EXAMINED BY : *Yung Chang Hu*	**EMERGING DISPLAY** TECHNOLOGIES CORPORATION	FILE NO . CAS-0006256
		ISSUE : SEP.13, 2007
APPROVED BY: *David Chang*		TOTAL PAGE : 30
		VERSION : 1

CUSTOMER   ACCEPTANCE   SPECIFICATIONS

MODEL   NO. :

E T 0 3 2 0 0 1 D H 9
(RoHS)

FOR   MESSRS :

_____

CUSTOMER'S APPROVAL

DATE :

_____

BY :

_____

EMERGING DISPLAY	MODEL NO.		VERSION	PAGE
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EMERGING DISPLAY	MODEL NO.	VERSION	PAGE
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T A B L E   O F   C O N T E N T S

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1. GENERAL SPECIFICATIONS

1.1 APPLICATION NOTES FOR CONTROLLER/DRIVER
PLEASE REFER TO :

ILITEK   ILI9320

1.2 MATERIAL SAFETY DESCRIPTION
ASSEMBLIES SHALL COMPLY WITH EUROPEAN ROHS REQUIREMENTS, INCLUDING PROHIBITED MATERIALS/COMPONENTS CONTAINING LEAD, MERCURY, CADMIUM, HEXAVALENT CHROMIUM, POLYBROMINATED BIPHENYLS (PBB) AND POLYBROMINATED DIPHENYL ETHERS (PBDE)

2. MECHANICAL SPECIFICATIONS

(1) DISPLAY SIZE (inch) --------------------------- 3.2"

(2) NUMBER OF DOTS ------------------------- 240W (RGB) * 320H DOTS

(3) MODULE SIZE ------------------------------ 55.14W * 79.3H * 7.2D(MAX.) mm

(WITHOUT FPC)

(4) EFFECTIVE AREA ------------------------------ 51.6W * 67.6H mm (T/P)

(5) ACTIVE AREA -------------------------------- 48.6W * 64.8H mm (LCD)

49.6W * 65.6H mm (T/P)

(6) DOT SIZE -------------------------------------- 0.0675W * 0.2025H mm

(7) PIXEL SIZE ------------------------------------- 0.2025W * 0.2025H mm

(8) LCD TYPE ----------------------------------- TFT , TRANSMISSIVE

(9) COLOR -------------------------------------- 262K MAX. , 18-BITS MAX.

(10) VIEWING DIRECTION ----------------------- 9 O'CLOCK

(11) BACK LIGHT -------------------------------- LED , COLOR : WHITE

3． ABSOLUTE MAXIMUM RATINGS

3．1 ELECTRICAL ABSOLUTE MAXIMUM RATINGS．

PARAMETER	SYMBOL	MIN.	MAX.	UNIT	REMARK
POWER SUPPLY FOR LOGIC VOLTAGE	VCC	-0.3	4.6	V	
POWER SUPPLY FOR ANALOG VOLTAGE	VCI	-0.3	4.6	V	
INPUT VOLTAGE	VI	-0.3	VCC+0.3	V	
STATIC ELECTRICITY	—	—	—	V	NOTE (1)
POWER DISSIPATION	PD	—	630	mW	
FORWARD CURRENT	IF	—	30	mA	
REVERBE VOLTAGE	VR	—	30	V	

NOTE(1) : LCM SHOULD BE GROUNDED DURING HANDING LCM.

3．2 ENVIRONMENTAL ABSOLUTE MAXIMUM RATINGS

I T E M	OPERATING		STORAGE		REMARK
	MIN.	MAX.	MIN.	MAX.	
AMBIENT TEMPERATURE	-10°C	60°C	-20°C	70°C	NOTE (2), (3)
HUMIDITY	NOTE (4)		NOTE (4)		WITHOUT CONDENSATION
VIBRATION	—	2.45m/S^2 (0.25G)	—	11.76m/S^2 (1.2 G)	5~20Hz, 1HR 20~500Hz(20Hz), 1HR 20~500Hz(500Hz), 1HR X,Y,Z,TOTAL 3HR
SHOCK	—	29.4 m/S^2 (3G)	—	490m/S^2 (50 G)	10 m SECONDS XYZ DIRECTIONS 1 TIME EACH
CORROSIVE GAS	NOT ACCEPTABLE		NOT ACCEPTABLE		

NOTE (2) : Ta AT -20°C : 48HR MAX .
　　　　　　　　　70°C : 168HR MAX .
NOTE (3) : BACKGROUND COLOR CHANGES SLIGHTLY DEPENDING ON AMBIENT
　　　　　　　TEMPERATURE THIS PHENOMENON IS REVERSIBLE.
NOTE (4) : Ta ≤ 60°C : 90%HR (96RH MAX .)
　　　　　　　Ta > 60°C : ABSOLUTE HUMIDITY MUST BE LOWER THAN THE HUMIDITY OF
　　　　　　　　90%RH AT 60°C.(96 HR MAX.)

4．ELECTRICAL CHARACTERISTICS

Ta = 25 °C

PARAMETER	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
POWER SUPPLY FOR LOGIC	VCC-VSS	—	2.7	3.0	3.3	V
POWER SUPPLY FOR ANALOG CIRCUIT	VCI-VSS	—	2.7	3.0	3.3	V
INPUT HIGH VOLTAGE NOTE (1)	V_{IH}	VCC-VSS = 2.7~3.3V	0.8VCC	—	VCC	V
	V_{IL}		-0.3	—	0.2VCC	V
OUTPUT LOW VOLTAGE NOTE (2)	V_{OH}	I_{OL} = -0.1mA	0.8VCC	—	—	V
	V_{OL}	VCC-VSS= 2.7~3.3V I_{OL} = 0.1mA	—	—	0.2VCC	V
POWER SUPPLY CURRENT NOTE (3) (4)	ICC	—	—	15	20	mA
LED BACKLIGHT FORWARD VOLTAGE NOTE (5)	VLED-VLSS	IF = 20mA	(18.6)	(19.6)	(21)	V
LED BACKLIGHT FORWARD CURRENT	IF	—	—	—	20	mA
LED BACKLIGHT REVERSE CURRENT	IR	VR=30V	—	—	50	μA
LIFETIME OF LED BACKLIGHT	—	IF = 20mA	30000	40000	—	HRS

NOTE (1) : APPLIED TO TERMINALS , nCS, nRS, SCL, nRD, SDI, DB0~DB17, nRESET, IM3~IM1, M0/ID.

NOTE (2) : ICC : I_{VCC} + I_{VCI}

NOTE (3) : THE DISPLAY PATTERN IS ALL "WHITE "
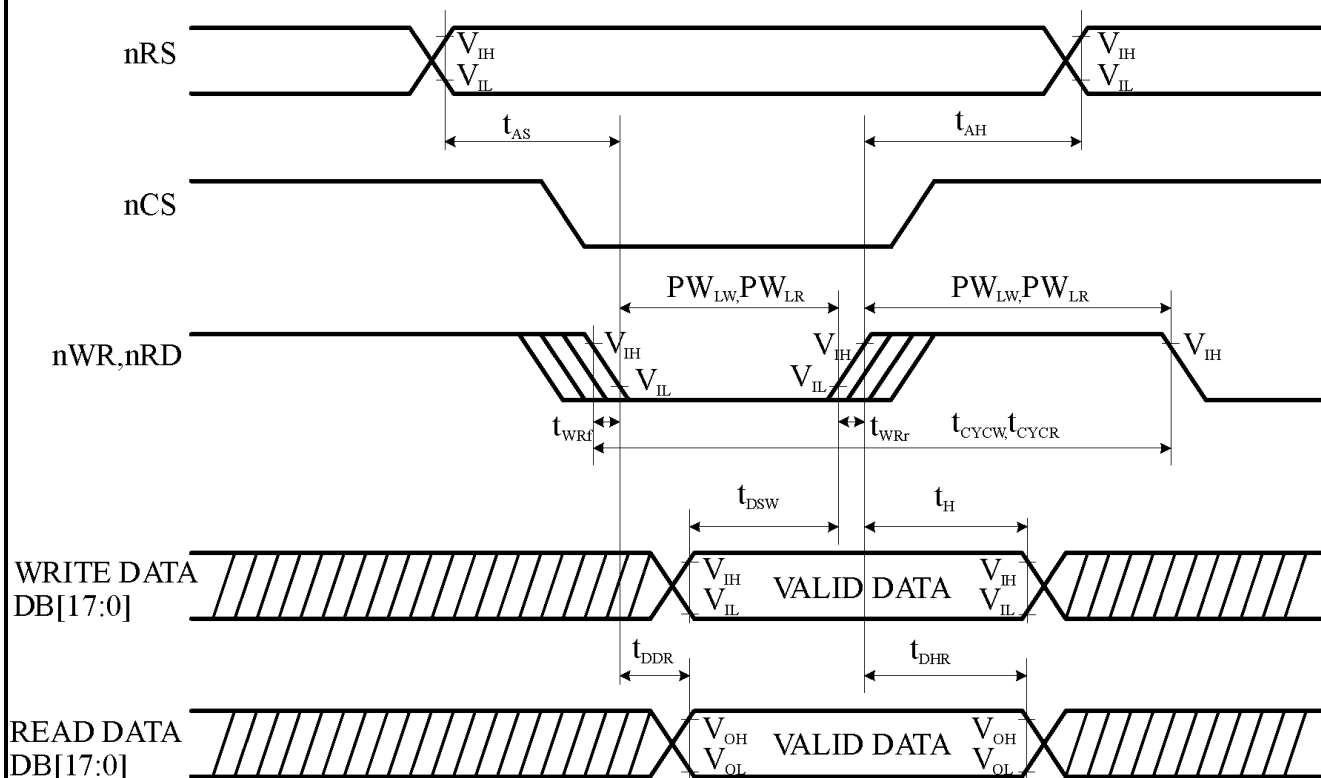
NOTE (4) : INTERNAL CIRCUIT DIAGRAM

5 . TIMING CHARACTERISTICS
### 5.1 i80-SYSTEM INTERFACE TIMING CHARACTERISTICS

VCC-VSS=2.7~3.3V

ITEM		SYMBOL	MIN.	TYP.	MAX.	UNIT.
BUS CYCLE TIME	WRITE	t_{CYCW}	100	—	—	ns
	READ	t_{CYCR}	300	—	—	ns
WRITE LOW-LEVEL PULSE WIDTH		PW_{LW}	50	—	500	ns
WRITE HIGH-LEVEL PULSE WIDTH		PW_{HW}	50	—	—	ns
READ LOW-LEVEL PULSE WIDTH		PW_{LR}	150	—	—	ns
READ HIGH-LEVEL PULSE WIDTH		PW_{HR}	150	—	—	ns
WRITE / READ RISE / FALL TIME		t_{WRr} / t_{WRf}	—	—	25	ns
SETUP TIME	WRITE (nRS to nCS, nWR)	t_{AS}	10	—	—	ns
	READ (nRS to nCS, nRD)		5	—	—	ns
ADDRESS HOLD TIME		t_{AH}	5	—	—	ns
WRITE DATA SETUP TIME		t_{DSW}	10	—	—	ns
WRITE DATA HOLD TIME		t_{H}	15	—	—	ns
READ DATA DELAY TIME		t_{DDR}	—	—	100	ns
READ DATA HOLD TIME		t_{DHR}	5	—	—	ns

5.2 SERIAL DATA TRANSFER INTERFACE TIMING CHARACTERISTICS

VCC-VSS=2.7~3.3V

ITEM		SYMBOL	MIN.	TYP.	MAX.	UNIT.
SERIAL CLOCK CYCLE TIME	WRITE (RECEIVED)	t_{SCYC}	100	—	—	ns
	READ (TRANSMITTED)	t_{SCYC}	200	—	—	ns
SERIAL CLOCK HIGH – LEVEL PULSE WIDTH	WRITE (RECEIVED)	t_{SCH}	40	—	—	ns
	READ (TRANSMITTED)	t_{SCH}	100	—	—	ns
SERAL CLOCK LOW – LEVEL PULSE WIDTH	WRITE (RECEIVED)	t_{SCL}	40	—	—	ns
	READ (TRANSMITTED)	t_{SCL}	100	—	—	ns
SERAL CLOCK RISE / FALL TIME		t_{SCr}, t_{SCf}	—	—	5	ns
CHIP SELECT SETUP TIME		t_{CSU}	10	—	—	ns
CHIP SELECT HOLD TIME		t_{CH}	50	—	—	ns
SERIAL INPUT DATA SETUP TIME		t_{SISU}	20	—	—	ns
SERIAL INPUT DATA HOLD TIME		t_{SIH}	20	—	—	ns
SERIAL OUTPUT DATA SETUP TIME		t_{SOD}	—	—	100	ns
SERIAL OUTPUT DATA HOLD TIME		t_{SOH}	5	—	—	ns
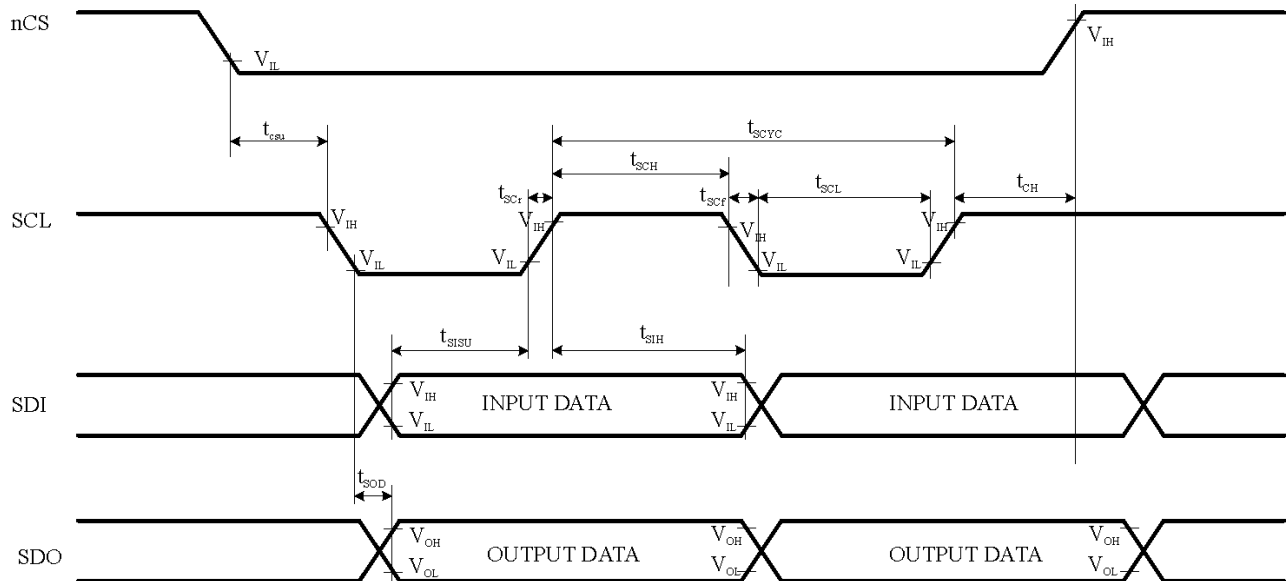
5.3 RESET TIMING CHARACTERISTICS

ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT.
RESET LOW-LEVEL WIDTH	t_{RES}	1	—	—	ms
RESET RISE TIME	t_{rRES}	—	—	10	μs

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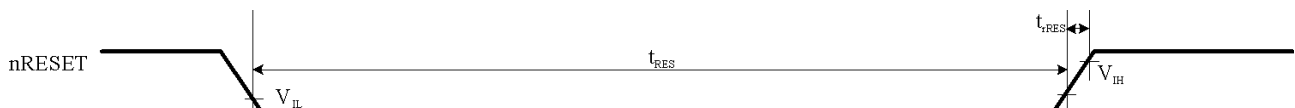
6.   OPTICAL CHARACTERISTICS (NOTE(1))

Ta = 2 5 °C

I T E M		SYMBOL	CONDITION		MIN.	TYP.	MAX.	UNIT	REMARK
VIEWING ANGLE	HOR.	θx+	CENTER CR≥10	θy=0°	(50)	(55)	—	deg .	NOTE (2) NOTE (3)
		θx-			(70)	(75)	—		
	VER.	θy+		θx=0°	(67)	(72)	—		
		θy-			(67)	(72)	—		
CONTRAST RATIO		CR	θx = θy = 0°		(400)	(500)	—		NOTE (3)
RESPONSE TIME		t r + t f	θx = θy = 0°		—	25	30	ms	NOTE (4)
THE BRIGHTNESS OF MODULE		B	IF=20mA θx = θy = 0°		(250)	(300)	—	cd/m²	NOTE (6)
COLOR OF CIE COORDINATE	RED	X_R	VIEWING NORMAL ANGLE θx = θy = 0° NTSC：(60)%		(0.59))	(0.64)	(0.69)	—	—
		Y_R			(0.30)	(0.35)	(0.40)		
	GREEN	X_G			(0.29)	(0.34)	(0.39)	—	—
		Y_G			(0.56)	(0.61)	(0.66)		
	BLUE	X_B			(0.09)	(0.14)	(0.19)	—	—
		Y_B			(0.05)	(0.10)	(0.15)		
	WHITE	X_W			(0.25)	(0.30)	(0.35)	—	NOTE (5)
		Y_W			(0.29)	(0.34)	(0.39)		
THE BRIGHTNESS OF UNIFORMITY		—	—		75	80	—	%	NOTE (6) , (7)

NOTE (1) : TEST EQUIPMENT SETUP :

AFTER STABILIZING AND LEAVING THE PANEL ALONE AT A GIVEN TEMPERATURE FOR 30 MINUTES, THE MEASUREMENT SHOULD BE EXECUTED. MEASUREMENT SHOULD BE EXECUTED IN A STABLE, WINDLESS , AND DARK ROOM. OPTICAL SPECIFICATIONS ARE MEASURED BY TOPCON BM-7(FAST) WITH A VIEWING ANGLE OF 2° AT A DISTANCE OF 50cm AND NORMAL DIRECTION.
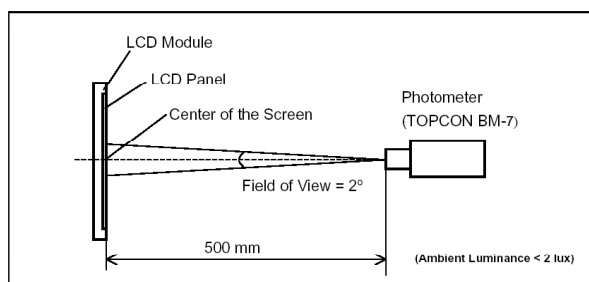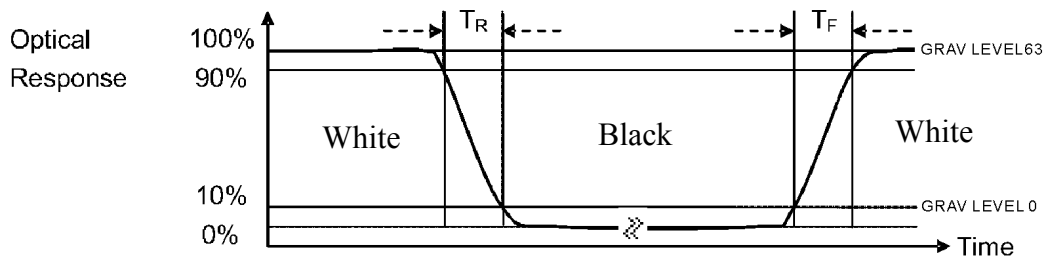

NOTE (2) : DEFINITION OF VIEWING ANGLE :

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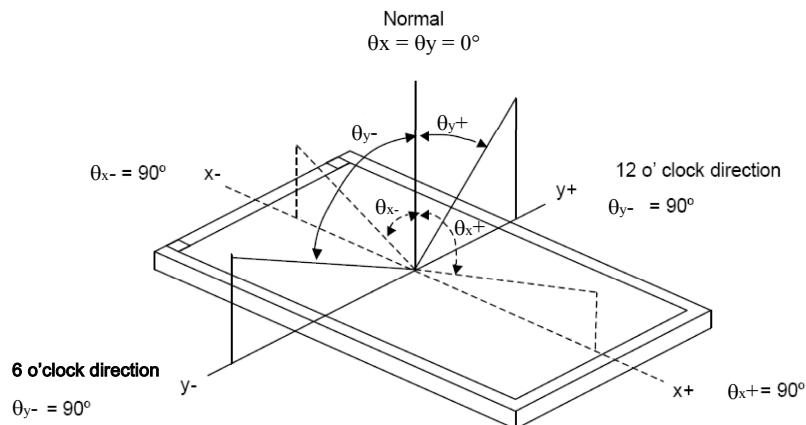
NOTE (3) : DEFINITION OF CONTRAST RATIO :

$$CONTRAST\ \ RATIO(CR) = \frac{BRIGHTNESS\ MEASURED\ WHEN\ LCD\ IS\ AT\ "WHITE\ STATE"}{BRIGHTNESS\ MEASURED\ WHEN\ LCD\ IS\ AT\ "BLACK\ STATE"}$$
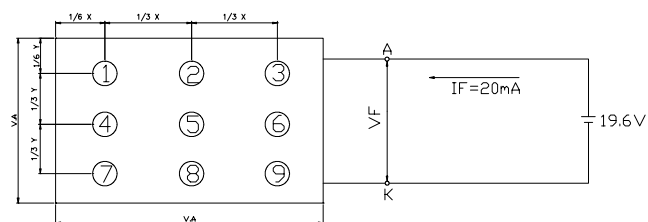
NOTE (4) : DEFINITION OF RESPONSE TIME : TR AND TF
THE FIGURE BVELOW IS THE OUTPUT SIGNAL OF THE PHOTO DETECTOR.

NOTE (5) : MEASURED AT THE CENTER AREA OF THE PANEL WHEN ALL THE INPUT TERMINALS OF
LCD PANEL ARE ELECTRICALLY OPENED.

NOTE (6) : THE BRIGHTNESS TEST METHOD (BRIGHTNESS MEASURED WHEN LCD IS AT " WHITE
STATE")

ADD POWER TO LED, A、K PIN TEST POINT ARE ①~⑨

NOTE (7) : TNE BRIGHTNESS VNIFORMITY CALCULATE METHOD

$$UNIFORMITY : \left[1 - \frac{MAXIMUN\ \ BRIGHTESS - MINIMUN\ \ BRIGHTESS}{AVERAGE\ BRIGHTESS} \right] \times 100\%$$

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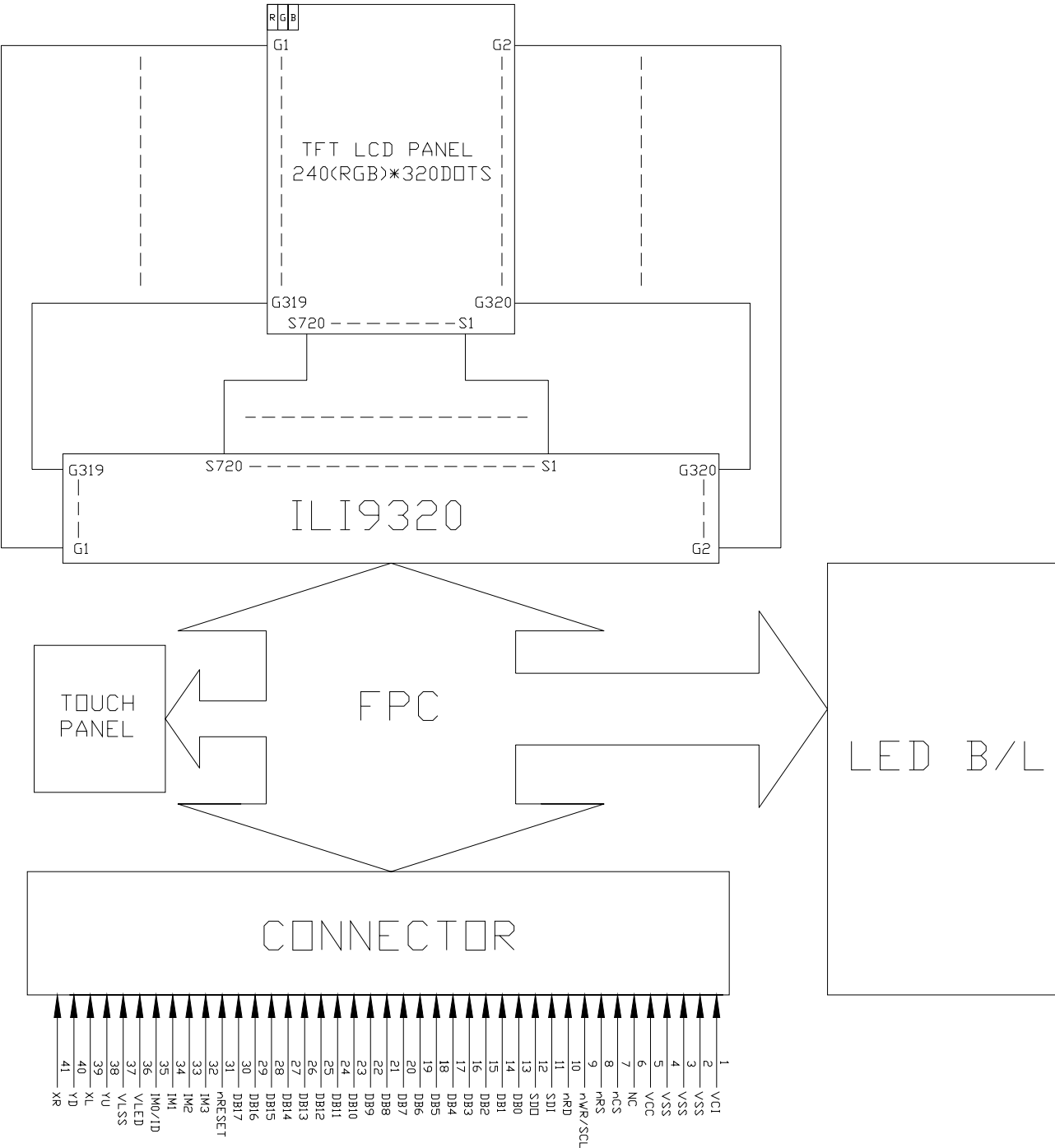7. OUTLINE DIMENSIONS

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

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2.5±0.3

41

0.3±0.07

P0.3*(41-1)=12±0.05

12.6±0.1

0.3+0.04-0.03(*39)

R0.3 (*2) MAX.

DETAIL A
SCALE 10:1

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8 . BLOCK DIMENSIONS

RGB

G1   G2

TFT LCD PANEL
240(RGB)*320DOTS

G319   G320
S720 — — — — — — S1

G319   S720 — — — — — — — — — S1   G320

ILI9320

G1   G2

TOUCH PANEL

FPC

LED B/L

CONNECTOR

41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
XR	YD	XL	YU	VLSS	VLED	IM0/ID	IM1	IM2	IM3	nRESET	DB17	DB16	DB15	DB14	DB13	DB12	DB11	DB10	DB9	DB8	DB7	DB6	DB5	DB4	DB3	DB2	DB1	DB0	SD0	SD1	nRD	nWR/SCL	nRS	nCS	NC	VCC	VSS	VSS	VSS	VCI

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9． DETAIL DRAWING OF DOT MATRIX

UNIT : mm
SCALE : NTS
NOT SPECIFIED TOLERANCE IS ± 0.1
DOTS MATRIX TOLERANCE IS ± 0.01

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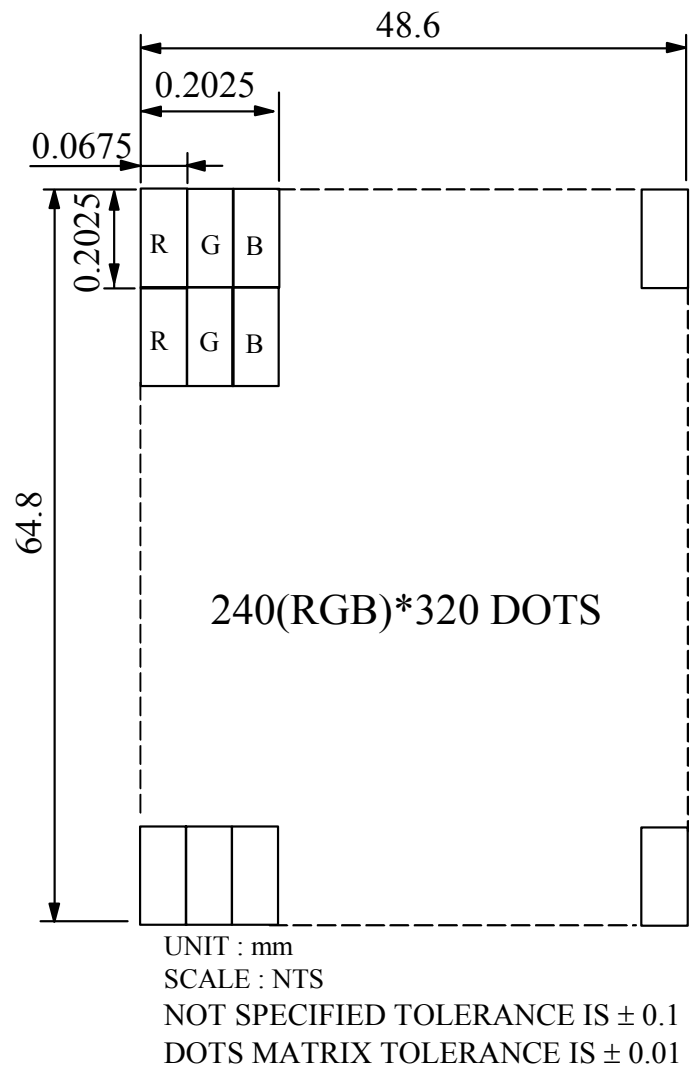
10. INTERFACE SIGNALS

PIN NO	SYMBOL	FUNCTION
1	VCI	POWER SUPPLY FOR ANALOG
2	VSS	GROUND
3	VSS	GROUND
4	VSS	GROUND
5	VCC	POWER SUPPLY FOR LOGIC AND INTERFACE SIGNAL
6	NC	NOT CONNECTTION
7	nCS	A CHIP SELECT SIGNAL. LOW: THE ILI9320 IS SELECTED AND ACCESSIBLE. HIGH: THE ILI9320 IS NOT SELECTED AND NOT ACCESSIBLE. FIX TO THE VSS LEVEL WHEN NOT IN USE.
8	nRS	A REGISTER SELECT SIGNAL. LOW: SELECT AN INDEX OR STATUS REGISTER. HIGH: SELECT A CONTROL REGISTER. FIX TO VSS LEVEL WHEN NOT IN USE.
9	nWR/SCL	A WRITE STROBE SIGNAL AND ENABLES AN OPERATION TO WRITE DATA WHEN THE SIGNAL IS LOW. SPI MODE:SYNCHRONIZING CLOCK SIGNAL IN SPI MODE.
10	nRD	A READ STROBE SIGNAL AND ENABLES AN OPERATION TO READ OUT DATA WHEN THE SIGNAL IS LOW. FIX TO VCC LEVEL WHEN NOT IN USE.
11	SDI	SPI INTERFACE INPUT PIN. THE DATA IS LATCHED ON THE RISING EDGE OF THE SCL SIGNAL. FIX TO VSS LEVEL WHEN NOT IN USE.
12	SDO	SPI INTERFACE INPUT PIN. THE DATA IS OUTPUTTED ON THE FALLING EDGE OF THE SCL SIGNAL. LET SDO AS OPEN WHEN NOT IN USE.
13	DB0	AN 18-BIT PARALLEL BI-DIRECTIONAL DATA BUS FOR MPU SYSTEM INTERFACE MODE. 8-BIT I/F :DB[17:10]IS USED. 9-BIT I/F :DB[17:9]IS USED. 16-BIT I/F :DB[17:10]AND DB[8:1]IS USED. 18-BIT I/F :DB[17:0]IS USED. UNUSED PINS MUST BE FIXED VSS LEVEL.
14	DB1	
15	DB2	
16	DB3	
17	DB4	
18	DB5	
19	DB6	
20	DB7	
21	DB8	
22	DB9	
23	DB10	
24	DB11	
25	DB12	
26	DB13	
27	DB14	
28	DB15	
29	DB16	
30	DB17	

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PIN NO	SYMBOL	FUNCTION					
31	nRESET	A RESET PIN. INITIALIZES THE ILI9320 WITH A LOW INPUT.BE SURE TO EXECUTE A POWER-ON RESET AFTER SUPPLYING POWER.					
32	IM3	SELECT THE MPU SYSTEM INTERFACE MODE					
33	IM2	IM3	IM2	IM1	IM0	MPU-INTERFACE MODE	DB PIN IN USE
34	IM1	0	0	0	0	SETTING INVALID	
35	IM0/ID	0	0	0	1	SETTING INVALID	
		0	0	1	0	i80-SYSTEM 16-BIT INTERFACE	DB[17:10], DB[8:1]
		0	0	1	1	i80-SYSTEM 8-BIT INTERFACE	DB[17:10]
		0	1	0	ID	SERIAL PERIPHERAL INTERFACE (SPI)	SDI , SDO
		0	1	1	*	SETTING INVALID	
		1	0	0	0	SETTING INVALID	
		1	0	0	1	SETTING INVALID	
		1	0	1	0	i80-SYSTEM 18-BIT INTERFACE	DB[17:0]
		1	0	1	1	i80-SYSTEM 9-BIT INTERFACE	DB[17:9]
		1	1	*	*	SETTING INVALID	
		WHEN THE SERIAL PERIPHERAL INTERFACE IS SELECTED, IM0 PIN IS USED FOR THE DEVICE CODE ID SETTING					
36	VLED	POWER SUPPLY FOR LED BACKLIGHT (+) A					
37	VLSS	POWER SUPPLY FOR LED BACKLIGHT (-) K					
38	YU	TOP PANEL					
39	XL	LEFT PANEL					
40	YD	BOTTOM PANEL					
41	XR	RIGHT PANEL					

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E M E R G I N G   D I S P L A Y
TECHNOLOGIES CORPORATION

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11 . POWER SUPPLY
    11 .1   POWER SUPPLY FOR LCM

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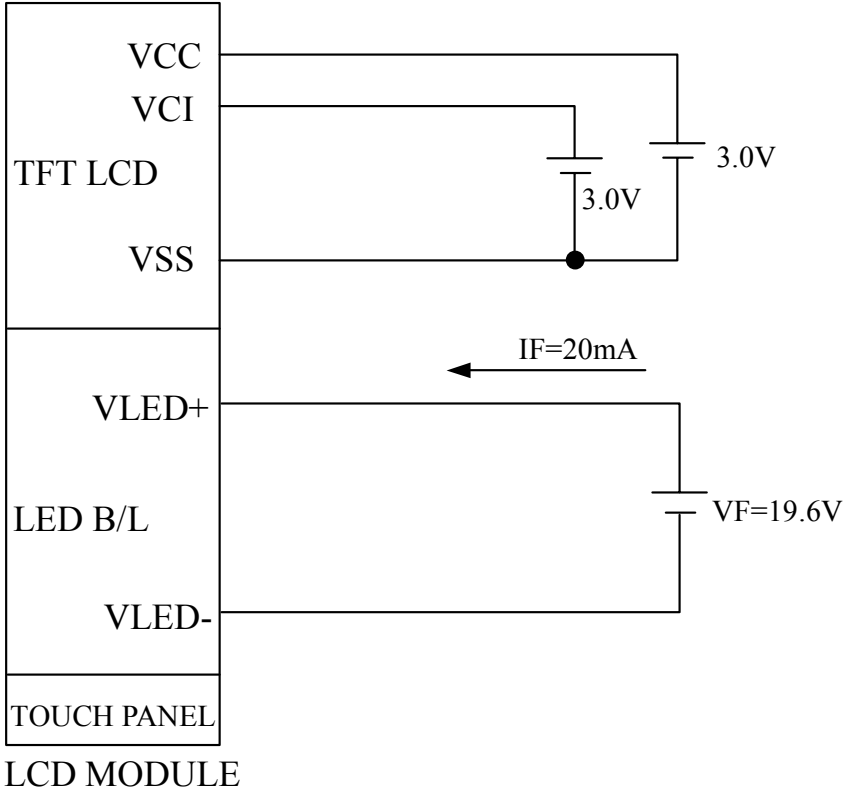
12． TOUCH PANEL SPECIFICATION

12.1   ELECTRICAL CHARACTERISTICS   Ta = 25°C

ITEM	CONDITION	SPEC.	UNIT
LINEARITY	—	≤ 1.5	%
TRANSMISSION	—	Min 82	%
TERMINAL RESISTANCE	X AXIS	$200 \sim 850$	Ω
	Y AXIS	$150 \sim 580$	
INSULATION RESISTANCE	TBD	TBD	$M\Omega$

12.2   ABSOLUTE MAXIMUM RATINGS :

ITEM	MIN.	TYP.	MAX.
OPERATING TEMPERATURE (Top)	TBD	—	TBD
STORAGE TEMPERATURE (Tst)	TBD	—	TBD
INPUT VOLTAGE (V)	—	TBD	—

12.3 PRECAUTIONS IN USE OF TOUCH PANEL

12.3.1 PURPOSE：

IN ORDER TO PREVENT ACCIDENTAL USE AND PERFORMANCE
DETERIORATION, PLEASE KEEP THE FOLLOWING PRECAUTIONS AND
INHIBITED POINTS.

12.3.2 ITEM AND ILLUSTRATION：

（1）STRUCTURE, AREA DEFINITION
THE STRUCTURE AND THE PERFORMANCE GUARANTEED AREA OF THIS
TOUCH PANEL ARE DEFINED BELOW：
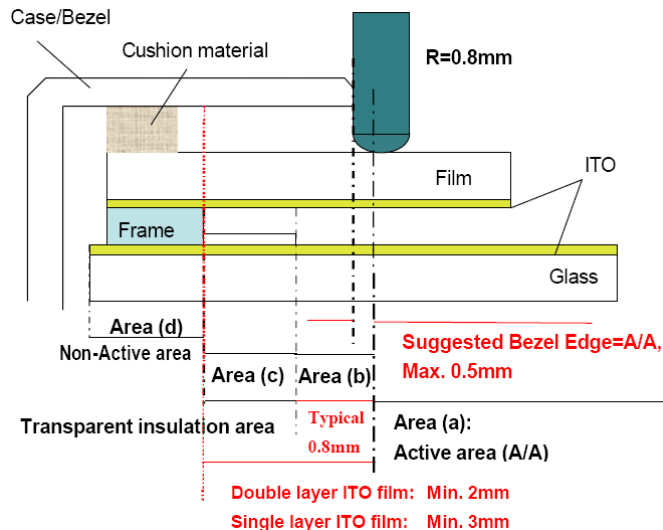
THE ABOVE FIGURE IS OUR DESIGN RULE OF TOUCH PANEL.
IF IT CANNOT MEET YOUR REQUIREMENT, PLEASE CONTACT WITH OUR
ENGINEERS FOR FURTHER DISCUSSION.

ABOVE FIGURE ILLUSTRATES THE RECOMMENDED BEZEL AND CUSHION
DESIGN. IN ORDER TO PREVENT
UNUSUAL PERFORMANCE DEGRADATION AND MALFUNCTION OF A TOUCH
PANEL, PLEASE CARRY OUT THE SET
CASE DESIGNING AND A TOUCH PANEL ASSEMBLING METHOD AFTER SURELY
CONSIDERING THE DEFINITION OF EACH AREA ILLUSTRATED IN ABOVE FIGURE.

AREA(a)：ACTIVE AREA
THE ACTIVE AREA IS GUARANTEED THE POSITION DATA DETECTABLE
PRECISION, OPERATION FORCE AND OTHER OPERATIONS. IT IS
STRONGLY RECOMMENDED TO PLACE THE OPERATION BUTTON OR
MENU KEYS WITHIN THE ACTIVE AREA. DUE TO STRUCTURE, THE
ACTIVE AREA IS LESS DURABLE AT THE EDGE OR CLOSE TO THE EDGE.

AREA(b)：OPERATION NON-GUARANTEED AREA
THIS AREA DOES NOT GUARANTEE A TOUCH PANEL OPERATION AND
ITS FUNCTION. WHEN THIS AREA IS PRESSED, TOUCH PANEL SHOWS
DEGRADATION OF ITS PERFORMANCE AND DURABILITY SUCH AS A PEN
SLIDING DURABILITY BECOMES ABOUT ONE-TENTH COMPARED WITH
THE ACTIVE AREA (AREA-(A) AS GUARANTEED AREA) AND ITS
OPERATION FORCE REQUIRES ABOUT DOUBLE. ABOUT 0.5 MM OUTSIDE
FROM A BOUNDARY OF THE ACTIVE AREA CORRESPONDS TO THIS AREA.

AREA(c)：PRESSING PROHIBITION AREA
THE AREA WHICH FORBIDS PRESSING, BECAUSE AN EXCESSIVE LOAD IS
APPLIED TO A TRANSPARENT ELECTRODE (ITO) AND A SERIOUS DAMAGE
IS GIVEN TO A TOUCH PANEL FUNCTION BY PRESSING.

AREA(d)：NON-ACTIVE AREA
THE AREA DOES NOT ACTIVATE EVEN IF PRESSED.

(2) CAUTIONS FOR INSTALLING AND ASSEMBLING
 (i) DO NOT GIVE EXCESSIVE STRAIN TO THE PRODUCT.

 (ii) FLEXIBLE PATTERN CABLE IS CONNECTED TO THE BODY BY THERMAL
PRESSURE METHOD. SO, DO NOT APPLY EXCESSIVE FORCES TO THE FLEXIBLE
PATTERN. DO NOT ADD AN EXCESSIVE FORCE TO A FPC(FLEX TAIL) THAT
MAKES PEELING OFF OF THE FPC FROM THE PRODUCT. DO NOT FIX, ADHERE
OR MOUNT ANY ADDITIONAL GOODS ON THE FPC SUCH AS ADDITIONAL
FILM/PLATE ON THE FPC, BECAUSE SUCH ADDITIONAL GOODS WILL APPLY A
STRESS AT THE FPC BONDING AREA. IT MAY AFFECT THE CONDUCTIVITY
OF FPC WITH TOUCH PANEL.

(iii) IN ORDER NOT TO APPLY LOAD ON THE DISPLAY, PROVIDE A CLEARANCE OF
AT LEAST 0.3MM BETWEEN THE PRODUCT AND DISPLAY.

(iv) WE RECOMMEND THE DESIGN OF A CASE OR BEZEL SHOULD COVERS THE
BOUNDARY OF THE ACTIVE AREA INSIDE IN ORDER TO PREVENT AN
OPERATION AT OUTSIDE OF THE ACTIVE AREA WHICH CAN NOT GUARANTEE
THE FUNCTION OR DURABILITY (REFER TO ITEM 5.1.2. STRUCTURE, AREA
DEFINITION).
BEZEL'S EDGE PART MAY GUIDE THE PEN SLIDING ON THE SAME POSITION
REPEATEDLY. IF THE BEZEL IS PLACED OUTSIDE OF THE ACTIVE AREA,
IT MAY CAUSE THE DAMAGE OF THE ITO FILM.

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(v) PRESSING INSIDE OF BOUNDARY OF THE FRAME(PART (A) AS SHOWN IN BELOW) MAY CAUSES FAULT OPERATION, SO PLEASE DESIGN TO AVOID PRESSING OF TOUCH PANEL AT PART (A) SUCH AS HAVING GASKET/CUSHION AT PART (C). PARTICULARLY THE AREA (B) SHALL BE FREE FROM BURR. THE GASKET/CUSHION MATERIAL AT THE PART (C) SHOULD NOT BE EXCEEDED TO INSIDE OF THE BOUNDARY OF THE FRAME.
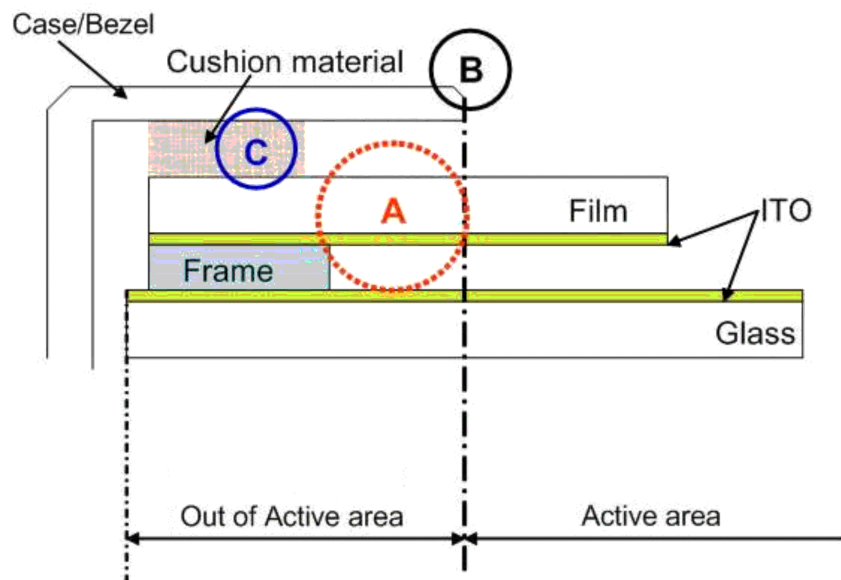
(vi) TO PREVENT GIVING DISTORTION TO THE FILM OF THE PRODUCT AND PEELING OFF OF THE FILM FROM THE PRODUCT, DO NOT FIX THE FILM AND A SET CASE OR A SHOCK ABSORBING MATERIAL ADHERED TO A SET CASE BY ADHESION.

(vii) WIPE OFF THE STAIN ON THE PRODUCT BY USING SOFT CLOTH MOISTENED WITH ETHANOL. TAKE CARE NOT TO ALLOW ETHANOL TO SOAK INTO THE JOINT OF UPPER FILM AND BOTTOM GLASS. IT MAY OTHERWISE CAUSE PEELING OR DEFECTIVE OPERATION. DO NOT USE ANY ORGANIC SOLVENT OR DETERGENT OTHER THAN ETHANOL.

(viii) THE CORNERS OF THE PRODUCT ARE NOT CHAMFERED AND ARE SHARP. WHEN POSITIONING AND FIXING THE PRODUCT ON THE CASE, PROVIDE A ROUND PART ON THE CORNER OF THE CASE SO AS NOT TO APPLY LOAD ON THE CORNER OF THE TRANSPARENT TOUCH PANEL.

 (ix) DO NOT PRESS THE FILM OF THE PRODUCT WHEN THIS PRODUCT IS BUILT INTO A SET.

(3) CAUTIONS FOR OPERATION
  (i) OPERATE IT WITH A POLYACETAL PEN (TIP R0.8 OR OVER) OR A BELLY OF A FINGER WITHOUT APPLYING EXCESSIVE LOAD. NEVER USE ANY MECHANICAL PENCILS, BALL POINT PENS AND HARD FINGERTIPS WHOSE TIP IS HARD FOR INPUT, OTHERWISE MALFUNCTIONS MAY RESULT.

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(ii) THE INPUT POSITION MAY BE FLUCTUATED A LITTLE THROUGH LONG-TIME USE. IT IS DESIRABLE TO PROVIDE A ZERO-ADJUSTMENT FUNCTION BY USING A CIRCUIT AND SOFTWARE.

(iii) OPERATION AT THE OUT OF ACTIVE AREA IS OUT OF OUR GUARANTEE. IT CAUSES A SERIOUS DAMAGE OF A TRANSPARENT ELECTRODE. DO NOT OPERATE AT THE OUT OF ACTIVE AREA.

(iv) IN CASE OF CLEANING THE PART OF THE CASE BOUNDARY OF ACCOMPLISHED SET, USE A SOFT CLOTH WITH A FINGER BERRY OR A COTTON BUD. DO NOT CLEAN WITH A THI NG OTHER THAN THE FINGER SUCH AS HARD OR SHARP EDGES LIKE A FINGER NAIL ETC. ON THE CLOTH, BECAUSE IT CAUSE TRANSPARENT CONDUCTIVE FILM CRACKS. PLEASE ADVISE THIS PROHIBITION TO YOUR LAST CUSTOMERS.

12.4 DURABILITY

12.4.1 STYLUS HITTING：
ONE MILLION TIMES OR OVER
NO DAMAGE ON FILM SURFACE
PEN：R8 mm SILICON RUBBER
LOAD：250g
FREQUENCY：240 times/min
MEASUREMENT POSITION:
1 POINT OF TOUCH PANEL ACTIVE AREA
REPEATED：OVER 1,000,000 TIMES

12.4.2 PEN TOUCH SLIDING DURABILITY：
100,000 TIMES OR OVER
WRITING WITH R0.8mm PLASTIC STYLUS PEN; WRITING FORCE 150g
IN ACTIVE AREA.
SPEED IS 60mm/sec.

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12.5   STEEL BALL DROP TEST
BY USING F9mm STEEL BALL FROM THE HEIGHT OF 30cm AND FALLING
ON TOUCH PANEL SURFACE, MUST PASS BELOW CONDITIONS：
APPEARANCE：THE APPEARANCE WITHOUT ANY CHANGE, INCLUDING
THE PANEL BROKEN.
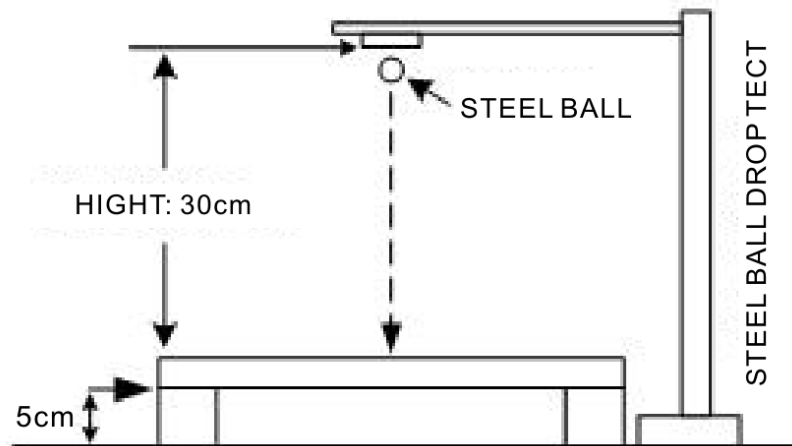
12.6   APPEARANCE INSPECTION
PURPOSE：
TO ESTABLISH APPEARANCE STANDARD AND MAINTAIN PRODUCT
QUALITY。
SCOPE：
TOUCH PANEL VIEW AREA WITHIN TOUCH PANEL。

12.6.1   RULE：
INSPECTION CONDITION
(A) ENVIRONMENTAL LUMINANCE：500 LUX。
(B) DISTANCE BETWEEN HUMAN EYES AND PANEL：30 CM
        (PANEL MUST BE TESTED UNDER LIGHT TRANSPARENT)。
(C) VISUAL ANGEL：＞60°。
(D) LIGHT SOURCE： FLUORESCENT LIGHT SOURCE。
12.6.2   JUDGE CRITERION：
JUDGEMENT UNDER ABOVE MENTIONED CRITERION (PANEL MUST BE
TESTED UNDER LIGHT TRANSPARENT),
TESTING GOODS DEFECT CAN BE VISIBLE WITHIN 10 SECONDS, WHICH
WILL BE JUDGED AS MAJOR DEFECTS。

SAMPLING STANDARD：
THE SAMPLING STANDARD WILL BE CONFIRMED BY BOTH OF
EDT AND CUSTOMER.

INSPECTION ITEMS	SEPC.		JUDGE CRITERION	OPERATION GUIDELINE
SCRATCH	W ≤ 0.05mm & L≤10mm		ACCEPTABLE	
	W > 0.05mm or L > 10mm		NOT ACCEPTABLE	REFL BACK GROUND / TESTING GOODS / FLUORESCENT LIGHT SOURCE / 300mm / 60° / ENVIRONMENTAL 1UMINANCE : 500 Lux
LINEAR FOREIGN OBJECT	W ≤ 0.05mm & L ≤5mm		ACCEPTABLE	
	W > 0.05mm or L >5mm		NOT ACCEPTABLE	
GRANULAR FOREIGN OBJECT	D ≤ 0.25mm		ACCEPTABLE	
	0.25mm < D ≤0.30mm		MAX. 2 EA	REFL FLUORESCENT LIGHT SOURCE / TESTING GOODS / 300mm / 60° / ENVIRONMENTAL 1UMINANCE : 500 Lux
	D >0.30mm		NOT ACCEPTABLE	
PET BUBBLES	D ≤0.5mm		ACCEPTABLE	$\leftarrow$ D $\rightarrow$ D
	D >0.5mm		NOT ACCEPTABLE	
CHIP ON GLASS	CORNER	X ≤ 3mm 、 Y ≤ 3mm、Z < t (t = /thickness)	ACCEPTABLE	Chip of glass
	EDGE	W ≤ 3mm、 Y ≤ 3mm、Z < t		

13． INSPECTION CRITERION

13.1 APPLICATION

THIS INSPECTION STANDARD IS TO BE APPLIED TO THE LCD MODULE
DELIVERED FROM EMERGING DISPLAY TECHNOLOGIES CORP.(E.D.T) TO
CUSTOMERS

13.2 INSPECTION CONDITIONS

13.2.1 (1)OBSERVATION DISTANCE : 35CM±5CM
        (2)VIEW ANGLE :
          NON-OPERATION CONDITION：±5°
         (PERPENDICULAR TO LCD PANEL SURFACE)
          OPERATION CONDITION：±45°
         (PERPENDICULAR TO LCD PANEL SURFACE)
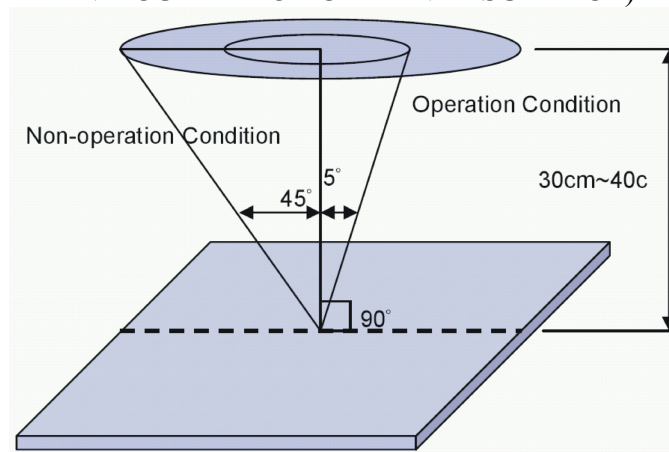
13.2.2 ENVIRONMENT CONDITIONS :

AMBIENT TEMPERATURE		20°C~25°C
AMBIENT HUMIDITY		65±20%RH
AMBIENT ILLUMINATION	COSMETIC INSPECTION	More than 600Lux
	FUNCTIONAL INSPECTION	300~500 Lux

13.2.3 INSPECTION LOT
        QUANTITY PER DELIVERY LOT FOR EACH MODEL

13.2.4 INSPECTION METHOD
        A SAMPLING INSPECTION SHALL BE MADE ACCORDING TO THE
        FOLLOWING PROVISIONS TO JUDGE THE ACCEPTABILITY
        (a)APPLICABLE STANDARD：MIL-STD-105E
                              NORMAL INSPECTION, SINGLE
                              SAMPLING LEVEL Ⅱ
        (b)AQL：MAJOR DEFECT：AQL 0.65
               MINOR DEFECT：AQL 2.5
               TOTAL DEFFCTS：AQL 2.5

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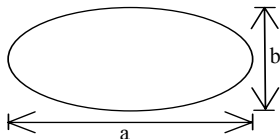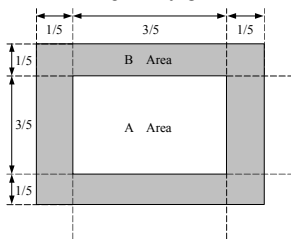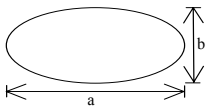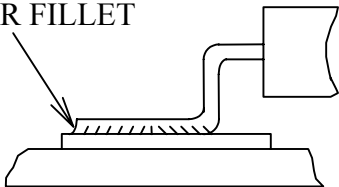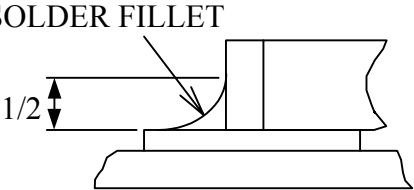
13.3 INSPECTION STANDARDS
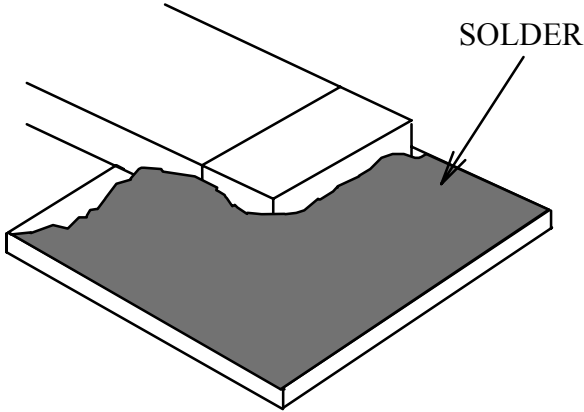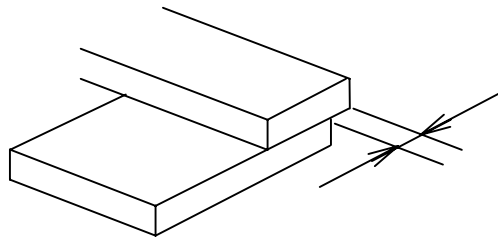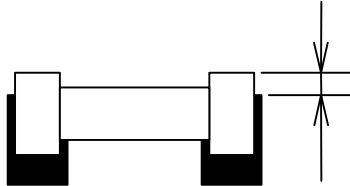
13.3.1 VISUAL DEFECTS CLASSIFICATION

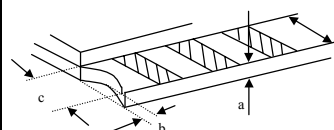| TYPE OF DEFECT	INSPECTION ITEM	DEFECT FEATURE	AQL
MAJOR DEFECT	1.DISPLAY ON	• DEFECT TO MISS SPECIFIED DISPLAY FUNCTION, FOR ALL AND SPECIFIED DOTS EX: DISCONNECTION, SHORT CIRCUIT ETC	0.65
	2.BACKLIGHT	• NO LIGHT • FLICKERING AND OTHER ABNORMAL ILLUMINATION	
	3.DIMENSIONS	• SUBJECT TO INDIVIDUAL ACCEPTANCE SPECIFICATIONS	
MINOR DEFECT	1.DISPLAY ZONE	• BLACK/WHITE SPOT • BUBBLES ON POLARIZER • NEWTON RING • BLACK/WHITE LINE • SCRATCH • CONTAMINATION • LEVER COLOR SPREED	1.0
	2.BEZEL ZONE	• STAINS • SCRATCHES • FOREIGN MATTER	
	3.SOLDERING	• INSUFFICIENT SOLDER • SOLDERED IN INCORRECT POSITION • CONVEX SOLDERING SPOT • SOLDER BALLS • SOLDER SCRAPS	
	4.DISPLAY ON (ALL ON)	• LIGHT LINE	

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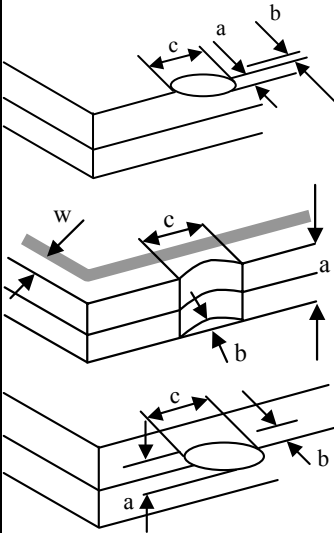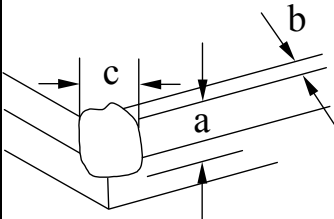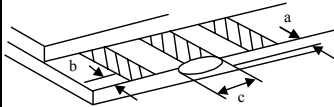
13.3.2 MODULE DEFECTS CALSSIFICATION

NO.	ITEM	CRITERIA
1.	DISPLAY ON INSPECTION	(1)INCORRECT PATTERN (2)MISSING SEGMENT (3)DIM SEGMENT (4)OPERATING VOLTAGE BEYOND SPEC
2.	OVERALL DIMENSIONS	(1)OVERALL DIMENSION BEYOND SPEC

3. BLACK SPOTS, FOREIGN MATTER, AND WHITE SPOTS (INCLUDING LIGHT LEAKAGE DUE TO POLARIZING PLATES PINHOLES, ETC.)

(1) SPOTS

AVERAGE DIAMETER (mm): D	NUMBER OF PIECES PERMITTED	MINIMUM SPACE
$D \leq 0.2$	IGNORE	—
$0.2 < D \leq 0.4$	5	10 mm
$0.4 < D$	0	

NUMBER OF TOTAL PIECES IS TO BE SET WITHIN 5 PIECES.
NOTE :
    THAT WHEN THERE ARE 2 PIECES OR MORE, THEY
    ARE NOT TO BE CONSIDERED AS CONCENTRATED.

(2) BLURRY SPOTS (WHEN FULLY POWERED-ON)

AVERAGE DIAMETER (mm): D	NUMBER OF PIECES PERMITTED
$D \leq 0.3$	IGNORE
$0.3 < D \leq 0.75$	5
$0.75 < D$	0

Note : Diameter $D = (a+b)/2$

NUMBER OF TOTAL PIECES IS TO BE SET WITHIN 5 PIECES.
NOTE :
    THAT WHEN THERE ARE 2 PIECES OR MORE, THEY
    ARE NOT TO BE CONSIDERED AS CONCENTRATED.

NO.	ITEM	CRITERIA
4.	BLACK LINE WHITE LINE NON-DISPLAY	(1)THE BLACK LINE, WHITE LINE ARE WITHIN THE VIEWING AREA. IT IS NOT ALLOW.

5. BLACK LINE WHITE LINE ON-DISPLAY

(1) THE FOLLOWING BLACK LINE , WHITE LINE ARE WITHIN THE VIEWING AREA. WIDTH :Wmm , LENGH :Lmm

LENGTH : L	WIDTH : W	PERMISSIBLE NO.
$L \leq 0.5$	$W \leq 0.1$	IGNORE
$0.5 < L \leq 2.5$	$0.1 < W \leq 0.3$	4
$2.5 < L$	$0.3 \leq W$	NONE

NO.	ITEM	CRITERIA
6.	SCRATCHES AND DENT ON GLASS POLARIZER	(1) PLS REFER TO THE ABOVE NO.3 AND 4 TO DETERMINE SCRATCHES AND DENT ON POLARIZER OR GLASS

7. DOT DEFECT ON DISPLAY

Judgment Criteria

Area	Bright Dot	Dark Dot	Total
A	3	3	4
B	5	5	5

(1)It is defined as Point Defect if defect area>0.5dot
(2)It is ignored if defect area≤0.5dot
(3)Weak point defect will be defined as Bright Dot if it can be observed through ND filter 6%
(4)The distance between 2 dot defect≥5mm
(5)Not Allowed Joint point defect

Note : A/B Area Definition

NO.	ITEM	CRITERIA
8	LINE DEFECT ON DISPLAY	OBVIOUS VERTICAL OR HORIZONTAL LINE DEFECT IS NOT ALLOW
9	MURA ON DISPLAY	IT'S OK IF MURA IS SLIGHT VISIBLE THROUNG 6% ND FILTER
10	CF FAIL/SPOT ON DISPLAY	(1)THE FOLLOWING CF FAIL , SPOT ARE WITHIN THE VIEWING AREA
11	UNEVEN COLOR SPREAD , COLORATION	(1)TO BE DETERMINED BASED UPON THE STANDARD SAMPLE.
12	BEZEL APPEARANCE	(1)BEZEL MAY NOT HAVE RUST, E DEFORMED OR HAVE FINGER PRINTS STAINS OF OTHER CONTAMINATION. (2)BEZEL MUST COMPLY WITH JOB SPECIFICATIONS.
13	SOLDERING	(1)NO SOLDERING FOUND ON THE SPECIFIED PLACE (2)INSUFFICENT SOLDER

For item 10:

SIZE D	PERMISSIBLE NO.
D ≤ 0.15mm	IGNORED
0.15mm<D≤0.2mm	N ≤ 2
D > 0.2mm	NOT ALLOWED

Note ：Diameter D=(a+b)/2

For item 13:

(a)LSI, IC
A POOR WETTING OF SOLDER IS BETWEEN LOWER BEND OR "HEEL" OF LEAD AND PAD

SOLDER FILLET

(b)CHIP COMPONENT
‧ SOLDER IS LESS THAN 50% OF SIDES AND FRONT FACE WETTING

SOLDER FILLET

1/2

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NO.	ITEM	CRITERIA

13.	SOLDERING	• SOLDER WETS 3 SIDES OF TERMINAL, BUT LESS THAN 25% OF SIDES AND FRONT SURFACE AREA ARE COVERED
		
		SOLDER
		
		(3)PARTS ALIGMENT
		
		  (a)LSI, IC
		    LEAD WIDTH IS MORE THAN 50% BEYOND PAD OUTLINE
		
		  (b)CHIP COMPONENT
		    COMPONENT IS OFF CENTER, AND MORE THAN 50% OF THE LEADS IS OFF THE PAD OUTLINE

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NO.	ITEM	CRITERIA
13.	SOLDERING	(4)NO UNMELTED SOLDER PASTE MAY BE PRESENT ON THE PCB. (5)NO COLD SOLDER JOINTS, MISSING SOLDER CONNECTIONS, OXIDATION OR ICICLE. (6)NO RESIDUE OR SOLDER BALLS ON PCB. (7)NO SHORT CIRCUITS IN COMPONENTS ON PCB.
14.	BACKLIGHT	(1)NO LIGHT (2)FLICKERING AND OTHER ABNORMAL ILLUMINATION (3)SPOTS OR SCRATCHES THAT APPEAR WHEN LIT MUST BE JUDGED USING LCD SPOT, LINES AND CONTAMINATION STANDARDS. (4)BACKLIGHT DOESN'T LIGHT OR COLOR IS WRONG.
15.	GENERAL APPEARANCE	(1)NO OXIDATION,CONTAMINATION, URVES OR,BENDS ON INTERFACE PIN (OLB) OF TCP. (2)NO CRACKS ON INTERFACE PIN (OLB) OF TCP. (3)NO CONTAMINATION, SOLDER RESIDUE OR SOLDER BALLS ON PRODUCT. (4)THE IC ON THE TCP MAY NOT BE DAMAGED, CIRCUITS. (5)THE UPPERMOST EDGE OF THE PROTECTIVE STRIP ON THE INTERFACE PIN MUST BE PRESENT OR LOOK AS IF IT CAUSE THE INTERFACE PIN TO SEVER. (6)THE RESIDUAL ROSIN OR TIN OIL OF SOLDERING (COMPONENT OR CHIP COMPONENT) IS NOT BURNED INTO BROWN OR BLACK COLOR. (7)SEALANT ON TOP OF THE ITO CIRCUIT HAS NOT HARDENED. (8)PIN TYPE MUST MATCH TYPE IN SPECIFICATION SHEET. (9)LCD PIN LOOSE OR MISSING PINS. (10)PRODUCT PACKAGING MUST THE SAME AS SPECIFIED ON PACKAGING SPECIFICATION SHEET. (11)PRODUCT DIMENSION AND STRUCTURE MUST CONFORM TO PRODUCT SPECIFICATION SHEET. (12)THE APPEARANCE OF HEAT SEAL SHOULD NOT ADMIT ANY DIRT AND BREAK.

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NO.	ITEM	CRITERIA		
		THE LCD WITH EXTENSIVE CRACK IS NOT ACCEPTABLE		

General glass chip :

	a	b	c
	≤ t/2	< VIEWING AREA	≤ 1/8X
	t/2 > , ≤ 2t	≤ W/2	≤ 1/8X

*W=DISTANCE BETWEEN
   SEALANT AREA AND LCD
   PANEL EDGE
 X = LCD SIDE LENGTH
 t = GLASS THICKNESS

Corner part:

	a	b	c
	≤ t/2	< VIEWING AREA	≤ 1/8X
	> t/2 , ≤ 2t	≤ W/2	≤ 1/8X

*W=DISTANCE BETWEEN
   SEALANT AREA AND LCD
   PANEL EDGE
 X=LCD SIDE LENGTH
 t=GLASS THICKNESS

CHIP ON ELECTRODE PAD

	a	b	c
	≤ t	≤ 0.5mm	≤ 1/8X

* X=LCD SIDE WIDTH
  t =GLASS THICKNESS

	a	b	c
	≤ t	≤ 1/8X	≤ L

*X=LCD SIDE WIDTH
 t = GLASS THICKNESS
 L=ELECTRODE PAD LENGTH
①IF GLASS CHIPPING THE ITO
   TERMINAL, OVER 2/3 OF THE ITO
   MUST REMAIN AND BE ,
   INSPECTED ACCORDING TO
   ELECTRODE TERMINAL
   SPECIFICATIONS
②IF THE PRODUCT WILL BE HEAT
   SEALED BY THE CUSTOMER, THE
   ALIGNMENT MARK MUST NOT BE
   DEMAGED

(Row spanning: 16. CRACKED GLASS)

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13.4 RELIABILITY TEST

13.4.1   STANDARD SPECIFICATIONS FOR RELIABILITY OF LCD MODULE

NO	ITEM	DESCRIPTION
1	HIGH TEMPERATURE OPERATION	THE SAMPLE SHOULD BE ALLOWED TO STAND AT +60°C FOR 240 HRS
2	LOW TEMPERATURE OPERATION	THE SAMPLE SHOULD BE ALLOWED TO STAND AT -10°C FOR 240 HRS
3	HIGH TEMPERATURE STORAGE	THE SAMPLE SHOULD BE ALLOWED TO STAND AT +70°C FOR 240 HRS
4	LOW TEMPERATURE STORAGE	THE SAMPLE SHOULD BE ALLOWED TO STAND AT -20°C FOR 240 HRS
5	HIGH TEMP / HUMIDITY TEST	THE SAMPLE SHOULD BE ALLOWED TO STAND AT 50°C , 90% RH 240 HRS
6	THERMAL SHOCK (NOT OPERATED)	THE SAMPLE SHOULD BE ALLOWED TO STAND THE FOLLOWING 200 CYCLES OF OPERATION: -25°C FOR 30 MINUTES ~ +70°C FOR 30 MINUTES
7	ESD (ELECTROSTATIC DISCHARGE) (NOT OPERATION)	AIR DISCHARGE ± 4KV CONTACT DISCHARGE ± 2KV

NOTE (1) : THE TEST SAMPLES HAVE RECOVERY TIME FOR 2 HOURS AT ROOM
TEMPERATURE BEFORE THE FUNCTION CHECK. IN THE STANDARD
CONDITIONS , THERE IS NO DISPLAY FUNCTION NG ISSUE OCCURRED.

13.5   TESTING CONDITIONS AND INSPECTION CRITERIA

FOR THE FINAL TEST THE TESTING SAMPLE MUST BE STORED AT ROOM
TEMPERATURE FOR 24 HOURS, AFTER THE TESTS LISTED IN TABLE 12.5 ,
STANDARD SPECIFICATIONS FOR RELIABILITY HAVE BEEN EXECUTED IN
ORDER TO ENSURE STABILITY .

NO	ITEM	TEST MODEL	INSPECTION CRITERIA
1	CURRENT CONSUMPTION	REFER TO SPECIFICATION	THE CURRENT CONSUMPTION SHOULD CONFORM TO THE PRODUCT SPECIFICATION.
2	CONTRAST	REFER TO SPECIFICATION	AFTER THE TESTS HAVE BEEN EXECUTED, THE CONTRAST MUST BE LARGER THAN HALF OF ITS INITIAL VALUE PRIOR TO THE TESTS.
3	APPEARANCE	VISUAL INSPECTION	DEFECT FREE

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13.6 OPERATION

13.6.1 DO NOT CONNECT OR DISCONNECT MODULES TO OR FROM THE MAIN SYSTEM WHILE POWER IS BEING SUPPLIED .

13.6.2 USE THE MODULE WITHIN SPECIFIED TEMPERATURE ; LOWER TEMPERATURE CAUSES THE RETARDATION OF BLINKING SPEED OF THE DISPLAY ; HIGHER TEMPERATURE MAKES OVERALL DISPLAY DISCOLOR . WHEN THE TEMPERATURE RETURNS TO NORMALITY , THE DISPLAY WILL OPERATE NORMALLY .

13.6.3 ADJUST THE LC DRIVING VOLTAGE TO OBTAIN THE OPTIMUM CONTRAST .

13.6.4 POWER ON SEQUENCE INPUT SIGNALS SHOULD NOT BE SUPPLIED TO LCD MODULE BEFORE POWER SUPPLY VOLTAGE IS APPLIED AND REACHES THE SPECIFIED VALUE . IF ABOVE SEQUENCE IS NOT FOLLOWED , CMOS LSIS OF LCD MODULES MAY BE DAMAGED DUE TO LATCH - UP PROBLEM .

13.7 NOTICE

13.7.1 USE A GROUNDED SOLDERING IRON WHEN SOLDERING CONNECTOR I/O TERMINALS . FOR SOLDERING OR REPAIRING , TAKE PRECAUTION AGAINST THE TEMPERATURE OF THE SOLDERING IRON AND THE SOLDERING TIME TO PREVENT PEELING OFF THE THROUGH-HOLE-PAD .

13.7.2 DO NOT DISASSEMBLE . EDT SHALL NOT BE HELD RESPONSIBLE IF THE MODULE IS DISASSEMBLED AND UPON THE REASSEMBLY THE MODULE FAILED .

13.7.3 DO NOT CHARGE STATIC ELECTRICITY , AS THE CIRCUIT OF THIS MODULE CONTAINS CMOS LSIS. A WORKMAN'S BODY SHOULD ALWAYS BE STATIC-PROTECTED BY USE OF AN ESD STRAP . WORKING CLOTHES FOR SUCH PERSONNAL SHOULD BE OF STATIC-PROTECTED MATERIAL .

13.7.4 ALWAYS GROUND THE ELECTRICALLY-POWERED DRIVER BEFORE USING IT TO INSTALL THE LCD MODULE. WHILE CLEANING THE WORK STATION BY VACUUM CLEANER, DO NOT BRING THE SUCKING MOUTH NEAR THE MODULE ; STATIC ELECTRICITY OF THE ELECTRICALLY-POWERED DRIVER OR THE VACUUM CLEANER MAY DESTROY THE MODULE .

13.7.5 DON'T GIVE EXTERNAL SHOCK.

13.7.6 DON'T APPLY EXCESSIVE FORCE ON THE SURFACE.

13.7.7 LIQUID IN LCD IS HAZARDOUS SUBSTANCE. MUST NOT LICK AND SWALLOW. WHEN THE LIQUID IS ATTACH TO YOUR, SKIN, CLOTH ETC. WASH IT OUT THOROUGHLY AND IMMEDIATELY.

13.7.8 DON'T OPERATE IT ABOVE THE ABSOLUTE MAXIMUM RATING.

13.7.9 STORAGE IN A CLEAN ENVIRONMENT, FREE FROM DUST, ACTIVE GAS, AND SOLVENT.

13.7.10 STORE WITHOUT ANY PHYSICAL LOAD.

13.7.11 REWIRING: NO MORE THAN 3 TIMES .