

MDT070003	800x1280	MIPI Interface	TFT Module
Specification			
Version: 1		Date: 23/07/2023	
Revision			
1	21/07/2023	First issue	

Display Features			
Display Size	7"		
Resolution	800x1280		
Orientation	Portrait		
Appearance	RGB		
Logic Voltage	2.8V		
Interface	MIPI		
Brightness	300 cd/m ²		
Touchscreen	---		
Module Size	107.45 x 165.62 x 2.80 mm		
Operating Temperature	-20°C ~ +60°C	Created By	Checked By
Pinout	30 way FFC	CL	TSB
Pitch	0.50 mm	Box Quantity	Weight / Display
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* - For full design functionality, please use this specification in conjunction with the ILI9881C display driver specification.(Provided Separately)

Display Accessories	
Part Number	Description
MBID-30FP	30 Way FFC to cable and wires. Driven by any driver board that can be wired to a 1mm pitch SHDR-30V-S-B receptacle.
MDIB-CC1	Interconnect board for standard pitch pinouts to fine pitch wires. Providing pinouts for 2.54 pinout. 1.27, 1, 0.845, 0.8, 0.7, 0.65, 0.62, 0.6, 0.5 & 0.3 pads.

Optional Variants	
Appearances	Voltage



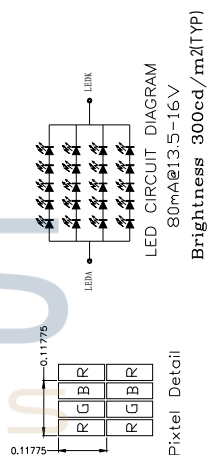
1. GENERAL SPECIFICATIONS

ITEM	STANDARD VALUE	UNIT
LCD SIZE	7	inch
LCD TYPE	TFT/IPS/ NORMALLY BLACK/TRANSMISSIVE	
MODULE SIZE	107.45*165.62*2.8	mm
ACTIVE AREA	94.2*150.72	mm
PIXEL PITCH (W*H)	0.11775*0.11775	
NUMBER OF PIXELS	800*1280	
DIVER IC	ILI9881C	
INTERFACE TYPE	MIPI	
RECOMMEND VIEWING DIRECTION	ALL	O'CLOCK
GRAY SCALE INVERSION DIRECTION	-	O'CLOCK
COLORS	16.7 M	
BACKLIGHT TYPE	20-DIES WHITE LED	
TOUCH PANEL TYPE	WITHOUT	

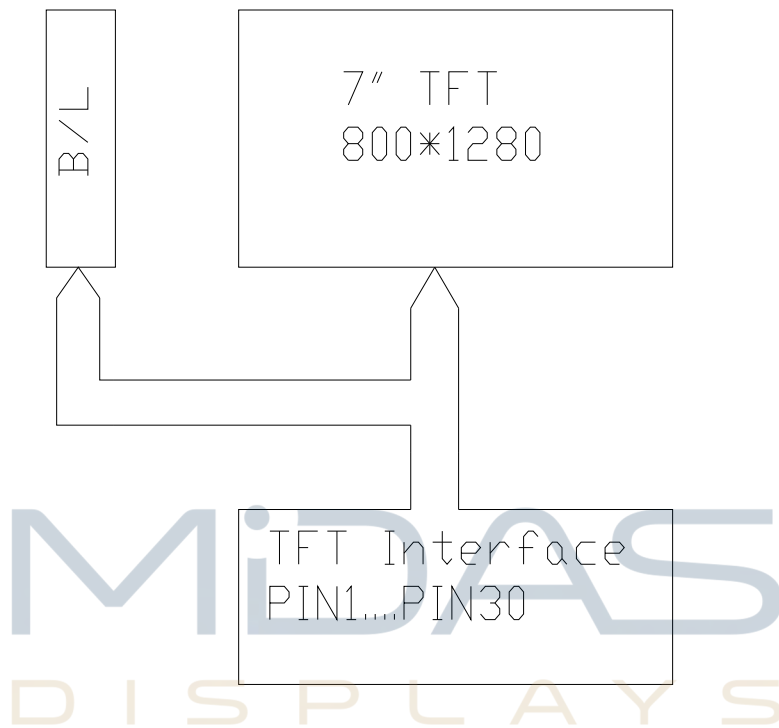
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Remarks:
1.Unmarked tolerance is ± 0.3
2.All materials comply with RoHS



3. BLOCK DIAGRAM



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4. PIN ASSIGNMENT

PIN NO.	SYMBOL	DESCRIPTION
1	GND	Power ground
2	LED-	LED Cathode
3	RESET	Reset pin
4	TE	Tearing effect output pin
5	VCI	Analog operating voltage
6	IOVCC	Digital operating voltage
7	NC	No connection
8	GND	Power ground
9	D2N	Data lane2 input
10	D2P	Data lane2 input
11	GND	Power ground
12	D3N	Data lane3 input
13	D3P	Data lane3 input
14	GND	Power ground
15	LED+	LED Anode
16	GND	Power ground
17	CLKP	CLK input
18	CLKN	CLK input
19	GND	Power ground
20	D0N	Data lane1 input
21	D0P	Data lane1 input
22	GND	Power ground
23	D1N	Data lane0 input
24	D1P	Data lane0 input
25	GND	Power ground
26	GND	Power ground
27	GND	Power ground
28	GND	Power ground
29	GND	Power ground
30	GND	Power ground

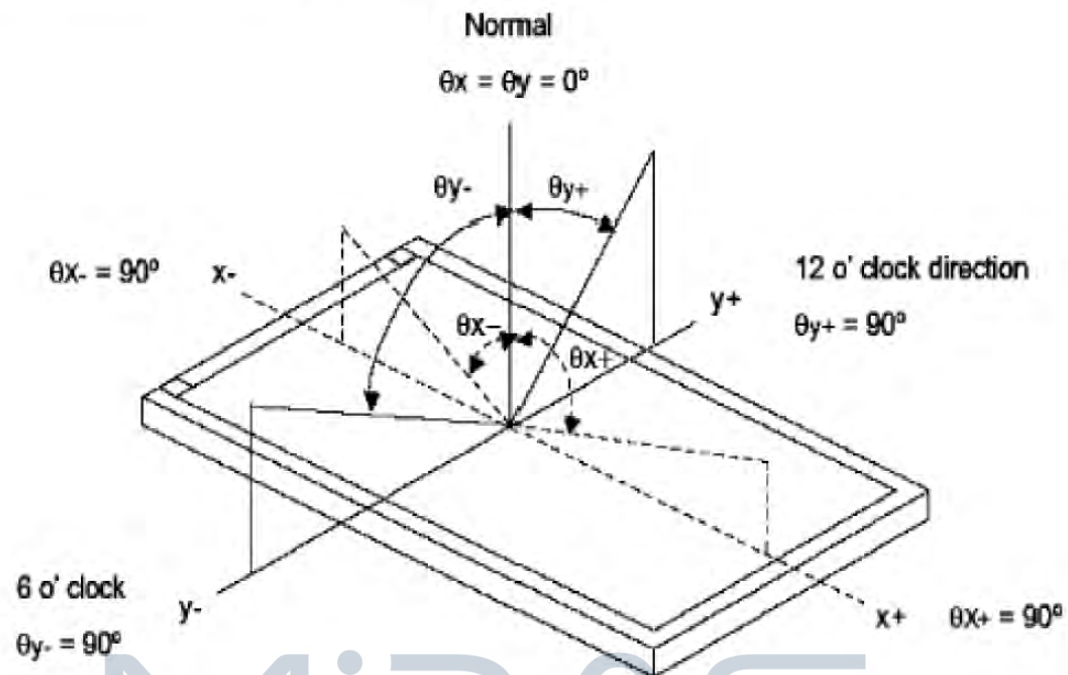


5. OPTICAL CHARACTERISTICS

ITEM		SYMBOL	CONDITIONS	SPECIFICATIONS			UNIT	NOTE
				MIN	TYP.	MAX		
Luminance		L			300	-	Cd/m²	
Contrast ratio		CR	$\theta = 0^\circ$	800	1000			
Response time	Rising	$T_R + T_F$	25°C		25	35	ms	
	Falling							
CIE COLOUR COORDINATE	RED	XR	VIEWING NORMAL ANGLE	-0.03	0.622	+0.03		
		YR			0.335			
	GREEN	XG			0.284			
		YG			0.545			
	BLUE	XB			0.140			
		YB			0.160			
	WHITE	XW			0.307			
		YW			0.340			
VIEWING ANGLE	Hor.	θ_{x+}	$CR \geq 10$	75	85		Degree	
		θ_{x-}		75	85			
	Ver.	θ_{y+}		75	85			
		θ_{y-}		75	85			



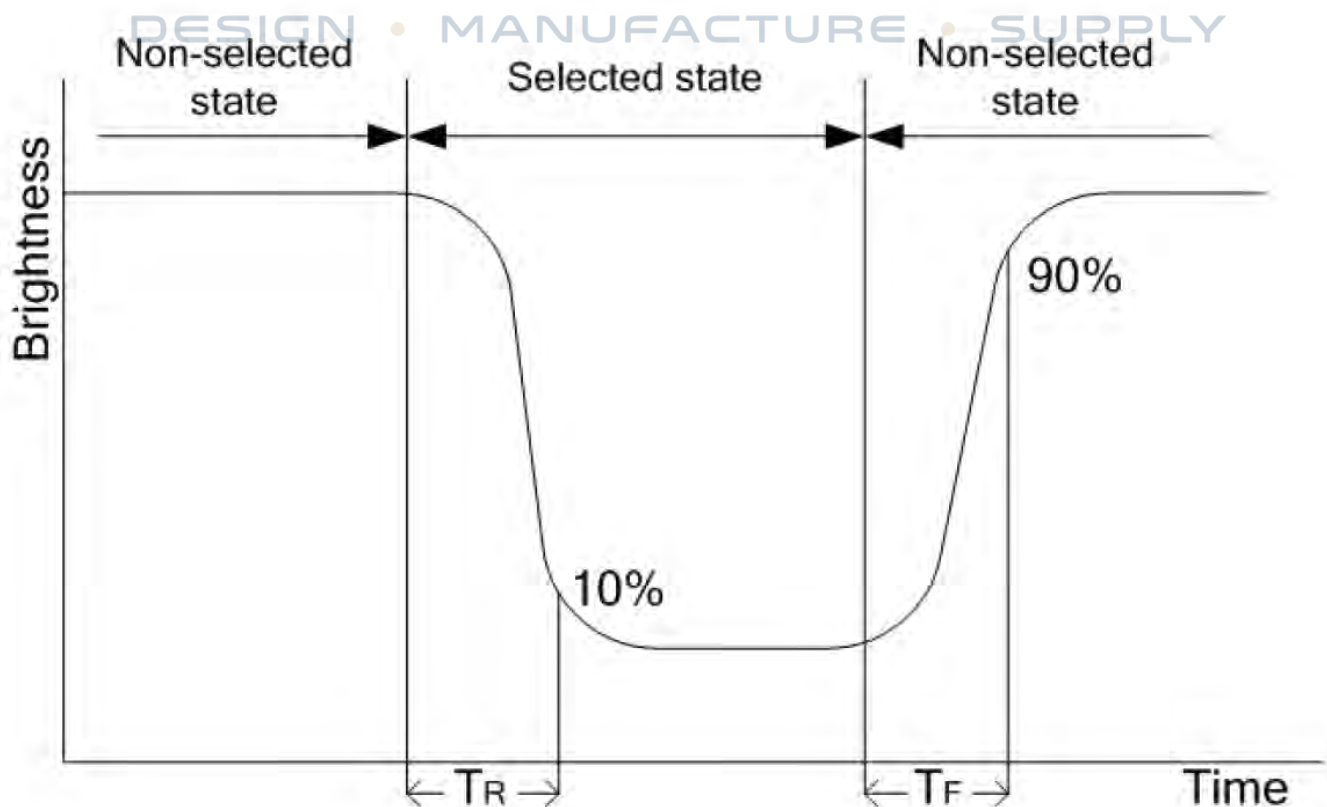
Note 1 : Definition of Viewing Angle θ_x and θ_y :



Note 2: Definition of contrast ratio CR:

$$CR = \frac{\text{Brightness of non-selected dots (white)}}{\text{Brightness of selected dots (black)}}$$

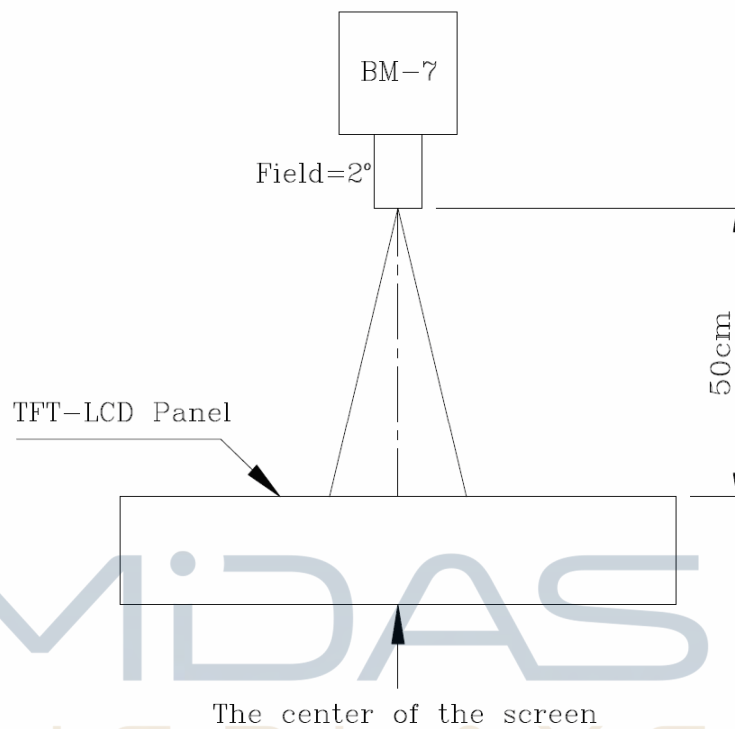
Note 3: Definition of response time (T_R , T_F)



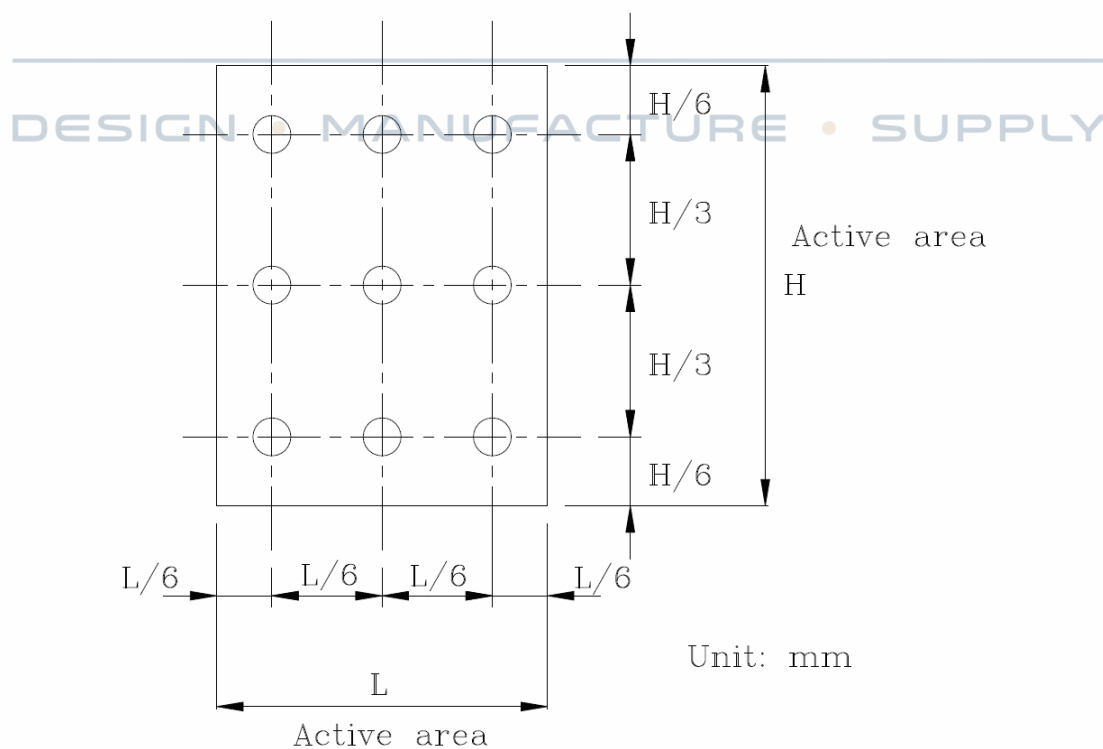
Note 4: Definition of Luminance

①The Brightness Test Equipment Setup

Field=2° (As measuring “black” image, field=2° is the best testing condition)



②The Brightness Test Point Setup



6. ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	MIN	MAX	UNIT
Analog operating voltage	VCI	-0.3	+6.5	
Digital operating voltage	IOVCC	-0.3	3.3	
Operating temperature	Top	-20	+60	°C
Storage temperature	Tst	-30	+70	°C

7. ELECTRICAL CHARACTERISTICS

7.1 BLACKLIGHT DRIVING CONDITIONS

ITEM	SYMBOL	SPECIFICATIONS			UNIT	REMARK
		MIN	TYP.	MAX		
Supply Voltage	Vf	13.5		16	V	
Supply Current	IL		80		mA	
Power consumption	P	1.08		1.28	W	
LED lifetime			50,000		H _r	

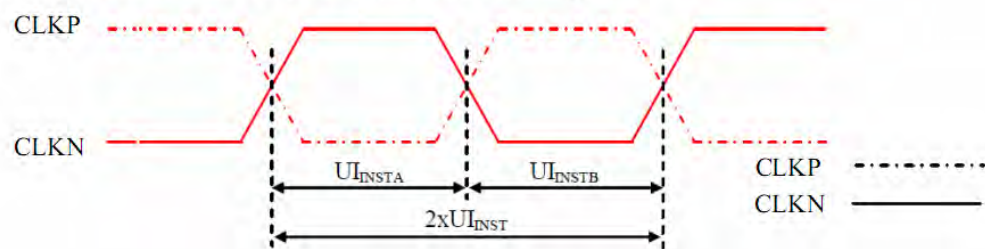
7.2 ELECTRICAL CHARACTERISTICS

ITEM	SYMBOL	MIN	TYP.	MAX	UNIT
Power Supply	VCI	2.5	2.8	6.0	V
	IOVCC	1.65	2.8	3.3	V
Input voltage	Vil	-0.3	-	0.3*IOVCC	V
	Vih	0.7*IOVCC	-	IOVCC	V



7.3 TIMING CHARACTERISTICS

High Speed Mode – Clock Channel Timing

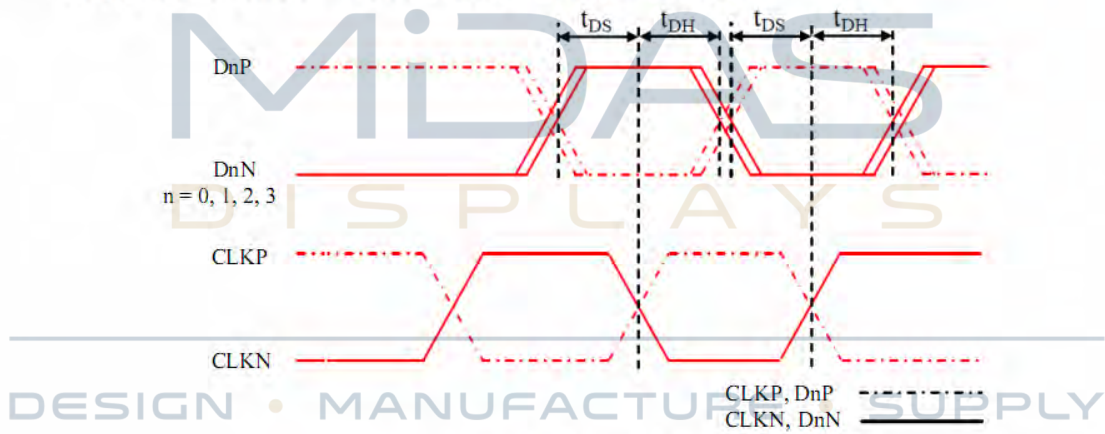


DSI Clock Channel Timing

DSI Clock Channel Timing

Signal	Symbol	Parameter	Min	Max	Unit
CLKP/N	$2xUI_{INST}$	Double UI instantaneous	4	25	ns
CLKP/N	UI_{INSTA}, UI_{INSTB} (Note 1)	UI instantaneous Half	2 (Note 2)	12.5	ns

High Speed Mode – Data Clock Channel Timing

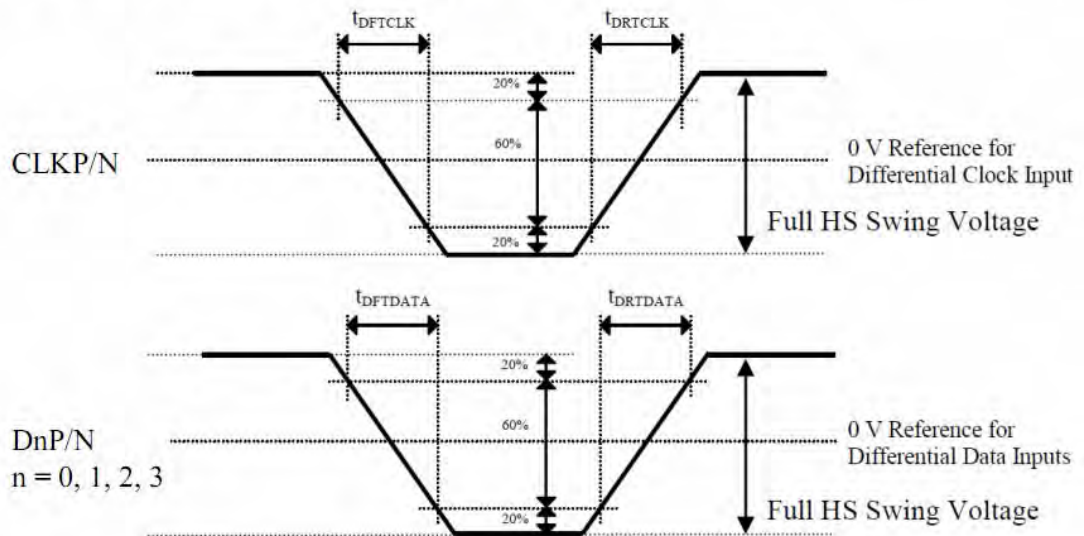


DSI Data to Clock Channel Timings

DSI Data to Clock Channel Timings

Signal	Symbol	Parameter	Min	Max
DnP/N , n=0 and 1	t_{DS}	Data to Clock Setup time	$0.15xUI$	-
	t_{DH}	Clock to Data Hold Time	$0.15xUI$	-

High Speed Mode – Rising and Falling Timings



Rising and Falling Timings on Clock and Data Channels

Rise and Fall Timings on Clock and Data Channels

Parameter	Symbol	Condition	Specification		
			Min	Typ	Max
Differential Rise Time for Clock	t_{DRTCLK}	CLKP/N	150 ps	-	0.3UI (Note)
Differential Rise Time for Data	$t_{DRTDATA}$	DnP/N n=0 and 1	150 ps	-	0.3UI (Note)
Differential Fall Time for Clock	t_{DFTCLK}	CLKP/N	150 ps	-	0.3UI (Note)
Differential Fall Time for Data	$t_{DFTDATA}$	DnP/N n=0 and 1	150 ps	-	0.3UI (Note)

Note: The display module has to meet timing requirements, which are defined for the transmitter (MCU) on MIPI D-Phy standard.

8. RELIABILITY TEST

NO.	TEST ITEM	CONDITIONS	
1	HIGH TEMPERATURE STORAGE	TA=70℃	240H
2	LOW TEMPERATURE STORAGE	TA=-30℃	240H
3	HIGH TEMPERATURE OPERATION	TA=60℃	240H
4	LOW TEMPERATURE OPERATION	TA=-20℃	240H
5	HIGH TEMPERATURE AND HIGH HUMIDITY OPERATION	+60℃, 90%RH	240H
6	THERMAL SHOCK	-30℃ → +70℃,	0. 5H: 100CYCLES



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9. LCD MODULES HANDLING PRECAUTIONS

- The display panel is made of glass. Do not subject it to a mechanical shock by dropping it from a high place, etc.
- If the display panel is damaged and the liquid crystal substance inside it leaks out, do not get any in your mouth. If the substance come into contact with your skin or clothes promptly wash it off using soap and water.
- Do not apply excessive force to the display surface or the adjoining areas since this may cause the color tone to vary.
- The polarizer covering the display surface of the LCD module is soft and easily scratched. Handle this polarize carefully.
- To prevent destruction of the elements by static electricity, be careful to maintain an optimum work environment.
 - Be sure to ground the body when handling the LCD module.
 - Tools required for assembly, such as soldering irons, must be properly grounded.
 - To reduce the amount of static electricity generated, do not conduct assembly and other work under dry conditions.
 - The LCD module is coated with a film to protect the display surface. Exercise care when peeling off this protective film since static electricity may be generated.
- Storage precautions
When storing the LCD modules, avoid exposure to direct sunlight or to the light of fluorescent lamps. Keep the modules in bags designed to prevent static electricity charging under low temperature / normal humidity conditions (avoid high temperature / high humidity and low temperatures below 0°C). Whenever possible, the LCD modules should be stored in the same conditions in which they were shipped from our company.

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10. OTHERS

- Liquid crystals solidify at low temperature (below the storage temperature range) leading to defective orientation of liquid crystal or the generation of air bubbles (black or white). Air bubbles may also be generated if the module is subjected to a strong shock at a low temperature.
- If the LCD modules have been operating for a long time showing the same display patterns may remain on the screen as ghost images and a slight contrast irregularity may also appear. Abnormal operating status can be resumed to be normal condition by suspending use for some time. It should be noted that this phenomena does not adversely affect performance reliability.
- To minimize the performance degradation of the LCD modules resulting from caused by static electricity, etc. exercise care to avoid holding the following sections when handling the modules:
 - Exposed area of the printed circuit board
 - Terminal electrode sections.

