

EXAMINED BY : <i>Lewis Chiu</i>	EMERGING DISPLAY TECHNOLOGIES CORPORATION	FILE NO. CAS-0007484
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CUSTOMER ACCEPTANCE SPECIFICATIONS

MODEL NO. :

EP0700ML08

(GP)

PFOR MESSRS :

CUSTOMER'S APPROVAL

DATE :

BY :

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EMERGING DISPLAY
TECHNOLOGIES CORPORATION

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1. GENERAL SPECIFICATIONS

1.1 GENERAL SPECIFICATIONS

THIS SPECIFICATION IS APPLIED TO PROJECTED CAPACITIVE TOUCH SCREEN MODULES, WHICH THE MODEL OF CUSTOMER IS SPECIFIED, TO STIPULATE THE QUALITY PERFORMANCE CONTROL.

1.2 APPLICATION NOTES FOR CONTROLLER/DRIVER

PLEASE REFER TO :

FOCALTECH FT5406EE8

1.3 MATERIAL SAFETY DESCRIPTION

ASSEMBLIES SHALL COMPLY WITH EDT GREEN PRODUCT (GP) REQUIREMENTS, INCLUDING PROHIBITED MATERIALS/COMPONENTS CONTAINING LEAD, MERCURY, CADMIUM, HEXAVALENT CHROMIUM, POLYBROMINATED BIPHENYLS (PBB), POLYBROMINATED DIPHENYL ETHERS (PBDE), POLYCHLORINATED BIPHENYLS (PCB) CATEGORY, POLYCHLORINATED NAPHTHALENE (PCN) CATEGORY, POLYCHLORINATED TERPHENYLS (PCT) CATEGORY, CHLORINATED PARAFFINS (CP) CATEGORY, TRIBUTHYL TIN CATEGORY / TRIPHENYL TIN CATEGORY, ASBESTOS, SPECIFIC AZO COMPOUNDS, FORMALDEHYDE, POLYVINYL CHLORIDE (PVC) AND PVC BLENDS, OTHER BROMINATED ORGANIC COMPOUNDS AND OTHER CHLORINATED ORGANIC COMPOUNDS.

2. MECHANICAL SPECIFICATIONS

- (1) TOUCH PANEL SIZE ----- 7" inch
- (2) OUTER DIMENSION ----- 163W * 98H * 1.3D mm
(WITHOUT FPC)
- (3) EFFECTIVE AREA ----- 156.6W * 92.01H mm
- (4) ACTIVE AREA ----- 155.6W * 91.01H mm
- (5) INPUT TYPE ----- MULTI-TOUCH
- (6) NUMBER OF TOUCH SENSOR ----- 28*16 SENSORS
- (7) INTERFACE MODE ----- I2C
- (8) RESOLUTION ----- 1792*1024

3. ABSOLUTE MAXIMUM RATINGS

3.1 ELECTRICAL ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	MIN.	MAX.	UNIT	REMARK
POWER SUPPLY FOR DRIVER	VDD-VSS	-0.3	3.6	V	
INPUT VOLTAGE	VIN	-0.3	IOVCC+0.3	V	NOTE (1)
STATIC ELECTRICITY	—	—	100	V	NOTE (2)

NOTE (1) : IOVCC IS SET TO VDD BY SOFTWARE CONFIGURATION.

NOTE (2) : TEST METHOD AND CONDITIONS :

CAPACITOR IS CHARGED UP TO 200 pF BY STATIC VOLTAGE, THEN
CONNECT WITH DISPLAY MODULE INTERFACE PINS FOR DISCHARGE.

3.2 ENVIRONMENTAL ABSOLUTE MAXIMUM RATINGS

ITEM	OPERATING		STORAGE		REMARK
	MIN.	MAX.	MIN.	MAX.	
AMBIENT TEMPERATURE	-20°C	70°C	-30°C	80°C	NOTE (1)
HUMIDITY	NOTE (2)		NOTE (2)		WITHOUT CONDENSATION
VIBRATION	—	2.45 m/s ² (0.25 G)	—	11.76 m/s ² (1.2 G)	10~100 Hz XYZ DIRECTIONS 1 Hr. EACH
SHOCK	—	29.4 m/s ² (3 G)	—	490.0 m/s ² (50 G)	10 mSECONDS XYZ DIRECTIONS 1 TIME EACH

NOTE (1) : Ta AT -30°C : WILL BE 48HRS MAX.

80°C : WILL BE 168HRS MAX.

NOTE (2) : Ta ≤ 60°C : 90%RH MAX. (96HRS MAX.)

Ta > 60°C : ABSOLUTE HUMIDITY MUST BE LOWER THAN 90%RH AT 60°C.

(96HRS MAX.)

4. ELECTRICAL CHARACTERISTICS

Ta=25°C

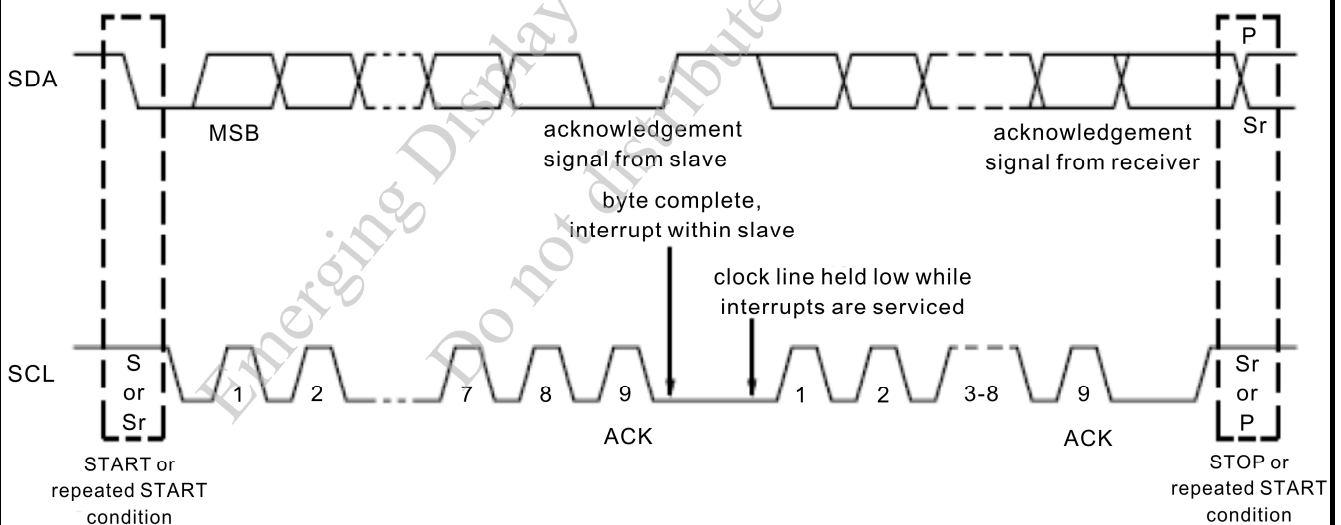
ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
POWER SUPPLY FOR DRIVER	VDD-VSS	—	2.8	3.0	3.3	V
INPUT HIGH-LEVEL VOLTAGE	VIH	—	0.7*IOVCC	—	IOVCC	V
INPUT LOW-LEVEL VOLTAGE	VIL	—	-0.3	—	0.3*IOVCC	V
OUTPUT HIGHT-LEVEL VOLTAGE	VOH	IOH=-0.1mA	0.7*IOVCC	—	—	V
OUTPUT LOW-LEVEL VOLTAGE	VOL	IOH=0.1mA	—	—	0.3*IOVCC	V
POWER SUPPLY CURRENT CONSUMPTION FOR OPERATION	IDD	VDD-VSS=3.0V	—	12	15	mA
POWER SUPPLY CURRENT CONSUMPTION FOR SLEEP MODE	ISB	VDD-VSS=3.0V	—	50	100	μA

5. TIMING CHARACTERISTICS

5.1 I2C INTERFACE TIMING CHARACTERISTICS

ITEM	MIN.	TYP.	MAX.	UNIT
SCL FREQUENCY	0	—	400	KHz
BUS FREE TIME BETWEEN A STOP AND START CONDITION	4.7	—	—	us
HOLD TIME (REPEATED) START CONDITION	4.0	—	—	us
DATA SETUP TIME	250	—	—	ns
SETUP TIME FOR A REPEATED START CONDITION	4.7	—	—	us
SETUP TIME FOR STOP CONDITION	4.0	—	—	us

5.2 I2C BUS TIMING



6. OPTICAL CHARACTERISTICS

ITEM	CONDITION	MIN.	TYP.	MAX.	UNIT
TRANSPARENCY NOTE (1)	Ta = 25°C	85	—	—	%

NOTE (1) : OPTICAL MEASUREMENT SHOULD BE EXECUTED AFTER PANEL IS SECURED.
MEASUREMENT PROCESS SHOULD BE EXECUTED IN A STABLE, WINDLESS, AND DARK ROOM.
OPTICAL SPECIFICATIONS SHOULD BE MEASURED BY SPECTROPHOTOMETER.

7. MECHANICAL CHARACTERISTICS

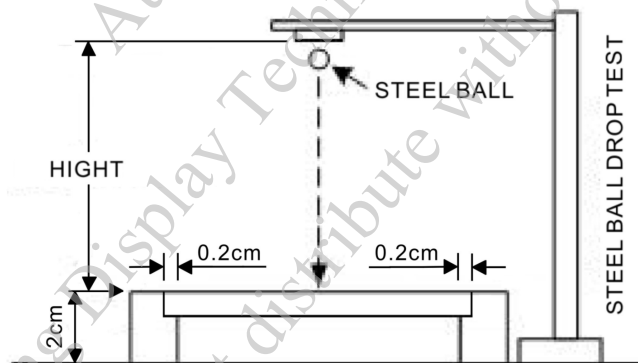
7.1 HARDNESS

ITEM	DESCRIPTION
SURFACE HARDNESS	7H (min)

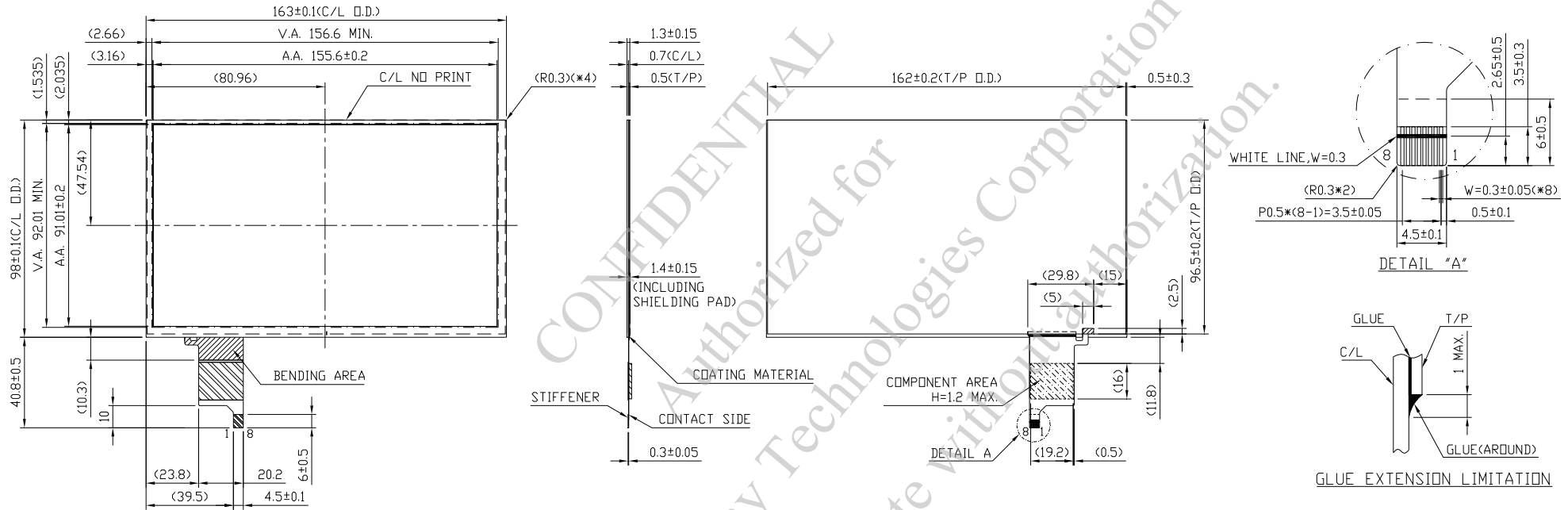
7.2 DURABILITY

USING STEEL BALL AND FALLING ON TOUCH PANEL SURFACE, FROM THE HEIGHT MUST PASS BELOW CONDITIONS :

ITEM	CONDITION	INSPECTION METHOD	DESCRIPTION
STEEL BALL DROP TEST	WEIGHT : 67g HEIGHT OF FALL : 30 cm	VISUAL INSPECTION	SIGN OF FRACTURE OR DAMAGE IS NOT ACCEPTABLE 3 TIMES/ 1 POINTS, 25°C

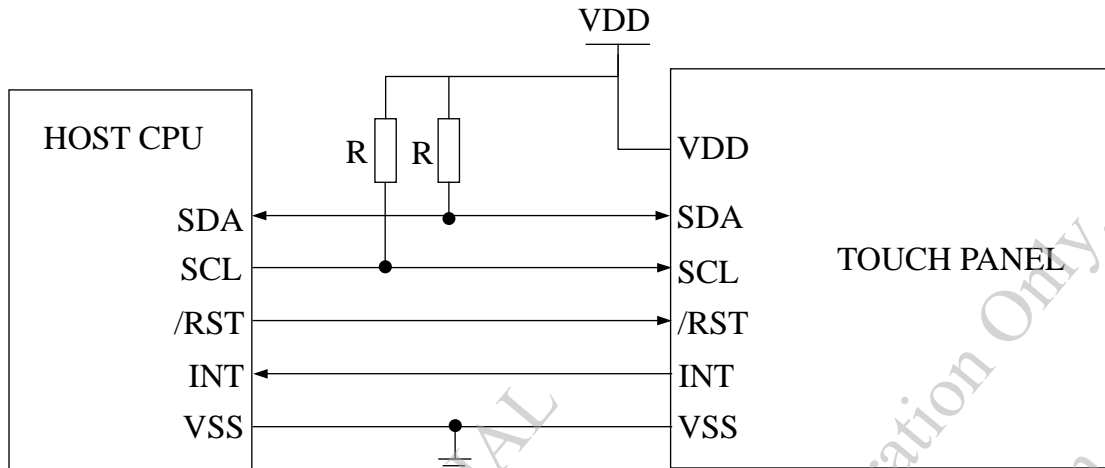


8. OUTLINE DIMENSIONS



UNIT : mm
SCALE : NTS
NOT SPECIFIED TOLERANCE IS ± 0.3 mm

9. BLOCK DIAGRAM

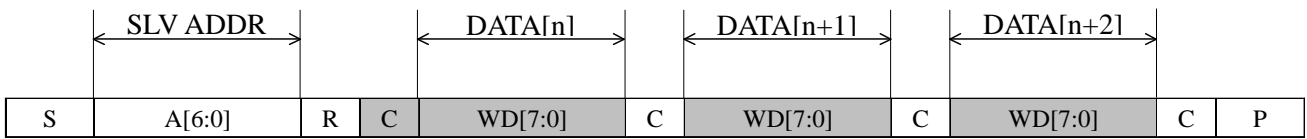


NOTE : USE APPROPRIATE RESISTOR VALUE DURING HIGH SPEED SCL CLOCK.
SUGGEST RESISTOR RECOMMENDATION : 7.5K ohm.

10. SIGNAL INTERFACES

PIN NO.	SYMBOL	FUNCTION
1	VSS	GND
2	VDD	SUPPLY VOLTAGE
3	SDA	I2C DATA INPUT AND OUTPUT
4	SCL	I2C CLOCK INPUT
5	/RST	EXTERNAL RESET, LOW IS ACTIVE
6	INT	EXTERNAL INTERRUPT TO THE HOST
7	WAKE	EXTERNAL INTERRUPT FROM THE HOST
8	VSS	GND

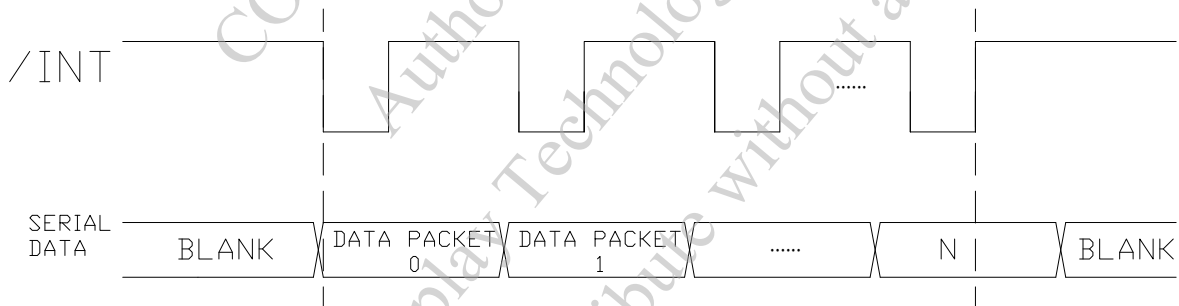
11. PROTOCOL
11.1 I2C READ



CHARACTER	DESCRIPTION
S	I2C START OR I2C RESTART
A[6:0]	SLAVE ADDRESS, THE VALUE CAN BE CUSTOMIZED
R	OPERATOR BYTE, SHOULD BE 1'b1, STANDS FOR READ
C	ACK SIGNAL
P	STOP SIGNAL (STOP SIGNAL IS OPTIONAL, RESTART SIGNAL IS ALSO OK FOR NEXT PACKET)

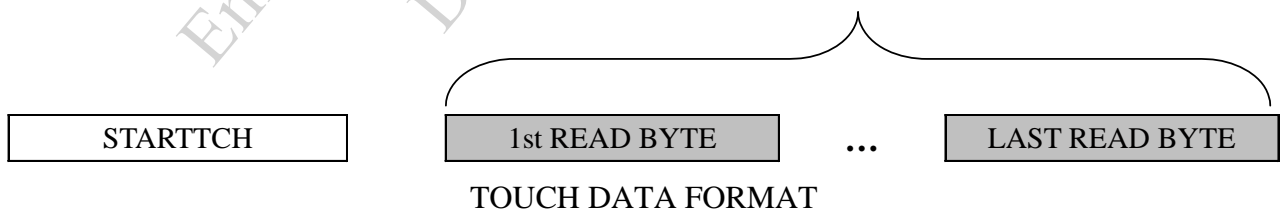
SLAVE ADDRESS=0x38

11.2 INTERRUPT SIGNAL FOR CTPM TO HOST
AS FOR STANDARD CTPM, HOST NEED TO USE BOTH INTERRUPT CONTROL SIGNAL AND SERIAL DATA INTERFACE TO GET THE TOUCH DATA.
HERE IS THE TIMING TO GET TOUCH DATA



11.3 READ TOUCH DATA PACKET
WE DEFINED A CTPM PERIOD AS EACH CAPACITANCE DATA GATHERING AND DATA PROCESS, IN EACH CTPM, IF THERE IS A TOUCH DETECTS, THERE WILL WE A FAME OF TOUCH DATA. HOST CAN GET THE SPECIFIED FORMAT TOUCH DATA BY SERIAL DATA INTERFACE.

TOUCH DATA PACKET



TOUCH DATA READ PROTOCOL

IN THIS MODE THE CTP IS FULLY FUNCTIONAL AS A TOUCH SCREEN CONTROLLER. READ AND WRITE ACCESS ADDRESS IS JUST LOGICAL ADDRESS WHICH IS NOT ENFORCED BY HARDWARE OR FIRMWARE. HERE IS THE OPERATING MODE REGISTER MAP.

ADDRESS	NAME	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0	HOST ACCESS
00h	DEVIDE_MODE		DEVICE MODE[2:0]							RW
01h	GEST_ID	GESTUR ID[7:0]								R
02h	TD_STATUS					NUMBER OF TOUCH POINTS[3:0]				R
03h	TOUCH1_XH	1 st EVENT FLAG		1 st TOUCH X POSITION[11:8]						R
04h	TOUCH1_XL	1 st TOUCH X POSITION[7:0]								R
05h	TOUCH1_YH	1 st TOUCH ID[3:0]			1 st TOUCH Y POSITION[11:8]					R
06h	TOUCH1_YL	1 st TOUCH Y POSITION[7:0]								R
07h										
08h										
09h	TOUCH2_XH	2 nd EVENT FLAG		2 nd TOUCH X POSITION[11:8]						R
0Ah	TOUCH2_XL	2 nd TOUCH X POSITION[7:0]								R
0Bh	TOUCH2_YH	2 nd TOUCH ID[3:0]			2 nd TOUCH Y POSITION[11:8]					R
0Ch	TOUCH2_YL	2 nd TOUCH Y POSITION[7:0]								R
0Dh										R
0Eh										R
0Fh	TOUCH3_XH	3 rd EVENT FLAG		3 rd TOUCH X POSITION[11:8]						R
10h	TOUCH3_XL	3 rd TOUCH X POSITION[7:0]								R
11h	TOUCH3_YH	3 rd TOUCH ID[3:0]			3 rd TOUCH Y POSITION[11:8]					R
12h	TOUCH3_YL	3 rd TOUCH Y POSITION[7:0]								R
13h										R
14h										R
15h	TOUCH4_XH	4 th EVENT FLAG		4 th TOUCH X POSITION[11:8]						R
16h	TOUCH4_XL	4 th TOUCH X POSITION[7:0]								R
17h	TOUCH4_YH	4 th TOUCH ID[3:0]			4 th TOUCH Y POSITION[11:8]					R
18h	TOUCH4_YL	4 th TOUCH Y POSITION[7:0]								R
19h										R
1Ah										R
1Bh	TOUCH5_XH	5 th EVENT FLAG		5 th TOUCH X POSITION[11:8]						R
1Ch	TOUCH5_XL	5 th TOUCH X POSITION[7:0]								R
1Dh	TOUCH5_YH	5 th TOUCH ID[3:0]			5 th TOUCH Y POSITION[11:8]					R
1Eh	TOUCH5_YL	5 th TOUCH Y POSITION[7:0]								R
1Fh										R
20h										R

ADDRESS	NAME	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0	HOST ACCESS	
21h	TOUCH6_XH	6 th EVENT FLAG				6 th TOUCH X POSITION[11:8]					
22h	TOUCH6_XL	6 th TOUCH X POSITION[7:0]									
23h	TOUCH6_YH	6 th TOUCH ID[3:0]			6 th TOUCH Y POSITION[11:8]						
24h	TOUCH6_YL	6 th TOUCH Y POSITION[7:0]									
25h											
26h											
27h	TOUCH7_XH	7 th EVENT FLAG				7 th TOUCH X POSITION[11:8]					
28h	TOUCH7_XL	7 th TOUCH X POSITION[7:0]									
29h	TOUCH7_YH	7 th TOUCH ID[3:0]			7 th TOUCH Y POSITION[11:8]						
2Ah	TOUCH7_YL	7 th TOUCH Y POSITION[7:0]									
2Bh											
2Ch											
2Dh	TOUCH8_XH	8 th EVENT FLAG				8 th TOUCH X POSITION[11:8]					
2Eh	TOUCH8_XL	8 th TOUCH X POSITION[7:0]									
2Fh	TOUCH8_YH	8 th TOUCH ID[3:0]			8 th TOUCH Y POSITION[11:8]						
30h	TOUCH8_YL	8 th TOUCH Y POSITION[7:0]									
31h											
32h											
33h	TOUCH9_XH	9 th EVENT FLAG				9 th TOUCH X POSITION[11:8]					
34h	TOUCH9_XL	9 th TOUCH X POSITION[7:0]									
35h	TOUCH9_YH	9 th TOUCH ID[3:0]			9 th TOUCH Y POSITION[11:8]						
36h	TOUCH9_YL	9 th TOUCH Y POSITION[7:0]									
37h											
38h											
39h	TOUCH10_XH	10 th EVENT FLAG				10 th TOUCH X POSITION[11:8]					
3Ah	TOUCH10_XL	10 th TOUCH X POSITION[7:0]									
3Bh	TOUCH10_YH	10 th TOUCH ID[3:0]			10 th TOUCH Y POSITION[11:8]						
3Ch	TOUCH10_YL	10 th TOUCH Y POSITION[7:0]									
A6h	ID_G_FIRMID	FIRMWARE ID								R	

DEVICE_MODE

THIS REGISTER IS THE DEVICE MODE REGISTER, CONFIGURE IT TO DETERMINE THE CURRENT MODE OF THE CHIP.

ADDRESS	BIT ADDRESS	REGISTER NAME	DESCRIPTION
00h	6:4	DEVICEMODE [2:0]	DEFAULT: 000b WORK MODE

GEST_ID

THIS REGISTER DESCRIBES THE GESTURE OF A VALID TOUCH.

ADDRESS	BIT ADDRESS	REGISTER NAME	DESCRIPTION
01h	7:0	GESTURE ID [7:0]	FUNCTION DISABLED

TD_STATUS

THIS REGISTER IS THE TOUCH DATA STATUS REGISTER.

ADDRESS	BIT ADDRESS	REGISTER NAME	DESCRIPTION
02h	3:0	NUMBER OF TOUCH POINTS [3:0]	HOW MANY POINTS DETECTED. 1-10 IS VALID.
	7:4	NONE	NONE

TOUCH_n_XH (n:1-10)

THIS REGISTER DESCRIBES MSB OF THE X COORDINATE OF THE NTH TOUCH POINT AND THE CORRESPONDING EVENT FLAG.

ADDRESS	BIT ADDRESS	REGISTER NAME	DESCRIPTION
03h ~ 39h	7:6	EVENT FLAG	00b: PUT DOWN 01b: PUT UP 10b: CONTACT 11b: RESERVED
	5:4	NONE	RESERVED
	3:0	TOUCH X POSITION [11:8]	MSB OF TOUCH X POSITION IN PIXELS

TOUCH_n_XL (n:1-10)

THIS REGISTER DESCRIBES LSB OF THE X COORDINATE OF THE NTH TOUCH POINT.

ADDRESS	BIT ADDRESS	REGISTER NAME	DESCRIPTION
04h ~ 3Ah	7:0	TOUCH X POSITION [7:0]	LSB OF THE TOUCH X POSITION IN PIXELS

TOUCH_n_YH (n:1-10)

THIS REGISTER DESCRIBES MSB OF THE Y COORDINATE OF THE NTH TOUCH POINT AND CORRESPONDING TOUCH ID.

ADDRESS	BIT ADDRESS	REGISTER NAME	DESCRIPTION
05h ~ 3Bh	7:4	TOUCH ID [3:0]	TOUCH ID OF TOUCH POINT
	3:0	TOUCH X POSITION [11:8]	MSB OF TOUCH Y POSITION IN PIXELS

TOUCH_n_YL (n:1-10)

THIS REGISTER DESCRIBES LSB OF THE Y COORDINATE OF THE NTH TOUCH POINT.

ADDRESS	BIT ADDRESS	REGISTER NAME	DESCRIPTION
06h ~ 3Ch	7:0	TOUCH X POSITION [7:0]	LSB OF THE TOUCH Y POSITION IN PIXELS

ID_G_FIRMWARE_ID

THIS REGISTER DESCRIBES THE FIRMWARE ID OF THE APPLICATION

ADDRESS	BIT ADDRESS	REGISTER NAME	DESCRIPTION
A6h	7:0	ID_G_FIRMWARE_ID	FIRMWARE VERSION

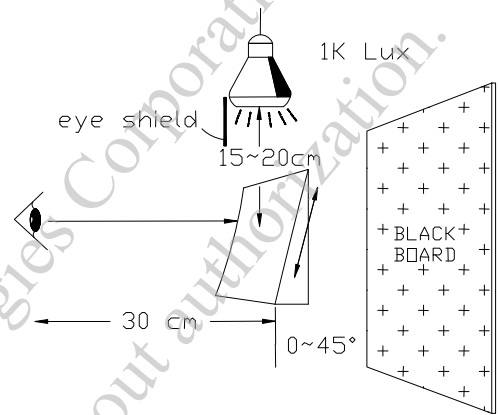
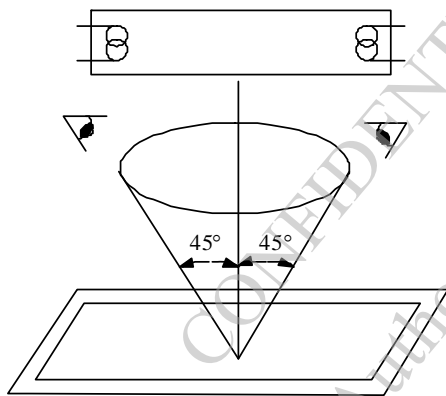
12. INSPECTION CONDITIONS

12.1 ENVIRONMENTAL CONDITIONS

- (1) OBSERVATION DISTANCE : 30±5cm
- (2) VIEWING ANGLE : ±45°
- (3) BACKGROUND COLOR : BLACK
- (4)

AMBIENT TEMPERATURE	20°C ~ 30°C
AMBIENT HUMIDITY	55±10%RH
AMBIENT ILLUMINATION (FLUORESCENT LIGHT)	800 ~1000 LUX

VIEWING ANGLE SHOULD BE SMALLER THAN 45°



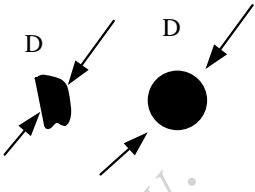
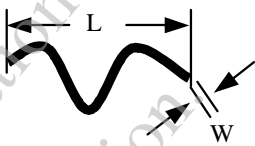
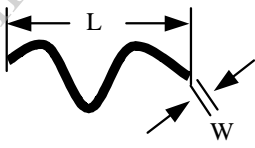
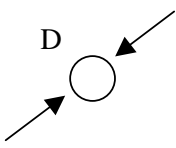
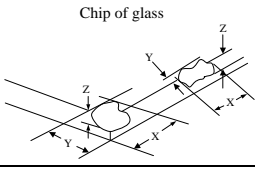
LINE OF SIGHT FOR INSPECTION SHALL BE WITHIN THE HALF SECTION OF THE VIEWING CONE GENERATED BY LINE SEGMENT 45° WITH RESPECTS TO THE VERTICAL AXIS FROM CENTER VERTEX OF LCD, THE CONE AXIS MUST BE PERPENDICULAR NORMAL TO LCD SURFACE AND PASSES THROUGH THE FLUORESCENT LAMP.

A AREA : VIEWING AREA
B AREA : OUT OF VIEWING AREA
(OUTSIDE VIEWING AREA)

12.2 INSPECTION PLAN

FOLLOW MIL-STD-105E, NORMAL, LEVEL II, AQL=1.0

13. INSPECTION STANDARDS

INSPECTION ITEMS	CRITERIA	REMARK										
BLACK/WHITE SPOT	THE FOLLOWING BLACK/WHITE SPOT ARE WITHIN THE VIEWING AREA. AVERAGE DIAMETER : D (mm)											
	<table border="1"> <thead> <tr> <th>SIZE D</th> <th>PERMISSIBLE NO.</th> </tr> </thead> <tbody> <tr> <td>D≤0.1mm</td> <td>IGNORE</td> </tr> <tr> <td>0.1mm<D≤0.5mm</td> <td>5</td> </tr> <tr> <td>D>0.5 mm</td> <td>0</td> </tr> </tbody> </table>		SIZE D	PERMISSIBLE NO.	D≤0.1mm	IGNORE	0.1mm<D≤0.5mm	5	D>0.5 mm	0		
	SIZE D		PERMISSIBLE NO.									
	D≤0.1mm		IGNORE									
0.1mm<D≤0.5mm	5											
D>0.5 mm	0											
SCRATCH	THE FOLLOWING BLACK LINE, WHITE LINE IS WITHIN THE VIEWING AREA. WIDTH : W (mm) , LENGH : L (mm)											
<table border="1"> <thead> <tr> <th>SIZE W & L</th> <th>PERMISSIBLE NO.</th> </tr> </thead> <tbody> <tr> <td>W≤0.05mm</td> <td>IGNORE</td> </tr> <tr> <td>0.05mm<W≤0.07mm, L≤5mm</td> <td>1</td> </tr> <tr> <td>W>0.07mm</td> <td>0</td> </tr> </tbody> </table>	SIZE W & L		PERMISSIBLE NO.	W≤0.05mm	IGNORE	0.05mm<W≤0.07mm, L≤5mm	1	W>0.07mm	0			
SIZE W & L	PERMISSIBLE NO.											
W≤0.05mm	IGNORE											
0.05mm<W≤0.07mm, L≤5mm	1											
W>0.07mm	0											
LINEAR TYPE / FOREIGN FIBER	THE FOLLOWING BLACK LINE, WHITE LINE IS WITHIN THE VIEWING AREA. WIDTH : W (mm) , LENGH : L (mm)											
<table border="1"> <thead> <tr> <th>SIZE W & L</th> <th>PERMISSIBLE NO.</th> </tr> </thead> <tbody> <tr> <td>W≤0.05mm</td> <td>IGNORE</td> </tr> <tr> <td>0.05mm<W≤0.07mm, L≤5mm</td> <td>1</td> </tr> <tr> <td>W>0.07mm</td> <td>0</td> </tr> </tbody> </table>	SIZE W & L		PERMISSIBLE NO.	W≤0.05mm	IGNORE	0.05mm<W≤0.07mm, L≤5mm	1	W>0.07mm	0			
SIZE W & L	PERMISSIBLE NO.											
W≤0.05mm	IGNORE											
0.05mm<W≤0.07mm, L≤5mm	1											
W>0.07mm	0											
BUBBLE / DENT	BUBBLES WITHIN VIEWING AREA. AVERAGE DIAMETER : D (mm)											
	<table border="1"> <thead> <tr> <th>SIZE D</th> <th>PERMISSIBLE NO.</th> </tr> </thead> <tbody> <tr> <td>D≤0.2mm</td> <td>IGNORE</td> </tr> <tr> <td>0.2mm<D≤0.3mm</td> <td>3</td> </tr> <tr> <td>0.3mm<D≤0.5mm</td> <td>1</td> </tr> <tr> <td>D>0.5mm</td> <td>0</td> </tr> </tbody> </table>		SIZE D	PERMISSIBLE NO.	D≤0.2mm	IGNORE	0.2mm<D≤0.3mm	3	0.3mm<D≤0.5mm	1	D>0.5mm	0
	SIZE D		PERMISSIBLE NO.									
	D≤0.2mm		IGNORE									
0.2mm<D≤0.3mm	3											
0.3mm<D≤0.5mm	1											
D>0.5mm	0											
CHIP DAMAGE ON GLASS	CORNER											
	EDGE											
CRACK	NOT ACCEPTABLE											

NOTE :

- FOR ANY SPOTS OR LINES WHICH ARE NOT OBSERVED UNDER APPROPRIATE PANEL OPERATING CONDITION, ARE DEEMED ACCEPTABLE.
- THE FOREIGN MATERIALS THAT CAN BE BLOWN OUT BY AIR AND REMOVED BY WET CLEANING ARE NOT REGARDED AS DEFECTS.

14. GENERAL RELIABILITY ASSURANCE

NO	ITEM	CONDITIONS	TIME PERIOD	REMARK
1	HIGH TEMPERATURE STORAGE	80 ± 2 °C 15% RH	240HRS	2HRS LEFT ALONE AT NORMAL TEMP
2	LOW TEMPERATURE STORAGE	-30 ± 2 °C <15% RH	240HRS	4HRS LEFT ALONE AT NORMAL TEMP
3	HIGH TEMPERATURE OPERATING	70 ± 2 °C	240HRS	AS SAME AS (2)
4	LOW TEMPERATURE OPERATING	-20 ± 2 °C	240HRS	AS SAME AS (2)
5	HIGH TEMPERATURE HUMIDITY STORAGE	60 ± 2 °C 90 % RH	240HRS	AS SAME AS (2)
6	THERMAL SHOCK	-30°C , 70°C 0.5H 0.5H	TRANSIT/3MIN 50 CYCLES	
7	FPC BENDING TEST	0° TO 135°	RIGHT 90° INVERSE 45° POISE 500G, 10 CYCLES	WITHOUT FUNCTION ISSUE
8	ESD	NON-OPERATING	AIR±12KV CONTACT±8KV	ONLY TP MODULE (3)
		OPERATING	AIR±8KV CONTACT±6KV	

NOTE (1) : AFTER RELIABILITY TEST COMPLETION, THE FOLLOWINGS ARE VERIFIED :

1. WHETHER TOUCH PANEL WORKS NORMALLY UNDER NORMAL TEMPERATURE ENVIRONMENT.
2. VARIATION ON MODULE APPEARANCE.

NOTE (2) : 1. CONDUCT EXAMINATION AND MEASUREMENT UNDER THE FOLLOWING CONDITIONS, UNLESS SPECIFIED OTHERWISE.

TEMPERATURE : 25 ± 5°C

HUMIDITY : 55± 10%RH

ATMOSPHERIC PRESSURE: 96±10KPA

2. DATA FOR ALL MEASUREMENTS SHALL ONLY BE RECORDED ONCE SPECIMENS HAVE ATTAINED TEMPERATURE STABILITY.

NOTE (3) : THE STATED VALUE ARE BASED ON EDT TESTING CRITERIA AND EVALUATION EQUIPMENTS AS BENCHMARK. SPECIFIC ESD PERFORMANCE WILL BE BASED ON APPLICATION CONDITION AND CUSTOMER'S UNIT STRUCTURE.

15. CAUTION

CLEANING

- (1) NEUTRAL DETERGENT OR ACETONE ON A CLEAN SOFT CLOTH ON PANEL SURFACE IS ALLOWED.
- (2) AVOID USAGE OF CHEMICAL SOLVENT OF ANY KIND, INCLUDING BOTH ACIDIC AND ALKALI BASED SOLUTIONS.