



Dimension 115x70x4mm

FEATURES

- 4,3" HIGH-END TOUCH PANEL
- MIPI 2-LANE INTERFACE
- INDUSTRIAL GRADE
- HIGH RESOLUTION 800x480xRGB
- HIGH CONTRAST, HIGH BRIGHTNESS WITH 880 cd/m²
- ROBUST 1.1mm COVER GLASS
- DIRECT CONNECTION TO RASPBERRY PI 3, 4 AND 5
- LED DRIVER ONBOARD
- BRIGHTNESS CONTROL
- WIDE TEMPERATURE RANGE (T_{OP} -20°C - +70°C)
- EASY MOUNTING THANKS TO ADHESIVE: SIMPLY GLUE INTO CASE

ORDERING CODE

INDUSTRIAL TOUCH DISPLAY 4.3", 880cd/m²

EA MIP043-84AITC

ACCESSORY

CABLE FOR RASPBERRY PI 3 AND 4, LENGTH 150mm

CABLE FOR RASPBERRY PI 5

CABLE FOR LED POWER 150mm (OPTIONALLY)

MOUNTING FRAME FOR RASPBERRY PI 3, 4 AND 5

EA KF030RAPI3-150

EA KF030RAPI5-150

EA KJST2PCB-150

EA 00

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1. GENERAL DESCRIPTION

Parameter	Specification	Unit
Screen Size	4.3" (diagonal)	
Display Resolution	800 x RGB x 480	dots
Overall Dimension	115.0(H) x 70.0(W) x 3.95(D)	mm
LCD active area	93.6(H) x 56.16(W)	mm
Pixel Pitch	0.117(W) x 0.117(RGB)	mm
LCD Driver	ST7701 or equivalent	mm
Interface	MIPI (2-lane)	-
Color Depth	16.7M colors	
Display mode	IPS	
Viewing Direction	All	
Backlight	LED	
Brightness	typ. 880	cd/m ²
Touchpanel	PCAP	
Panel Surface Treatment	Anti-Glare	
Weight	TBD	grams

Note

1: Not include controller board and FPC.

2: Full color display depends on 24-bit data signal.

2. CN1 - INTERFACE SIGNALS

No	Symbol	Description	Note
1	GND	Ground	
2	D0N	MIPI DSI differential data pair. 0 lane -	
3	D0P	MIPI DSI differential data pair. 0 lane +	
4	GND	Ground	
5	D1N	MIPI DSI differential data pair. 1 lane -	
6	D1P	MIPI DSI differential data pair. 1 lane +	
7	GND	Ground	
8	CLKN	MIPI DSI differential clock pair -	
9	CLKP	MIPI DSI differential clock pair +	
10	GND	Ground	
11	D2N	MIPI DSI differential data pair. 2 lane -	7" and 10" only
12	D2P	MIPI DSI differential data pair. 2 lane +	7" and 10" only
13	GND	Ground	
14	D3N	MIPI DSI differential data pair. 3 lane -	7" and 10" only
15	D3P	MIPI DSI differential data pair. 3 lane +	7" and 10" only
16	GND	Ground	
17	N.C.	No connection	
18	N.C.	No connection	
19	SCL	I ² C Clock Line Touch and Brightness control	
20	SDA	I ² C Data Line Touch and Brightness control	
21	VDD	Power supply for display and touch screen	
22	VDD	Power supply for display and touch screen	
23	INT	Interrupt Touchpanel	Output
24	RES	Reset Display and Touchcontroller	
25	VLED	VLED for LED driver	7" and 10" only
26	LED+	Anode LED Backlight	
27	LED+	Anode LED Backlight	
28	LED+OUT	LED driver output Anode	
29	LED-	Cathode LED Backlight	
30	LED-	Cathode LED Backlight	
31	LED-OUT	LED driver output Cathode	
32	PWM-IN	PWM Input LED Driver	
33	PWM-OUT	PWM Output	
34	LEDCNTL	Brightness Control LED	analogue 0-3.3V
35	NC	No connection	
36	NC	No connection	
37	NC	No connection	
38	NC	No connection	
39	PROG	Do not connect	

3. ABSOLUTE MAXIMUM RATINGS

3.1 Electrical Maximum Ratings – for IC Only

Parameter	Symbol	Min.	Max.	Unit	Note
Supply voltage	VDD	-0.3	+4.6	V	1
Input voltage	VIN	VSS-0.3	VDD	V	
Supply current	VLED		+14	V	

Note

1. VDD, GND must be maintained.

2. The modules may be destroyed if they are used beyond the absolute maximum ratings.

3.2 Environmental Condition

Item	Operating temperature (T _{op})		Storage temperature (T _{stg}) (Note 1)		Remark
	Min.	Max.	Min.	Max.	
Ambient temperature	-20°C	+70°C	-30°C	+80°C	Dry
Humidity (Note 1)	80% max. RH for Ta ≤ 40°C < 50% RH for 40°C < Ta ≤ Maximum operating temperature				No condensation

Note

Product cannot sustain at extreme storage conditions for long time.

4. ELECTRICAL SPECIFICATIONS

4.1 Electrical Characteristics - Display

(Ta = 25 °C, VDD=IOVCC= 3.3V, GND=0V.)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Supply voltage (logic)	VDD-GND		2.6	3.0	3.6	V
Input signal voltage	VIH		0.7VCC	-	VDD	V
	VIL		GND	-	0.3VDD	V
Supply current (Logic & LCD)	IDD	VDD=3.3V	-	TBD	-	mA
LED Backlight Supply Voltage	VLED		3.3	5	12	V
LED Backlight Supply current	ILED	VDD=3.3V	-	t.b.d.	-	mA

Note

LED backlight is driven by a constant current created by onboard circuit. Brightness is adjustable by SPI or PWM.

DISPLAY TIMING

clock = ca. 27 MHz (about 60 fps)

Horizontal visible dots = 480

H. Backporch = 28,

H. Frontporch = 8,

Vertical visible dots = 800,

V. Backporch = 20,

V. Frontporch = 8,

5. LED BACKLIGHT DRIVING OPTIONS

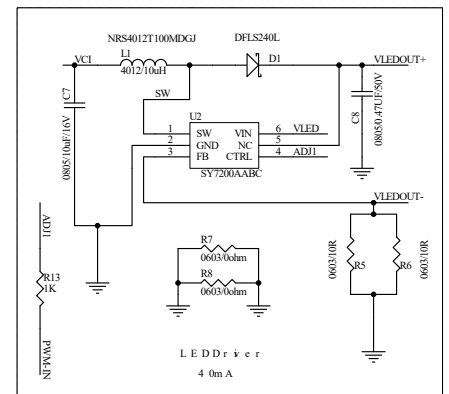
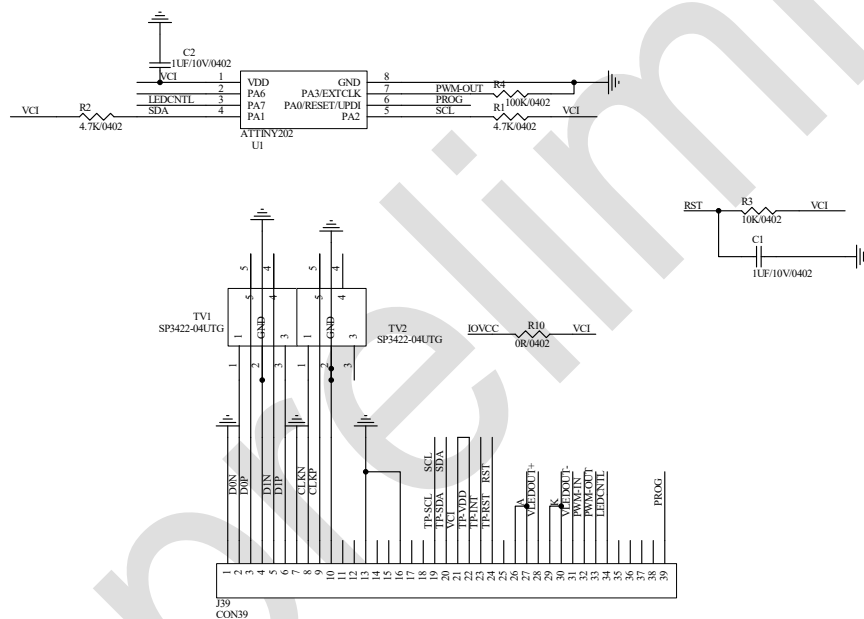
There are 4 ways to drive LED backlight.

5.1 FPC cable CN1

LED backlight will be powered automatically via FPC cable (pin 15, VLED). Brightness may be adjusted by I²C or external PWM.

5.2 LED power 3.3~12V via CN2 (not MIP043-84AITC)

Alternatively power supply may be connected via pin 25 (VLED). It's connected to internal LED driver circuit. When using internal LED driver, pins LED+OUT and LED+ need to be connected externally same as LED-OUT and LED-.



Schematic EA MIP043-84A/TC

5.3 Adjusting backlight brightness

There are several ways to adjust backlight brightness.

5.3.1 Set via I²C commands

Pin 19 and 20 (CN1) providing I²C bus interface to adjust LED backlight brightness. I²C bus address is 0x2C (0x58). Connect PWN-IN and PWM-OUT externally.

Write commands:

Instruction	Instruction Code								Parameter								Hex	Description	Default
LED brightness	0	0	1	0	1	0	1	0	0	D	D	D	D	D	D	D	2A	[0;64] set LED brightness 0..100	100
PWM frequency	0	0	1	0	1	1	1	0	0	D	D	D	D	D	D	D	2E	[1;64] set PWM frequency 1..100 = 40000/n (40kHz..400Hz)	2
Soft change	0	0	1	1	0	1	1	0	0	D	D	D	D	D	D	D	36	[0;64] set soft change time 0..100 in 1/10 s	5
Delay	0	0	1	0	1	1	0	0	0	D	D	D	D	D	D	D	2C	[0;64] set start delay 0..100 in 1/10 s	0
Save	0	0	1	0	1	1	0	1	0	0	1	1	1	0	0	1	2D	39 save all current parameter to EEPROM	
Restore	0	0	1	1	0	1	0	0	0	0	1	1	0	1	0	0	2D	39 restore all current parameter from EEPROM	

I²C write commands

5.3.2 External PWM signal

Adjusting backlight brightness can also be done by providing an external PMW signal to the display (PWM-IN, pin 32). It also allows to switch LED backlight on and off in simply way.

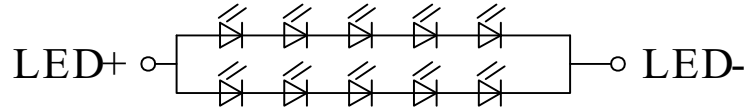
PWM frequency should be between 400Hz and 40kHz, voltage level is 3.3V only.

5.3.3 Analogue set

Pin 34 (LEDCTLN) provides brightness setting by analogue voltage input. It overwrites all digital settings. You also may use a potentiometer (e.g. 47kΩ)

5.4 LED chips connected directly

Alternatively LED may be driven by an external power supply. Use pins LED+ and LED- at CN1.
Internal LED circuit is 2 chain parallel and with 5 serial LEDs each.



5.4.1 Absolute Maximum Ratings - LED

$T_a = 25^\circ\text{C}$

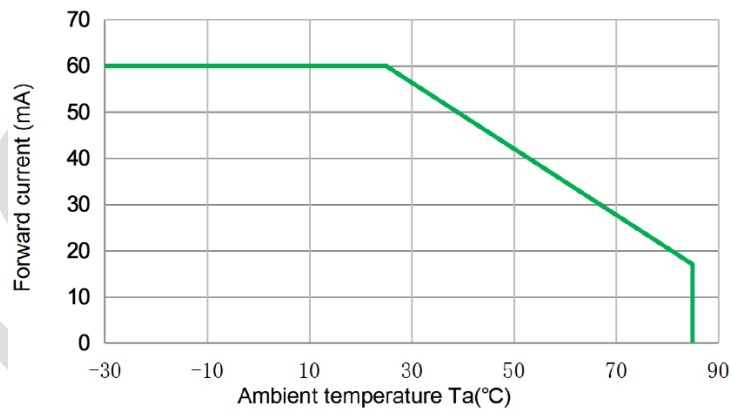
Parameter	Symbol	Rating	Unit
Power Dissipation	Pd	1000	mW
Forward Current	IF	60	mA
Peak Forward Current		160	mA
Reverse Voltage		5	V

5.4.2 Electrical Characteristics - LED

$T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward voltage	VAK		13.5	15	16	V
Reverse current	IR				1	μA
Supply current (Logic & LCD)	IAK		-	40	-	mA

Forward current VS. Ambient temperature



6. OPTICAL CHARACTERISTICS

Items		Symbol	Condition	Specifications			Unit	Note
				Min.	Typ.	Max.		
Contrast Ratio		CR	Center CR≥10	-	1000	-	-	
Response Time		T _R +T _F		-	25	35	ms	
Chromaticity	Red	X _R		-	0.659	-	-	
		Y _R		-	0.323	-	-	
	Green	X _G		-	0.275	-	-	
		Y _G		-	0.580	-	-	
	Blue	X _B		-	0.160	-	-	
		Y _B		-	0.155	-	-	
	White	X _W		-	0.298	-	-	
		Y _W	-	0.337	-	-		
Viewing angle	Hor.	f1(3 o'clock)	-	80	-	deg.		
		f2(9 o'clock)	-	80	-			
	Ver.	q2(12 o'clock)	-	80	-			
		q1(6 o'clock)	-	80	-			
Brightness		YL	-	880	-	cd/m ²		
Uniformity		Un	75	--		%		
NTST=C Ratio		S	50	60		%		

Note 1: Definition of Contrast Ratio (CR):

The contrast ratio can be calculated by the following expression.

Contrast Ratio (CR) = L_{63} / L_0

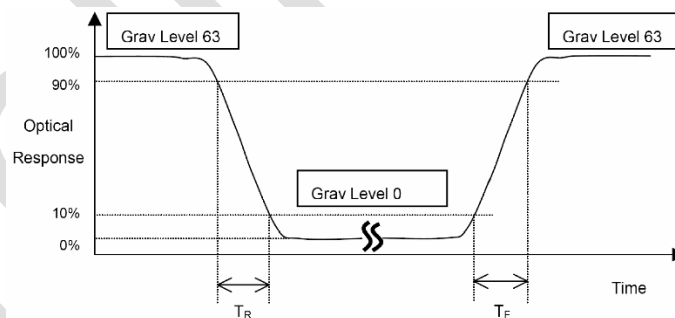
L_{63} : Luminance of gray level 63

L_0 : Luminance of gray level 0

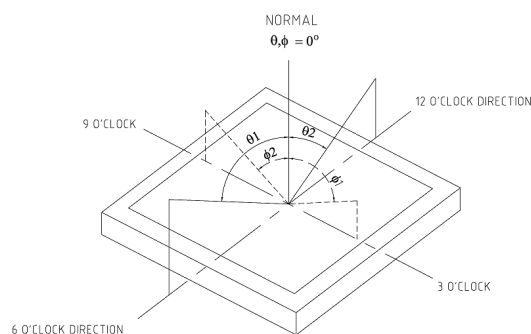
$CR = CR(10)$

CR (X) is corresponding to the Contrast Ratio of the point X at Figure in Note 5.

Note 2: Definition of Response Time (T_R , T_F):



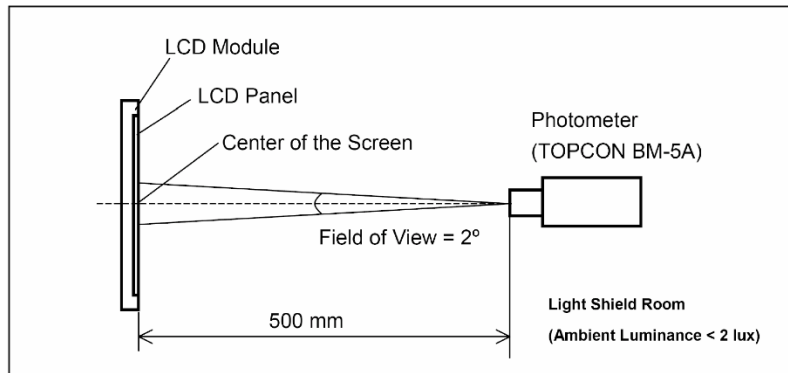
Note 3: Viewing Angle



The above "Viewing Angle" is the measuring position with largest contrast ratio;

Note 4: Measurement Set-Up:

The LCD module should be stabilized at a given temperature for 20 minutes to avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting Backlight for 20 minutes in a windless room.



7. DC AND AC CHARACTERISTICS

Please refer ST7701 datasheet: <https://www.lcd-module.de/eng/pdf/zubehoer/ST7701S.pdf>

8. INITIALISATION EA MIP043-84AITC

```

dsi_write( 0x01); //software reset
msleep(100);
dsi_write( 0xFF,0x77,0x01,0x00,0x00,0x13); //BK3; Command2 BKx Selection (00~04)
dsi_write( 0xEF,0x08); //not found in datasheet
dsi_write( 0xFF,0x77,0x01,0x00,0x00,0x10); //BK0

dsi_write( 0xC0,0x63,0x00); //Display Line setting, (0x63+1)x8=800
dsi_write( 0xC1,0x1C,0x08); //Porch Control (VBP,VFP)
dsi_write(0xC2,0x17,0x02); //Inversion sel. & Frame Rate Control, PCLK=512+RTNI[4:0]x16=512+0x02*16=544/line
dsi_write( 0xCC,0x10);

dsi_write( 0xB0,0x40,0xC9,0x10,0x0B,0x91,0x06,0x03,0x09,0x09,0x1F,0x04,0x11,0x10,0xA4,0xA8,0xA9);
dsi_write( 0xB1,0x80,0x4B,0x12,0x0E,0x0F,0x05,0x01,0x08,0x08,0x1D,0x02,0x0D,0x0C,0x69,0xB7,0x95);
dsi_write( 0xEF,0x08);

dsi_write( 0xFF,0x77,0x01,0x00,0x00,0x11); //BK1; Command2 BKx

dsi_write( 0xB0,0x4D); //Vop Amplitude setting
dsi_write( 0xB1,0x40); //VCOM Amplitude setting
dsi_write( 0xB2,0x81); //VGH Voltage setting
dsi_write( 0xB3,0x80); //Test Command setting
dsi_write( 0xB5,0x4E); //VGL Voltage setting
dsi_write( 0xB7,0x85); //Power control 1
dsi_write( 0xB8,0x32); //Power control 2
dsi_write( 0xBB,0x03); //Power pumpin clk select 2
dsi_write( 0xC1,0x08); //Source pre_drive timing 1
dsi_write( 0xC2,0x08); //Source EQ2
dsi_write( 0xD0,0x88); //MIPI setting 1
dsi_write( 0xE0,0x00,0x00,0x02); //Sunlight readable enhancement
dsi_write( 0xE1,0x06,0x28,0x08,0x28,0x05,0x28,0x07,0x28,0x0E,0x33,0x33);
dsi_write( 0xE2,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00);
dsi_write( 0xE3,0x00,0x00,0x33,0x33); //Color calibration
dsi_write( 0xE4,0x44,0x44); //Skin tone prservation control
dsi_write( 0xE5,0x11,0x37,0x2C,0x8C,0x13,0x39,0x2C,0x8C,0x0D,0x33,0x2C,0x8C,0x0F,0x35,0x2C,0x8C);
dsi_write( 0xE6,0x00,0x00,0x33,0x33);
dsi_write( 0xE7,0x44,0x44);
dsi_write( 0xE8,0x10,0x36,0x2C,0x8C,0x12,0x38,0x2C,0x8C,0x0C,0x32,0x2C,0x8C,0x0E,0x34,0x2C,0x8C);
dsi_write( 0xE9,0x36,0x00);
dsi_write( 0xEB,0x02,0x01,0xE4,0xE4,0x44,0x88,0x40);
dsi_write( 0xFF);
dsi_write( 0xED,0xBF,0xCA,0x76,0x54,0x01,0xFF,0xFF,0xFF,0xFF,0xFF,0x10,0x45,0x67,0xAC,0xFB);
dsi_write( 0xEF,0x08,0x08,0x08,0x45,0x3F,0x54);
dsi_write( 0xFF,0x77,0x01,0x00,0x00,0x13); //BK3
dsi_write( 0xE8,0x00,0x0E);

dsi_write( 0xFF,0x77,0x01,0x00,0x00,0x10); //BK0
dsi_write( 0x11); //Sleep out
msleep(150);
dsi_write( 0xFF,0x77,0x01,0x00,0x00,0x13); //BK3
dsi_write( 0xE8,0x00,0x0C);
dsi_write( 0xE8,0x00,0x00);
msleep(10);

dsi_write( 0xFF,0x77,0x01,0x00,0x00,0x00); //BK0
dsi_write( 0x36,0x00); //Display data access control
dsi_write( 0x3A,0x77); //Interface pixel format
dsi_write( 0x29);
msleep(50);
dsi_write( 0xFF,0x77,0x01,0x00,0x00,0x10); //BK0
dsi_write( 0xE5,0x00);

```

9. RELIABILITY TEST ITEM

Test Item	Test Condition	Test result determinant gist
High temperature storage	80±3°C; 96H	the inspection of cosmetic and function character.
Low temperature storage	-30±3°C; 96H	
High temperature /humidity storage	50°C±3°C, 90%±3%RH; 96H	
High temperature operation	70±3°C; 96H	no objection of the function character; no fatal objection of the cosmetic.
Low temperature operation	-20±3°C; 96H	
Temperature Shock	-30±3°C, 30min→80±3°C, 30min; 5cycle	Non-operation
Vibration Test	10Hz~150Hz, 100m/s ² , 120min	Not allowed cosmetic and electrical defects.
Package Drop Test	Height: 60cm 1 corner, 3 edges, 6 surfaces	

10. SUGGESTIONS FOR USING LCD MODULES

10.1 Handling of LCM

1. The LCD screen is made of glass. Don't give excessive external shock or drop from a high place.
2. If the LCD screen is damaged and the liquid crystal leaks out, do not lick and swallow. When the liquid is attach to your hand, skin, cloth etc, wash it off by using soap and water thoroughly and immediately.
3. Don't apply excessive force on the surface of the LCM.
4. If the surface is contaminated, clean it with soft cloth. If the LCM is severely contaminated, use Isopropyl alcohol/Ethyl alcohol to clean. Other solvents may damage the polarizer. The following solvents is especially prohibited: water, ketone Aromatic solvents etc.
5. Exercise care to minimize corrosion of the electrode. Corrosion of the electrodes is accelerated by water droplets, moisture condensation or a current flow in a high-humidity environment.
6. Install the LCD Module by using the mounting holes. When mounting the LCD module make sure it is free of twisting, warping and distortion. In particular, do not forcibly pull or bend the I/O cable or the backlight cable.
7. Don't disassemble the LCM.
8. 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 modules.
 - Tools required for assembling, such as soldering irons, must be properly grounded.
 - To reduce the amount of static electricity generated, do not conduct assembling 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.
9. Do not alter, modify or change the shape of the tab on the metal frame.
10. Do not make extra holes on the printed circuit board, modify its shape or change the positions of components to be attached.
11. Do not damage or modify the pattern writing on the printed circuit board.
12. Absolutely do not modify the zebra rubber strip (conductive rubber) or heat seal connector
13. Except for soldering the interface, do not make any alterations or modifications with a soldering iron.
14. Do not drop, bend or twist LCM.

10.2 Storage

1. Store in an ambient temperature of 5 to 45 °C, and in a relative humidity of 40% to 60%. Don't expose to sunlight or fluorescent light.
2. Storage in a clean environment, free from dust, active gas, and solvent.
3. Store in antistatic container.

11. INSPECTION STANDARD

This specification is made to be used as the standard acceptance/rejection criteria for Color mobile phone LCM with touch panel.

11.1 Sample plan and Inspection condition

11.1.1 Sample plan

Sampling plan according to MIL-STD-105E, normal level 2 and based on:

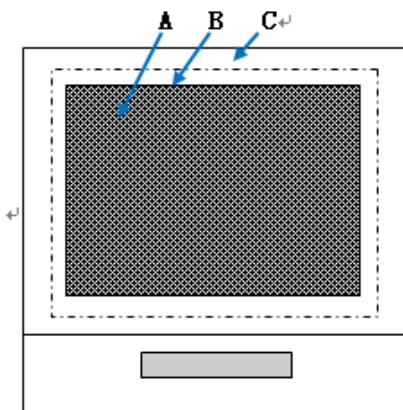
Major defect: AQL 0.65;

Minor defect: AQL 1.5.

11.1.2 Inspection condition

Viewing distance for cosmetic inspection is about 30cm with bare eyes, and under an environment of 20~40W light intensity, all directions for inspecting the sample should be within 45 against perpendicular line.

11.2 Definition of inspection zone in LCD



Inspection zones in an LCD

Zone A: character/Digit area;

Zone B: viewing area except Zone A (ZoneA + ZoneB=minimum Viewing area);

Zone C: Outside viewing area (invisible area after assembly in customer's product);

Note: As a general rule, visual defects in Zone C are permissible, when it is no trouble for quality and assembly of customer's product. Defects are classified as major defects and minor defects according to the degree of defectiveness defined herein.

11.3 Major defects and Minor defects

11.3.1 Major defects

A major defect is a defect that is likely to result in failure, or to reduce the usability of the product for its intended purpose.

11.3.1.1 Abnormal operation: modules cannot display normally;

11.3.1.2 Line defect;

11.3.1.3 There is serious distortion or sharp burr on mechanical housing;

11.3.1.4 Glass breakage.

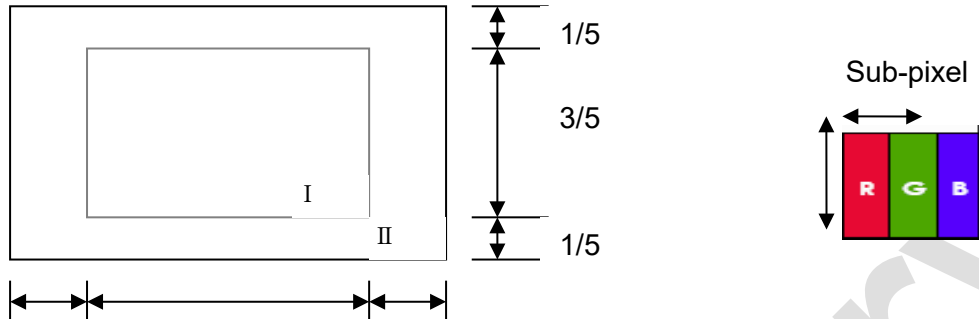
11.3.2 Minor defects:

A minor defect is a defect that is not likely to reduce the usability of the product for its intended purpose.

11.3.2.1 Dot defect:

11.3.2.1.1 Inspection pattern: Full white, full black, red, green and blue screens;

11.3.2.1.2 Criteria: (acceptable);



Note: 1. 1/5 defect is 3/5 and as the 1/5 active area of the dot area is larger than 50% of the dot area. And the bright dot defect must be visible through 5% ND filter.

2. Except for the allowed numbers of adjacent dots, the distance between dot defects should be more than 3mm apart.

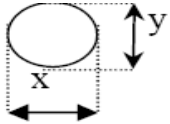
11.3.2.1.3 The definitions of the inner display area and outer display area.

11.4 Inspection standards table:

11.4.1 Major defect

Item No.	Items to be	Inspection Standard	Classification of defects
11.4.1.1	All functional defects	1) No display 2) Display abnormally 3) Missing vertical/horizontal segment 4) Short circuit 5) Back-light no lighting, flickering and abnormal lighting.	Major
11.4.1.2	Missing	Missing component	
11.4.1.3	Outline dimension	Overall outline dimension beyond the drawing is not allowed.	
11.4.1.4	linearity	No more than 1.5%	

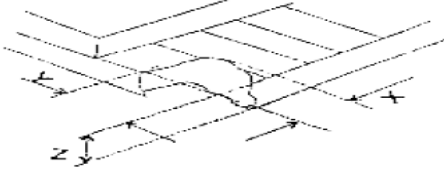
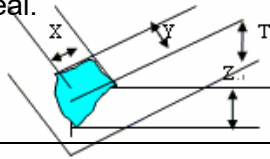
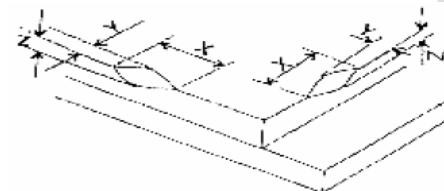
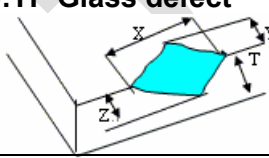
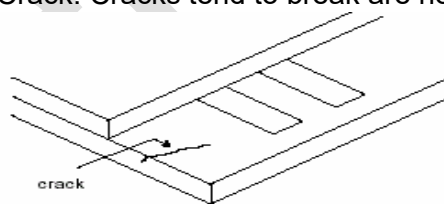
11.4.2 Cosmetic Defect (spot defect)

Item No	Items to be	Inspection Standard	Classification of defects																									
11.4.2.1	Spots defect Black and white Spot defect Pinhole, Foreign Particle, polarizer Dirt	For dark/white spot, size Φ is defined as $\Phi = (x + y) / 2$ 	Minor																									
		<table><tr><th rowspan="2">Zone Size(mm)</th><th colspan="3">Acceptable Qty</th></tr><tr><th>A</th><th>B</th><th>C</th></tr><tr><td>$\Phi \leq 0.1$</td><td colspan="3">Ignore</td></tr><tr><td>$0.10 < \Phi \leq 0.20$</td><td colspan="3">2</td></tr><tr><td>$0.20 < \Phi \leq 0.25$</td><td colspan="2">2</td><td rowspan="3">Ignore</td></tr><tr><td>$0.25 < \Phi \leq 0.30$</td><td colspan="2">1</td></tr><tr><td>$\Phi > 0.30$</td><td colspan="2">0</td></tr></table>	Zone Size(mm)	Acceptable Qty			A	B	C	$\Phi \leq 0.1$	Ignore			$0.10 < \Phi \leq 0.20$	2			$0.20 < \Phi \leq 0.25$	2		Ignore	$0.25 < \Phi \leq 0.30$	1		$\Phi > 0.30$	0		Minor
		Zone Size(mm)		Acceptable Qty																								
			A	B	C																							
		$\Phi \leq 0.1$	Ignore																									
		$0.10 < \Phi \leq 0.20$	2																									
		$0.20 < \Phi \leq 0.25$	2		Ignore																							
$0.25 < \Phi \leq 0.30$	1																											
$\Phi > 0.30$	0																											
11.4.2.4	Dot defect	dot =sub-pixel	Minor																									
		<table><tr><th rowspan="2"></th><th colspan="2">Acceptable Qty</th></tr><tr><th>I</th><th>II</th></tr><tr><td>Bright dot</td><td>0</td><td>2</td></tr><tr><td>Dark dot</td><td>1</td><td>2</td></tr></table>			Acceptable Qty		I	II	Bright dot	0	2	Dark dot	1	2														
					Acceptable Qty																							
				I	II																							
		Bright dot		0	2																							
Dark dot	1	2																										
The distance of two point >10mm																												

11.4.3 Cosmetic Defect (linear defect)

Item No	Items to be	Inspection Standard					Classification of defects
11.4.3.1	Line defect Black line, White line, Foreign material on polarizer	Size(mm)		Acceptable Qty			Minor
		L(Length)	W(Width)	zone			
				A	B	C	
		-	W≤0.02	Ignore		Ignore	
		L≤3.0	0.02<W≤0.05	2			
		L≤2.5	0.05<W≤0.08	1			
			W>0.08	Define as spot defect			
11.4.3.3	Polarize Air bubble	Air bubbles between glass & polarizer					Minor
			Acceptable Qty				
			A	B	C		
		Φ≤0.2	Ignore		Ignore		
		0.20<Φ≤0.5	2				
		0.5<Φ≤1.0	1				
		Φ>1.0	0				

11.4.4 Chipping Defect

Item No	Items to be	Inspection Standard	Classification of defects												
11.4.4.1	Glass defect	Chips on corner A:LCD Glass defect  <table><tr><td>X</td><td>Y</td><td>Z</td></tr><tr><td>≤0.2</td><td>≤S</td><td>Disregard</td></tr></table> Notes: S=contact pad length Chips on the corner of terminal shall not be allowed to extend into the ITO pad or expose perimeter seal. B:TP Glass defect <table><tr><td>X</td><td>Y</td><td>Z</td></tr><tr><td>≤3.0</td><td>≤3.0</td><td>Disregard</td></tr></table> 	X	Y	Z	≤0.2	≤S	Disregard	X	Y	Z	≤3.0	≤3.0	Disregard	Minor
		X	Y	Z											
		≤0.2	≤S	Disregard											
		X	Y	Z											
		≤3.0	≤3.0	Disregard											
Usual surface cracks A:LCD Glass defect  <table><tr><td>X</td><td>Y</td><td>Z</td></tr><tr><td>≤3.0</td><td><Inner border line of the seal</td><td>Disregard</td></tr></table> B:TP Glass defect  <table><tr><td>X</td><td>Y</td><td>Z</td></tr><tr><td>≤6.0</td><td>≤2.0</td><td>Disregard</td></tr></table>	X	Y	Z	≤3.0	<Inner border line of the seal	Disregard	X	Y	Z	≤6.0	≤2.0	Disregard			
X	Y	Z													
≤3.0	<Inner border line of the seal	Disregard													
X	Y	Z													
≤6.0	≤2.0	Disregard													
Crack: Cracks tend to break are not allowed. 															

11.4.5 Parts Defect

Item No	Items to be	Inspection Standard	Classification of defects
11.4.5.1	Parts contra position	1、 Not allow IC and FPC/heat-seal lead width is more than 50% beyond lead pattern. 2、 Not allow chip or solder component is off center more than 50% of the pad outline.	Major
11.4.5.2	SMT	According to the <Acceptability of electronic assemblies>IPC-A-610C class 2 standard. Component missing or function defect are Major defect, the others are Minor defect.	Major
11.4.5.3	Backlight elements	1 Illumination source flickers when lit. 2 Spots or scratches that appear when lit must be judged using LCD spot, lines and contamination standards. 3 Backlight doesn't light or color is wrong	Major
11.4.5.4	Soldering	1 No unmelted solder paste may be present on the FPC 2 No cold solder joints, missing solder connections, oxidation or icicle. 3 No short circuits in components on FPC	Major

