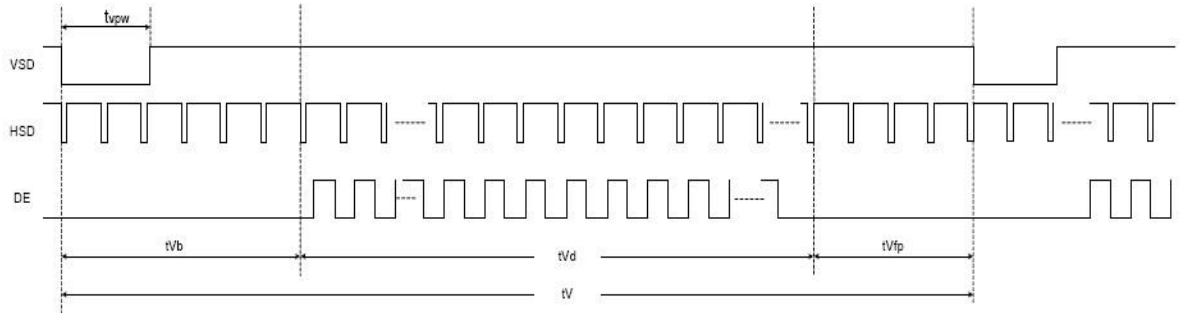
7 Timing Characteristics

7.1 Horizontal Input Timing



Parameter		Symbol	Value			Unit
Horizontal display area		thd	800			DCLK
DCLK frequency		fclk	Min.	Typ.	Max	
			-	33.3	50	MHz
1 Horizontal Line		th	862	1056	1200	DCLK
HSD pulse width	Min.	thpw	1			
	Typ.		-			
	Max.		40			
HSD Back Porch (Blanking)		thb	46	46	46	
HSD Front Porch		thfp	16	210	354	

7.2 Vertical input Timing

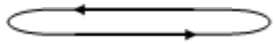


Parameter	Symbol	Min.	Typ.	Max.	Unit
Vertical display area	tvd		480		H
VSD period time	tv	510	525	650	H
VSD pulse width	tvpw	1	-	20	H
VSD Back Porch (Blanking)	tvb	23	23	23	H
VSD Front Porch	tvfp	7	22	147	H

8 Driver/Controller Information

Built-in EK9713 Source Driver:
https://drive.google.com/file/d/0B0U8oRNrY9XuSHA0UHhhdmZzVms/view?usp=sharing

9 Reliability

Test Item	Content of Test	Test Condition	Note
High Temperature Storage	Endurance test applying the high storage temperature for a long time.	80℃ 200hrs	2
Low Temperature Storage	Endurance test applying the high storage temperature for a long time.	-30℃ 200hrs	1,2
High Temperature Operation	Endurance test applying the electric stress (Voltage & Current) and the thermal stress to the element for a long time.	70℃ 200hrs	-
Low Temperature Operation	Endurance test applying the electric stress under low temperature for a long time.	-20 ℃ 200hrs	1
High Temperature/ Humidity Operation	The module should be allowed to stand at 60℃,90%RH max, for 96hrs under no-load condition excluding the polarizer. Then taking it out and drying it at normal temperature.	60℃,90%RH 96hrs	1,2
Thermal Shock Resistance	The sample should be allowed stand the following 10 cycles of operation. -20℃ 25℃ 70℃  30min 5min 30min 1 cycle	-20℃/70℃ 10 cycles	-
Vibration Test	Endurance test applying the vibration during transportation and using.	Total fixed amplitude: 15mm; Vibration: 10~55Hz; One cycle 60 seconds to 3 directions of X, Y, Z, for each 16 minutes.	3
Static Electricity Test	Endurance test apply the electric stress to the terminal.	VS=800V, RS=1.5kΩ, CS=100pF, 1 time.	-

Note1: No dew condensation to be observed.

Note2: The function test shall be conducted after 4 hours storage at the normal. Temperature and humidity after remove from the rest chamber.

Note3: The packing have to including into the vibration testing.

10 Warranty and Conditions

http://www.displaymodule.com/pages/faq