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TECHNOLOGY

Model No: MTD0800CBP30HF-C-1

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Record of Revision

Date	Revision No.	Summary
2019-07-15	1.0	Rev 1.0 was issued
2019-09-03	1.1	Modify dimension on drawing page4
2019-10-11	1.2	Add CTP characteristics page7

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1. Scope

This data sheet is to introduce the specification of MTD0800CBP30HF-C-1, active matrix TFT module. It is composed of a color TFT-LCD panel, driver IC, FPC, CTP and a backlight unit. The 8.0″ display area contains 1024(RGB) x 768 pixels.
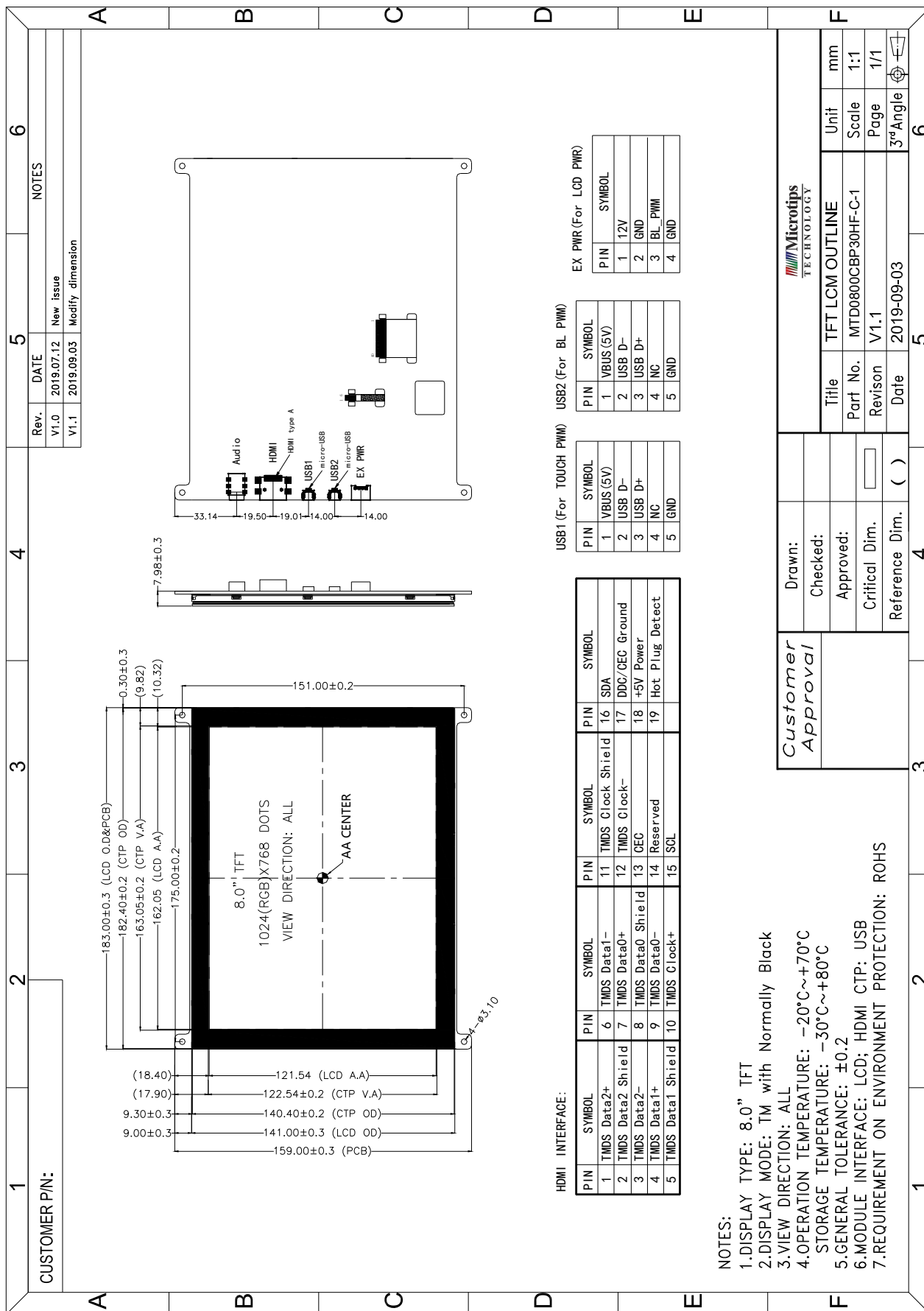
2. Application

Digital equipments which need color display, mobile navigator/video systems.

3. General Information

Item	Contents	Unit
Size	8.0	inch
Resolution	1024(RGB) x 768	/
Interface	HDMI	/
Technology type	IPS TFT	/
Pixel pitch	0.15825 x 0.15825	mm
Pixel Configuration	R.G.B. Stripe	
Outline Dimension (W x H x D)	183.00 x 159.00 x 7.98	mm
Active Area	162.05 x 121.54	mm
Display Mode	Transmissive, Normally Black	/
Viewing Direction	ALL	o'clock
Backlight Type	LED	/

4. Outline Drawing

Rev. Table

Rev.	DATE	NOTES
V1.0	2019.07.12	New Issue
V1.1	2019.09.03	Modify dimension

HDMI INTERFACE:

PIN	SYMBOL	PIN	SYMBOL	PIN	SYMBOL	PIN	SYMBOL
1	TMDS Data2+	6	TMDS Data1−	11	TMDS Clock Shield	16	SDA
2	TMDS Data2 Shield	7	TMDS Data0+	12	TMDS Clock−	17	DDC/CEC Ground
3	TMDS Data2−	8	TMDS Data0 Shield	13	CEC	18	+5V Power
4	TMDS Data1+	9	TMDS Data0−	14	Reserved	19	Hot Plug Detect
5	TMDS Data1 Shield	10	TMDS Clock+	15	SCL		

USB1 (For TOUCH PWM)

PIN	SYMBOL
1	VBUS (5V)
2	USB D−
3	USB D+
4	NC
5	GND

USB2 (For BL PWM)

PIN	SYMBOL
1	VBUS (5V)
2	USB D−
3	USB D+
4	NC
5	GND

EX PWR (For LCD PWR)

PIN	SYMBOL
1	12V
2	GND
3	BL_PWM
4	GND

NOTES:
1. DISPLAY TYPE: 8.0" TFT
2. DISPLAY MODE: TM with Normally Black
3. VIEW DIRECTION: ALL
4. OPERATION TEMPERATURE: −20°C～+70°C
   STORAGE TEMPERATURE: −30°C～+80°C
5. GENERAL TOLERANCE: ±0.2
6. MODULE INTERFACE: LCD; HDMI CTP: USB
7. REQUIREMENT ON ENVIRONMENT PROTECTION: ROHS

8.0" TFT
1024(RGB)X768 DOTS
VIEW DIRECTION: ALL

AA CENTER

Title block

Title	TFT LCM OUTLINE	
Part No.	MTD0800CBP30HF-C-1	
Revison	V1.1	
Date	2019-09-03	

Unit	mm	1:1
Scale		
Page	1/1	
3rd Angle		

Customer Approval

Drawn:
Checked:
Approved:
Critical Dim.
Reference Dim. ( )

CUSTOMER P/N:

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5. Interface signals

5.1 HDMI Interface Description

No	Symbol	Description	Remark
1	TMDS Data2+	Positive side of channel 2 TMDS low-voltage signal differential input pair	
2	TMDS Data2 Shield	Ground	
3	TMDS Data2-	Negative side of channel 2 TMDS low-voltage signal differential input pair	
4	TMDS Data1+	Positive side of channel 1 TMDS low-voltage signal differential input pair	
5	TMDS Data1 Shield	Ground	
6	TMDS Data1-	Negative side of channel 1 TMDS low-voltage signal differential input pair	
7	TMDS Data0+	Positive side of channel 0 TMDS low-voltage signal differential input pair	
8	TMDS Data0 Shield	Ground	
9	TMDS Data0-	Negative side of channel 0 TMDS low-voltage signal differential input pair	
10	TMDS Clock+	Positive side of reference clock. TMDS low-voltage signal differential input pair	
11	TMDS Clock Shield	Ground	
12	TMDS Clock-	Negative side of reference clock. TMDS low-voltage signal differential input pair	
13	CES	No connection	
14	Reserved	No connection	
15	SCL	DDC SCL	
16	SDA	DDC SDA	
17	DDC/CEC Ground	Ground	
18	+5V Power	Power supply	
19	Hot Plug Detect	Hot Plug Detect	

5.2 UBS1 Interface Description(for Touch):

1	VUSB	USB Power supply	
2	D-	USB data-	
3	D+	USB data+	
4	NC	No connection	
5	GND	Power ground	

5.3 UBS2 Interface Description(for BL):

1	VUSB	USB Power supply	
2	D-	USB data-	
3	D+	USB data+	
4	NC	No connection	
5	GND	Power ground	

Note: Please connect the USB first, and then connect the HDMI interface.

5.4 EX PWR Interface Description

1	12V	External power input	
2	GND	Ground	
3	BL_PWM	Brightness control input signal	
4	GND	Ground	

6. Absolute maximum Ratings

6.1. Electrical Absolute max. ratings

Parameter	Symbol	MIN	MAX	Unit	Remark
Power supply voltage	VDD	-0.5	5.0	V	

6.2. Environment Conditions

Item	Symbol	MIN	MAX	Unit	Remark
Operating Temperature	TOPR	-20	70	℃	
Storage Temperature	TSTG	-30	80	℃	

7. Electrical Specifications

7.1 Electrical characteristics

GND=0V, Ta=25℃

Item	Symbol	MIN	TYP	MAX	Unit
PCB Operating Voltage	VUSB	-	5.0	-	V
LCD I/O Operating Voltage	VDD	3.0	3.3	3.6	V
Input Voltage "H' level	VIH	0.7*VDD	-	VDD	V
Input Voltage "L' level	VIL	VSS	-	0.3*VDD	V
Output Voltage "H" level	VOH	VDD-0.4	-	VDD	V
Output Voltage "L' level	VOL	VSS	-	VSS+0.4	V

7.2 CTP Characteristics

Item of CTP characteristics	Specification	Unit	Remark
Panel Type	Glass Cover + Glass Sensor		
Resolution	1024 x 768	Pixel	
Surface Hardness	≧6H		
Transparency	>82%		
Driver IC	-		
Interface Type	USB		
Support Points	5		
Sampling Rate	100	Hz	
Supply Voltage	3.3	V	

8. Command/AC Timing

8.1 LCD Timing

Parameter	Symbol	Value			Unit
		Min.	Typ.	Max.	
DCLK Frequency	DCLK	52	65	71	MHz
Horizontal display area	thd	1024			DCLK
1 Horizontal Line	th	1114	1344	1400	DCLK
HSYNC blanking	thb+thfp	90	320	376	DCLK
Vertical display area	tvd	768			H
VSYNC period time	tv	778	806	845	H
VSYNC blanking	tvb+tvfp	10	38	77	H

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9. Optical Specification

Ta=25℃

Item		Symbol	Condition	Min	Typ.	Max.	Unit	Remark
Contrast Ratio		CR	θ=0°	--	800	--		Note1 Note2
Response Time		Tr + Tf	25℃	--	25	50	ms	Note1 Note3
View Angles		ΘT	CR≧10	75	85	--	Degree	Note 4
		ΘB		75	85	--		
		ΘL		75	85	--		
		ΘR		75	85	--		
Chromaticity	White	x	Brightness is on	Typ-0.05	0.288	Typ+0.05		Note5, Note1
		y			0.326			
Luminance		L		--	600	--	cd/m^2	Note1 Note6
Uniformity		U		--	80	--	%	Note1 Note7

Note 1: Definition of optical measurement system.

Temperature = 25℃(±3℃) ,

LED back-light: ON, Environment brightness < 150 lx
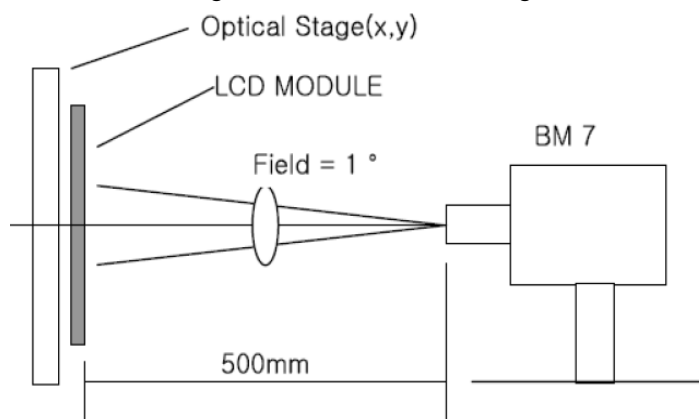
Note 2: Contrast ratio is defined as follow:

$$\text{Contrast Ratio} = \frac{\text{Surface Luminance with all white pixels}}{\text{Surface Luminance with all black pixels}}$$

Note 3: Response time is defined as follow:

Response time is the time required for the display to transition from black to white (Rise Time, Tr) and from white to black(Decay Time, Tf).
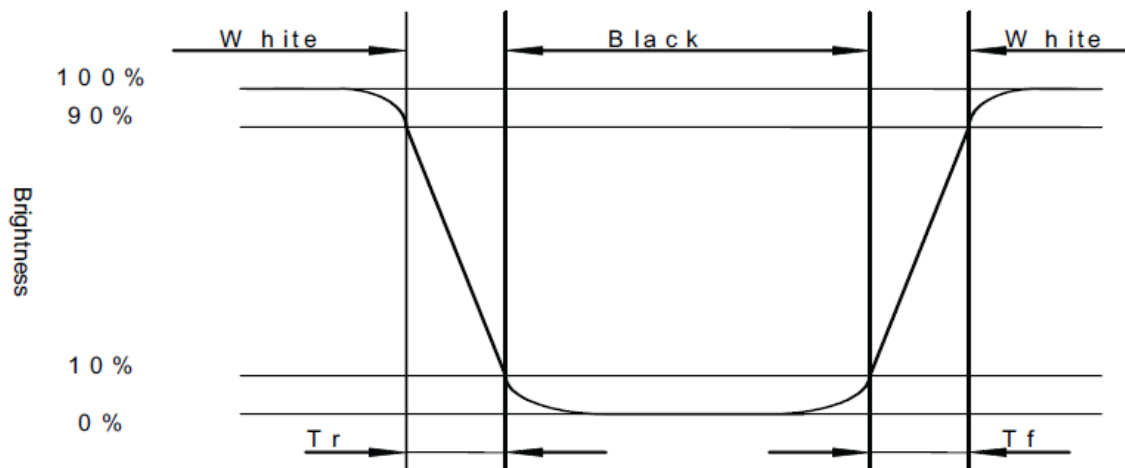
Note 4: Viewing angle range is defined as follow:

Viewing angle is measured at the center point of the LCD.
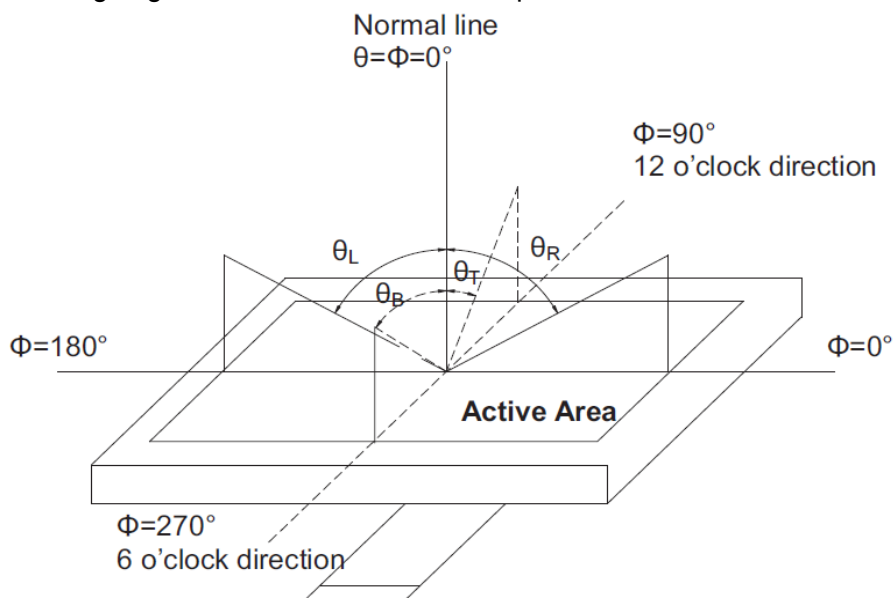
Note 5: Color chromaticity is defined as follow: (CIE1931)

Color coordinates measured at center point of LCD.
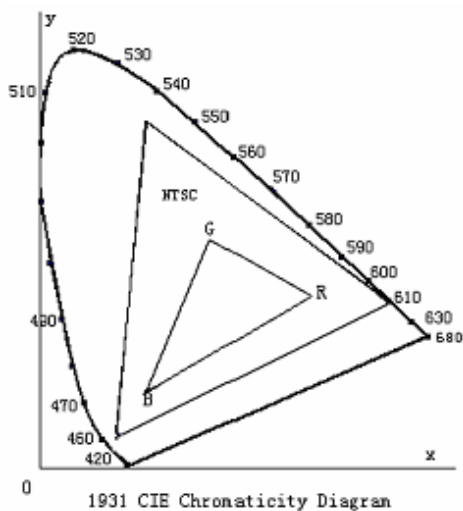
$$S = \frac{\text{area of RGB triangle}}{\text{area of NTSC triangle}} \times 100\%$$

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Note 6: Luminance is defined as follow:

Luminance is defined as the brightness of all pixels "White" at the center of display area on optimum contrast.

Note 7: Luminance Uniformity is defined as follow:

Active area is divided into 9 measuring areas (Refer Fig. 2). Every measuring point is placed at the center of each measuring area.

$$\text{Uniformity (U)} = \frac{\text{Minimum Luminance(brightness) in 9 points}}{\text{Maximum Luminance(brightness) in 9 points}}$$
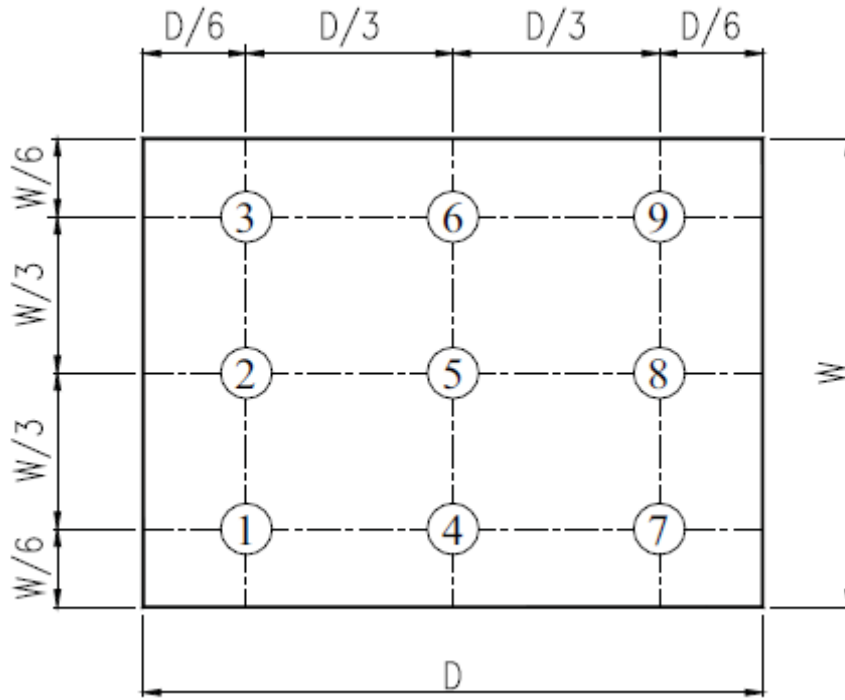
Fig. 2 Definition of uniformity

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10. Environmental / Reliability Tests

No	Test Item	Condition	Judgment criteria
1	High Temp Operation	Ts=+70℃, 120hrs	Per table in below
2	Low Temp Operation	Ta=-20℃, 120hrs	Per table in below
3	High Temp Storage	Ta=+80℃, 120hrs	Per table in below
4	Low Temp Storage	Ta=-30℃, 120hrs	Per table in below
5	High Temp & High Humidity Storage	Ta=+60℃, 90% RH, 120 hours	Per table in below (polarizer discoloration is excluded)
6	Thermal Shock (Non-operation)	-30℃ 30 min~+80℃ 30 min, Change time:5min, 10 Cycles	Per table in below
7	ESD (Operation)	C=150pF, R=330Ω，5points/panel Air:±8KV, 5times; Contact:±4KV, 5 times;	Per table in below
8	Vibration (Non-operation)	Frequency range:10~55Hz, Stroke:1.5mm Sweep:10Hz~55Hz~10Hz 2 hours for each direction of X.Y.Z.	Per table in below
9	Shock (Non-operation)	60G 6ms, ±X,±Y,±Z 3times, for each direction	Per table in below
10	Package Drop Test	Height:80 cm, 1 corner, 3 edges, 6 surfaces	Per table in below

INSPECTION	CRITERION(after test)
Appearance	No Crack on the FPC, on the LCD Panel
Alignment of LCD Panel	No Bubbles in the LCD Panel No other Defects of Alignment in Active area
Electrical current	Within device specifications
Function / Display	No Broken Circuit, No Short Circuit or No Black line No Other Defects of Display

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11. Precautions for Use of LCD Modules

11.1 Safety
The liquid crystal in the LCD is poisonous. Do not put it in your mouth. If the liquid crystal touches your skin or clothes, wash it off immediately using soap and water.

11.2 Handling
A. The LCD and touch panel is made of plate glass. Do not subject the panel to mechanical shock or to excessive force on its surface.
B. Do not handle the product by holding the flexible pattern portion in order to assure the reliability
C. Transparency is an important factor for the touch panel. Please wear clear finger sacks, gloves and mask to protect the touch panel from finger print or stain and also hold the portion outside the view area when handling the touch panel.
D. Provide a space so that the panel does not come into contact with other components.
E. To protect the product from external force, put a covering lens (acrylic board or similar board) and keep an appropriate gap between them.
F. Transparent electrodes may be disconnected if the panel is used under environmental conditions where dew condensation occurs.
G. Property of semiconductor devices may be affected when they are exposed to light, possibly resulting in IC malfunctions.
H. To prevent such IC malfunctions, your design and mounting layout shall be done in the way that the IC is not exposed to light in actual use.

11.3 Static Electricity
A. Ground soldering iron tips, tools and testers when they are in operation.
B. Ground your body when handling the products.
C. Power on the LCD module before applying the voltage to the input terminals.
D. Do not apply voltage which exceeds the absolute maximum rating.
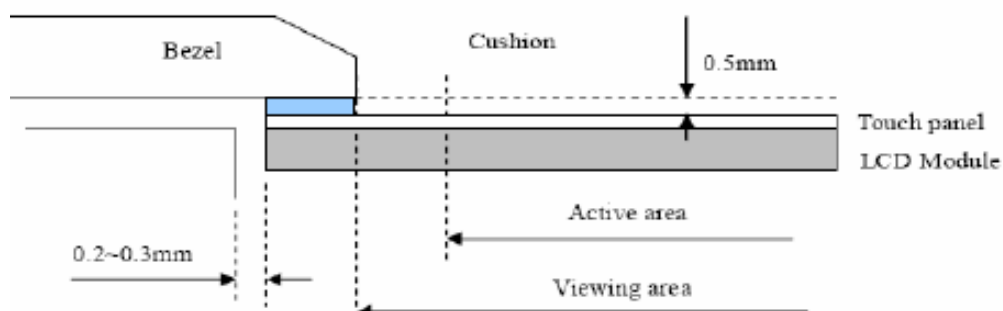E. Store the products in an anti-electrostatic bag or container.

11.4 Storage
A. Store the products in a dark place at $+25\text{℃}\pm10\text{℃}$ with low humidity (40% RH to 60% RH). Don't expose to sunlight or fluorescent light.
B. Storage in a clean environment, free from dust, active gas, and solvent.

11.5 Cleaning
A. Do not wipe the touch panel with dry cloth, as it may cause scratch.
B. Wipe off the stain on the product by using soft cloth moistened with ethanol. Do not allow ethanol to get in between the upper film and the bottom glass. It may cause peeling issue or defective operation. Do not use any organic solvent or detergent other than ethanol.

11.6 Cautions for installing and assembling
A. Bezel edge must be positioned in the area between the Active area and View area. The bezel may press the touch screen and cause activation if the edge touches the active area. A gap of approximately 0.5mm is needed between the bezel and the top electrode. It may cause unexpected activation if the gap is too narrow. There is a tolerance of 0.2 to 0.3mm for the outside dimensions of the touch panel and tail. A gap must be made to absorb the tolerance in the case and connector.
B. In order to make the display assembly stable and firm, MT recommends to design some supporting at the display backside, especially for the display with tape-attached touch panel, such supporting is important and essential, or else, the display may drop-off from front after some period of time.
C. Do not display the fixed pattern for a long time because it may develop image sticking due to the LCD structure. If the screen is displayed with fixed pattern, use a screen saver.

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