



Winstar Display Co., LTD

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SPECIFICATION

CUSTOMER : _____

MODULE NO.: **WG320240B0-FFHVZ#000** _____

APPROVED BY:

(FOR CUSTOMER USE ONLY)

PCB VERSION:

DATA:

SALES BY	APPROVED BY	CHECKED BY	PREPARED BY

ISSUED DATE:



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MODLE NO :

RECORDS OF REVISION

DOC. FIRST ISSUE

VERSION	DATE	REVISED PAGE NO.	SUMMARY
0	2007/10/12		First issue

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1. Module Classification Information

W G 3 2 0 2 4 0 B0— F F H VZ#000

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

- ① Brand : WINSTAR DISPLAY CORPORATION
 - ② Display Type : H→Character Type, G→Graphic Type
 - ③ Display Font : 320 * 240 Dots
 - ④ Model serials number
 - ⑤ Backlight Type :
 - N→Without backlight
 - B→EL, Blue green
 - D→EL, Green
 - W→EL, White
 - F→CCFL, White
 - Y→LED, Yellow Green
 - ⑥ LCD Mode :
 - B→TN Positive, Gray
 - N→TN Negative,
 - G→STN Positive, Gray
 - Y→STN Positive, Yellow Green
 - M→STN Negative, Blue
 - F→FSTN Positive
 - ⑦ LCD Polarizer Type/
 - A→Reflective, N.T, 6:00
 - Temperature range/
 - D→Reflective, N.T, 12:00
 - View direction
 - G→Reflective, W. T, 6:00
 - J→Reflective, W. T, 12:00
 - B→Transflective, N.T,6:00
 - E→Transflective, N.T.12:00
 - ⑧ Special Code
 - V : Built in negative Voltage Con
 - Z:86Version
 - #:Fit in with the ROHS Direction
 - 00:Sales code 0:Version(TS3202

2.Precautions in Use of LCD Module

- (1)Avoid applying excessive shocks to the module or making any alterations or modifications to it.
- (2)Don't make extra holes on the printed circuit board, modify its shape or change the components of LCD Module.
- (3)Don't disassemble the LCM.
- (4)Don't operate it above the absolute maximum rating.
- (5)Don't drop, bend or twist LCM.
- (6)Soldering: only to the I/O terminals.
- (7)Storage: please storage in anti-static electricity container and clean environment.

3.General Specification

ITEM	STANDARD VALUE	UNIT
Number of dots	320x240	dots
Outline dimension	166.8(W)x 109.0(H)x 15.0max(T)	mm
View area	122.0(W)x 92.0(H)	mm
Active area	115.18(W)x 86.38(H)	mm
Dot size	0.34(W)x 0.34(H)	mm
Dot pitch	0.36(W)x 0.36(H)	mm
LCD type	FSTN Positive Transflective,	
View direction	6 o'clock	
Backlight	CCFL, White	

4. Absolute Maximum Ratings

ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT
Operating Temperature	T_{OP}	-20	—	+70	°C
Storage Temperature	T_{ST}	-30	—	+80	°C
Input Voltage	V_I	0	—	V_{DD}	V
Supply Voltage For Logic	V_{DD}	0	—	6.5	V
Supply Voltage For LCD	$V_{DD}-V_{EE}$	0	—	32	V

5. Electrical Characteristics

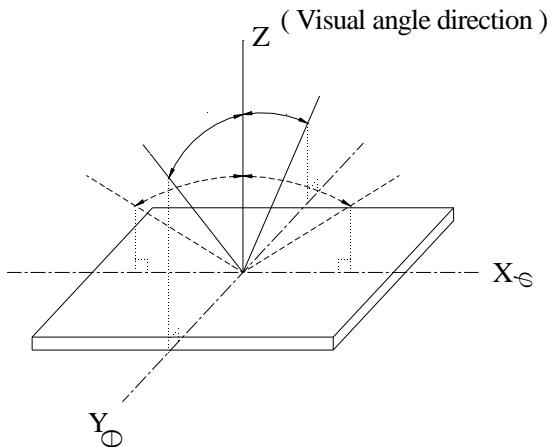
ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Logic Voltage	$V_{DD}-V_{SS}$	—	4.5	5.0	5.5	V
Supply Voltage For LCD	$V_{DD}-V_O$	Ta=-20°C	—	—	26.2	V
		Ta=25°C	—	24.0	—	V
		Ta=+70°C	22.1	—	—	V
Input High Volt.	V_{IH}	—	0.5 V_{DD}	—	V_{DD}	V
Input Low Volt.	V_{IL}	—	V_{SS}	—	0.2 V_{DD}	V
Output High Volt.	V_{OH}	—	2.4	—	—	V
Output Low Volt.	V_{OL}	—	—	—	0.4	V
Supply Current	I_{DD}	—	95.0	100.0	110.0	mA

6. Optical Characteristics

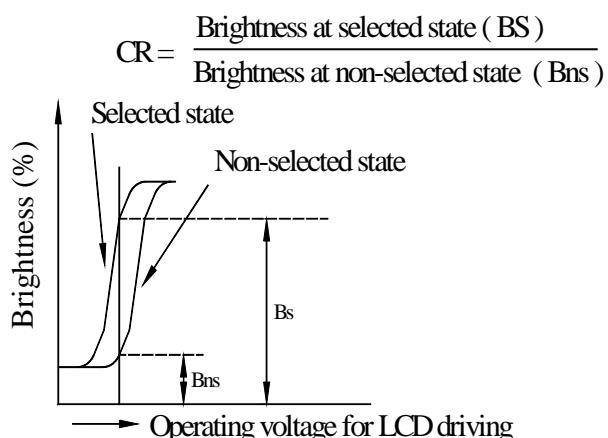
ITEM	SYMBAL	CONDITION	MIN	TYP	MAX	UNIT
View Angle	(V) θ	$CR \geq 2$	30	—	60	deg.
	(H) φ	$CR \geq 2$	-45	—	45	deg.
Contrast Ratio	CR	—	—	5	—	—
Response Time	T rise	—	—	200	300	ms
	T fall	—	—	150	200	ms

6.1 Definitions

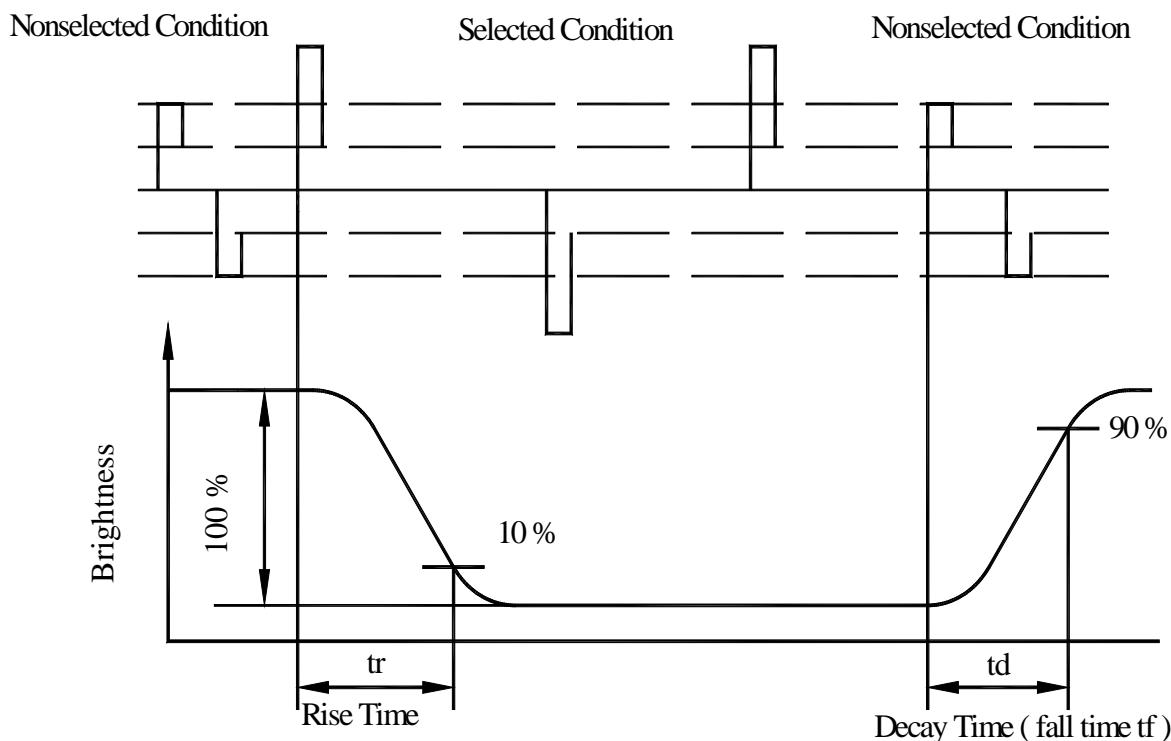
■ View Angles



■ Contrast Ratio



■ Response time

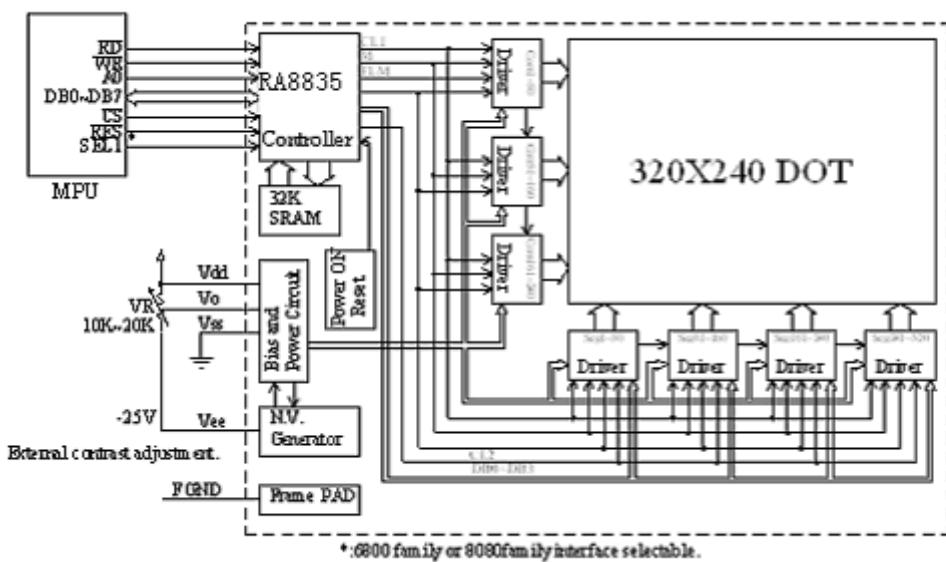
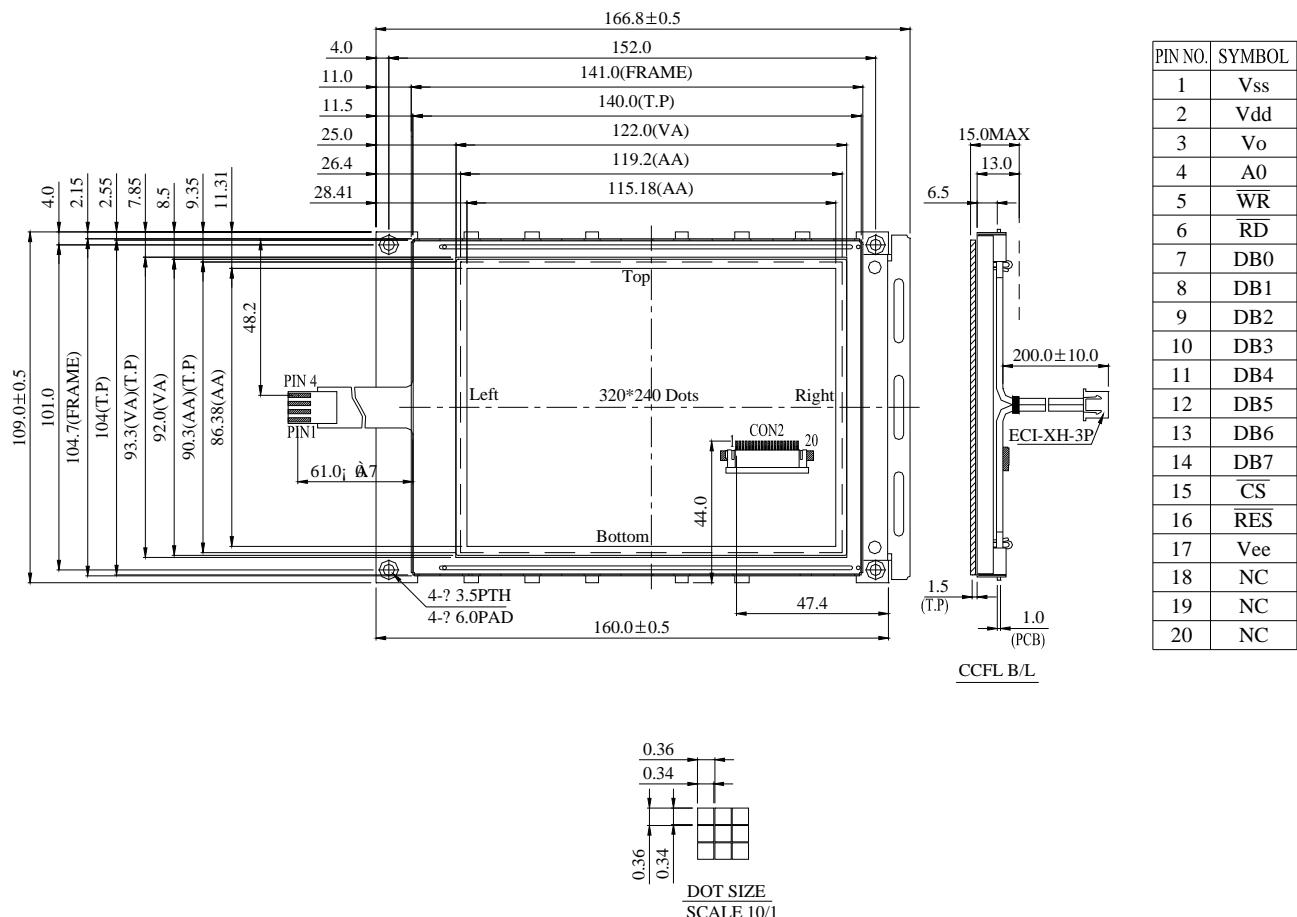


7. Interface Description

Pin No.	Symbol	Level	Description
1	V _{SS}	0V	Ground
2	V _{DD}	5.0V	Power supply for Logic
3	V _O	(Variable)	Driving voltage for LCD
4	A0	H/L	RD=L WR=H ,A0=L :Data Read AO=H :Status read RD=H WR=L ,A0=L :Data Write AO=H :Command write
5	WR	H/L	8080 family MPU interface : Write signal
6	RD	H/L	8080 family MPU interface: Read signal
7~14	DB0~DB7	H/L	Data bus line
15	CS	H/L	Chip select ,Active L
16	RES	H/L	Controller reset signal, Active L
17	V _{EE}	-	Negative voltage output
18	NC		No connection
19	NC		No connection
20	NC		No connection

Note1: Setup by hardware

8. Contour Drawing & Block diagram



9. INSTRUCTION SET

The Command Set

Class	Command	Code												Hex	Command Description
		RD	WR	A0	D7	D6	D5	D4	D3	D2	D1	D0			
System control	SYSTEM SET	1	0	1	0	1	0	0	0	0	0	0	40	Initialize device and display	
	SLEEP IN	1	0	1	0	1	0	1	0	0	1	1	53	Enter standby mode	
Display control	DISP ON/OFF	1	0	1	0	1	0	1	1	0	0	D	58, 59	Enable and disable display and display flashing	
	SCROLL	1	0	1	0	1	0	0	0	1	0	0	44	Set display start address and display regions	
	CSRFORM	1	0	1	0	1	0	1	1	1	0	1	5D	Set cursor type	
	CGRAM ADR	1	0	1	0	1	0	1	1	1	0	0	5C	Set start address of character generator RAM	
	CSRDIR	1	0	1	0	1	0	0	0	1	1	CD 1	CD 0	4C to 4F	Set direction of cursor movement
	HDOT SCR	1	0	1	0	1	0	1	1	0	1	0	5A	Set horizontal scroll position	
	OVLAY	1	0	1	0	1	0	1	1	0	1	1	5B	Set display overlay format	
Drawing control	CSRW	1	0	1	0	1	0	0	0	1	1	0	46	Set cursor address	
	CSRR	1	0	1	0	1	0	0	0	1	1	1	47	Read cursor address	
Memory control	MWRITE	1	0	1	0	1	0	0	0	0	1	0	42	Write to display memory	
	MREAD	1	0	1	0	1	0	0	0	0	1	1	43	Read from display memory	

Notes:

RA8835

- In general, the internal registers of the RA8835 series are modified as each command parameter is input. However, the microprocessor does not have to set all the parameters of a command and may send a new command before all parameters have been input. The internal registers for the parameters that have been input will have been changed but the remaining parameter registers are unchanged.

2-byte parameters (where two bytes are treated as 1 data item) are handled as follows:

- CSRW, CSRR: Each byte is processed individually. The microprocessor may read or write just the low byte of the cursor address.
 - SYSTEM SET, SCROLL, CGRAM ADR: Both parameter bytes are processed together. If the command is changed after half of the parameter has been input, the single byte is ignored.
- APL and APH are 2-byte parameters, but are treated as two 1-byte parameters.

System-Control Command

Initializes the device, sets the window sizes, and selects the LCD interface format. Since this command sets the basic operating parameters of the RA8835 series, an

incorrect SYSTEM SET command may cause other commands to operate incorrectly.

	MSB	D7	D6	D5	D4	D3	D2	D1	D0	LSB	A0	\overline{WR}	\overline{RD}
C		0	1	0	0	0	0	0	0		1	0	1
P1		0	0	IV	1	WIS	M2	M1	M0		0	0	1
P2		WF	0	0	0	0	FX				0	0	1
P3		0	0	0	0	FY					0	0	1
P4		C/R									0	0	1
P5		TC/R									0	0	1
P6		UF									0	0	1
P7		APL									0	0	1
P8		APH									0	0	1

Figure 1. SYSTEM SET instruction

8.2.1.1. C

This control byte performs the following:

1. Resets the internal timing generator
2. Disables the display
3. Cancels sleep mode

Parameters following P1 are not needed if only canceling sleep mode.

8.2.1.2. M0

Selects the internal or external character generator ROM. The internal character generator ROM contains 160, 5 × 7 pixel characters, as shown in figure 70. These characters are fixed at fabrication by the metallization mask. The external character generator ROM, on the other hand, can contain up to 256 user-defined characters.

M0 = 0: Internal CG ROM
M0 = 1: External CG ROM

Note that if the CG ROM address space overlaps the display memory address space, that portion of the display memory cannot be written to.

8.2.1.3. M1

Selects the memory configuration for user-definable characters. The CG RAM codes select one of the 64 codes shown in figure 46.

M1 = 0: No D6 correction.

The CG RAM1 and CG RAM2 address spaces are not contiguous, the CG RAM1 address space is treated as character generator RAM, and the CG RAM2 address space is treated as character generator ROM.

M1 = 1: D6 correction.

The CG RAM1 and CG RAM2 address spaces are contiguous and are both treated as character generator RAM.

10.RELIABILITY

Content of Reliability Test (wide temperature, -20°C~70°C)

Environmental Test			
Test Item	Content of Test	Test Condition	Note
High Temperature storage	Endurance test applying the high storage temperature for a long time.	80°C 200hrs	2
Low Temperature storage	Endurance test applying the high storage temperature for a long time.	-30°C 200hrs	1,2
High Temperature Operation	Endurance test applying the electric stress (Voltage & Current) and the thermal stress to the element for a long time.	70°C 200hrs	—
Low Temperature Operation	Endurance test applying the electric stress under low temperature for a long time.	-20°C 200hrs	1
High Temperature/ Humidity Operation	The module should be allowed to stand at 60°C,90%RH max For 96hrs under no-load condition excluding the polarizer, Then taking it out and drying it at normal temperature.	60°C,90%RH 96hrs	1,2
Thermal shock resistance	The sample should be allowed stand the following 10 cycles of operation -20°C 25°C 70°C 	-20°C/70°C 10 cycles	—
Vibration test	Endurance test applying the vibration during transportation and using.	Total fixed amplitude : 1.5mm Vibration Frequency : 10~55Hz One cycle 60 seconds to 3 directions of X,Y,Z for Each 15 minutes	3
Static electricity test	Endurance test applying the electric stress to the terminal.	VS=800V,RS=1.5kΩ CS=100pF 1 time	—

Note1: No dew condensation to be observed.

Note2: The function test shall be conducted after 4 hours storage at the normal

Note3: Temperature and humidity after remove from theelf without putting it in a container.

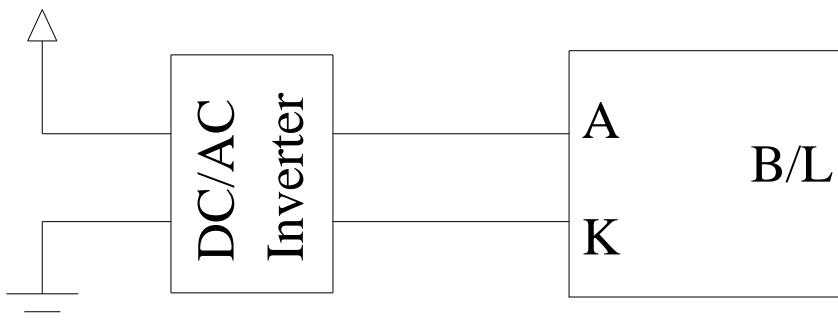
11. Backlight Information

CCFL backlight Specification

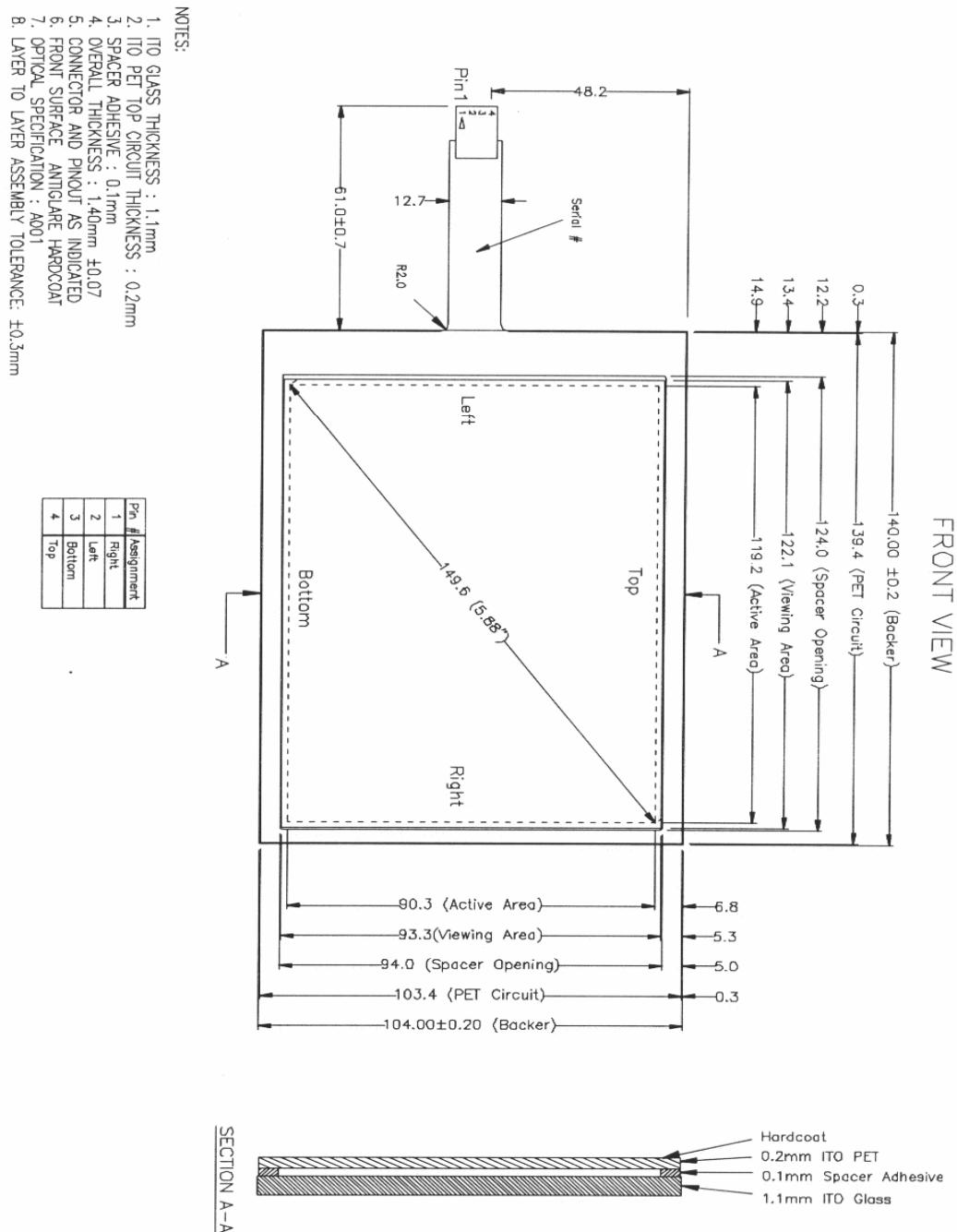
(Ta=25°C)

Item	Symbol	Specification			Unit	Condition
		Min	Typ	Max		
Driving Voltage	V _{FL}	222.4	278	417	Vrms	—
Input current	I _{FL}	4.8	5.0	5.2	mArms	—
Power consumption	W	—	1.35	—	W	—
Starting Voltage	V _{FLS}	—	530	—	Vrms	—
Luminance	L	—	550	—	Cd/m ²	$\varphi, \theta = 0 \text{ deg}, I_{FL} = 5.0 \text{ mArms}$
Chromaticity	x	—	0.340	—	—	—
	y	—	0.370	—	—	—
Luminance Uniformity (Testing 9 point)	—	75%	—	—	%	$\varphi, \theta = 0 \text{ deg}, I_{FL} = 5.0 \text{ mArms}$
Life time	—	17000	—	—	hrs	—

CCFL B\L drives directly from A , K.



12. Touch panel Information



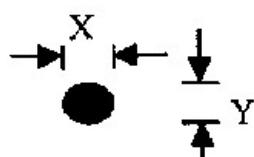
ELECTRICAL SPECIFICATIONS

ITEM	SPECIFICATION	CONDITION
ON RESISTANCE	350Ω ~ 1000Ω	DIRECTION:X
	200Ω ~ 650Ω	DIRECTION:Y
INSULATION RESISTANCE	MORE THAN	DC 25V
	20MΩ	
CHATTERING TIME	LESS THAN	100KΩ PULL-UP
	15 msec	
LINEARITY	±1.5%	X AXIS
	±1.5%	Y AXIS

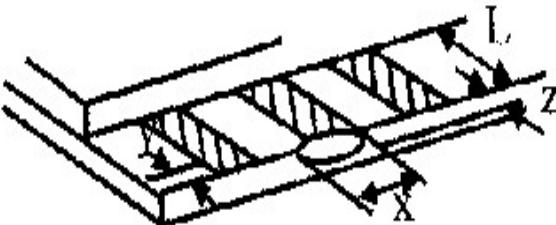
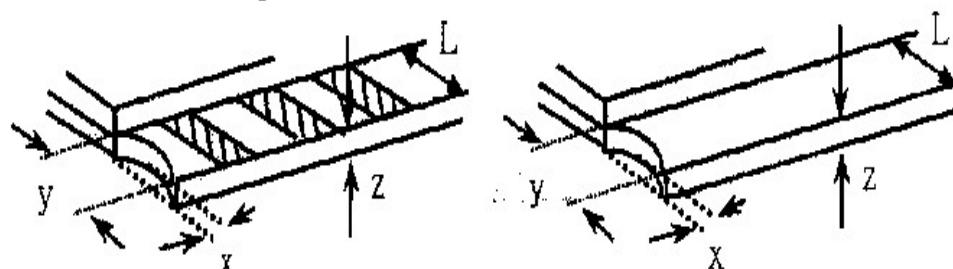
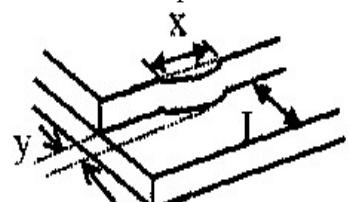
MACHINE SPECIFICATIONS

ITEM	SPECIFICATION	CONDITION
OPERATING FORCE	LESS THAN 80g	R8.0 HS 40 ° SILICON RUBBER OR R0.8 POLYACETAL PEN
SURFACE HARDNESS	MORE THAN 2H	PENCIL TEST
LIGHT TRANSMISSION	MORE THAN 80 %	@550nm HITACHI U3300
DURABILITY FOR PEN SELECTIONS	MORE THAN 1,200,000 TIMES	FORCE:250g SPEED:2cm/sec

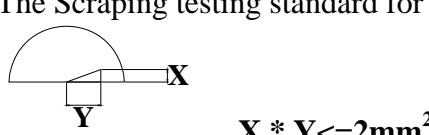
13. Inspection specification

NO	Item	Criterion	AQL																								
01	Electrical Testing	1.1 Missing vertical, horizontal segment, segment contrast defect. 1.2 Missing character , dot or icon. 1.3 Display malfunction. 1.4 No function or no display. 1.5 Current consumption exceeds product specifications. 1.6 LCD viewing angle defect. 1.7 Mixed product types. 1.8 Contrast defect.	0.65																								
02	Black or white spots on LCD (display only)	2.1 White and black spots on display $\leq 0.25\text{mm}$, no more than three white or black spots present. 2.2 Densely spaced: No more than two spots or lines within 3mm	2.5																								
03	LCD black spots, white spots, contamination on (non-display)	3.1 Round type : As following drawing $\Phi = (x + y) / 2$  <table border="1"> <thead> <tr> <th>SIZE</th> <th>Acceptable Q TY</th> </tr> </thead> <tbody> <tr> <td>$\Phi \leq 0.10$</td> <td>Accept no dense</td> </tr> <tr> <td>$0.10 < \Phi \leq 0.20$</td> <td>2</td> </tr> <tr> <td>$0.20 < \Phi \leq 0.25$</td> <td>1</td> </tr> <tr> <td>$0.25 < \Phi$</td> <td>0</td> </tr> </tbody> </table> 3.2 Line type : (As following drawing)  <table border="1"> <thead> <tr> <th>Length</th> <th>Width</th> <th>Acceptable Q TY</th> </tr> </thead> <tbody> <tr> <td>---</td> <td>$W \leq 0.02$</td> <td>Accept no dense</td> </tr> <tr> <td>$L \leq 3.0$</td> <td>$0.02 < W \leq 0.03$</td> <td rowspan="2">2</td> </tr> <tr> <td>$L \leq 2.5$</td> <td>$0.03 < W \leq 0.05$</td> </tr> <tr> <td>---</td> <td>$0.05 < W$</td> <td>As round type</td> </tr> </tbody> </table>	SIZE	Acceptable Q TY	$\Phi \leq 0.10$	Accept no dense	$0.10 < \Phi \leq 0.20$	2	$0.20 < \Phi \leq 0.25$	1	$0.25 < \Phi$	0	Length	Width	Acceptable Q TY	---	$W \leq 0.02$	Accept no dense	$L \leq 3.0$	$0.02 < W \leq 0.03$	2	$L \leq 2.5$	$0.03 < W \leq 0.05$	---	$0.05 < W$	As round type	2.5
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---	$0.05 < W$	As round type																									
04	Polarizer bubbles	If bubbles are visible, judge using black spot specifications, not easy to find, must check in specify direction. <table border="1"> <thead> <tr> <th>Size Φ</th> <th>Acceptable Q TY</th> </tr> </thead> <tbody> <tr> <td>$\Phi \leq 0.20$</td> <td>Accept no dense</td> </tr> <tr> <td>$0.20 < \Phi \leq 0.50$</td> <td>3</td> </tr> <tr> <td>$0.50 < \Phi \leq 1.00$</td> <td>2</td> </tr> <tr> <td>$1.00 < \Phi$</td> <td>0</td> </tr> <tr> <td>Total Q TY</td> <td>3</td> </tr> </tbody> </table>	Size Φ	Acceptable Q TY	$\Phi \leq 0.20$	Accept no dense	$0.20 < \Phi \leq 0.50$	3	$0.50 < \Phi \leq 1.00$	2	$1.00 < \Phi$	0	Total Q TY	3	2.5												
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Total Q TY	3																										

NO	Item	Criterion	AQL																		
05	Scratches	Follow NO.3 LCD black spots, white spots, contamination																			
06	Chipped glass	<p>Symbols Define:</p> <p>x: Chip length y: Chip width z: Chip thickness k: Seal width t: Glass thickness a: LCD side length L: Electrode pad length:</p> <p>6.1 General glass chip :</p> <p>6.1.1 Chip on panel surface and crack between panels:</p> <table border="1"> <tr> <td>z: Chip thickness</td> <td>y: Chip width</td> <td>x: Chip length</td> </tr> <tr> <td>$Z \leq 1/2t$</td> <td>Not over viewing area</td> <td>$x \leq 1/8a$</td> </tr> <tr> <td>$1/2t < z \leq 2t$</td> <td>Not exceed 1/3k</td> <td>$x \leq 1/8a$</td> </tr> </table> <p>④ If there are 2 or more chips, x is total length of each chip.</p> <p>6.1.2 Corner crack:</p> <table border="1"> <tr> <td>z: Chip thickness</td> <td>y: Chip width</td> <td>x: Chip length</td> </tr> <tr> <td>$Z \leq 1/2t$</td> <td>Not over viewing area</td> <td>$x \leq 1/8a$</td> </tr> <tr> <td>$1/2t < z \leq 2t$</td> <td>Not exceed 1/3k</td> <td>$x \leq 1/8a$</td> </tr> </table> <p>④ If there are 2 or more chips, x is the total length of each chip.</p>	z: Chip thickness	y: Chip width	x: Chip length	$Z \leq 1/2t$	Not over viewing area	$x \leq 1/8a$	$1/2t < z \leq 2t$	Not exceed 1/3k	$x \leq 1/8a$	z: Chip thickness	y: Chip width	x: Chip length	$Z \leq 1/2t$	Not over viewing area	$x \leq 1/8a$	$1/2t < z \leq 2t$	Not exceed 1/3k	$x \leq 1/8a$	2.5
z: Chip thickness	y: Chip width	x: Chip length																			
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NO	Item	Criterion	AQL																
06	Glass crack	<p>Symbols :</p> <p>x: Chip length y: Chip width z: Chip thickness k: Seal width t: Glass thickness a: LCD side length L: Electrode pad length</p> <p>6.2 Protrusion over terminal :</p> <p>6.2.1 Chip on electrode pad :</p>  <table border="1"> <tr> <td>y: Chip width</td> <td>x: Chip length</td> <td>z: Chip thickness</td> </tr> <tr> <td>$y \leq 0.5\text{mm}$</td> <td>$x \leq 1/8a$</td> <td>$0 < z \leq t$</td> </tr> </table> <p>6.2.2 Non-conductive portion:</p>  <table border="1"> <tr> <td>y: Chip width</td> <td>x: Chip length</td> <td>z: Chip thickness</td> </tr> <tr> <td>$y \leq L$</td> <td>$x \leq 1/8a$</td> <td>$0 < z \leq t$</td> </tr> </table> <ul style="list-style-type: none"> ○ If the chipped area touches the ITO terminal, over 2/3 of the ITO must remain and be inspected according to electrode terminal specifications. ○ If the product will be heat sealed by the customer, the alignment mark not be damaged. <p>6.2.3 Substrate protuberance and internal crack.</p>  <table border="1"> <tr> <td>y: width</td> <td>x: length</td> </tr> <tr> <td>$y \leq 1/3L$</td> <td>$x \leq a$</td> </tr> </table>	y: Chip width	x: Chip length	z: Chip thickness	$y \leq 0.5\text{mm}$	$x \leq 1/8a$	$0 < z \leq t$	y: Chip width	x: Chip length	z: Chip thickness	$y \leq L$	$x \leq 1/8a$	$0 < z \leq t$	y: width	x: length	$y \leq 1/3L$	$x \leq a$	2.5
y: Chip width	x: Chip length	z: Chip thickness																	
$y \leq 0.5\text{mm}$	$x \leq 1/8a$	$0 < z \leq t$																	
y: Chip width	x: Chip length	z: Chip thickness																	
$y \leq L$	$x \leq 1/8a$	$0 < z \leq t$																	
y: width	x: length																		
$y \leq 1/3L$	$x \leq a$																		

NO	Item	Criterion	AQL
----	------	-----------	-----

07	Cracked glass	The LCD with extensive crack is not acceptable.	2.5
08	Backlight elements	8.1 Illumination source flickers when lit. 8.2 Spots or scratched that appear when lit must be judged. Using LCD spot, lines and contamination standards. 8.3 Backlight doesn't light or color wrong.	0.65 2.5 0.65
09	Bezel	9.1 Bezel may not have rust, be deformed or have fingerprints, stains or other contamination. 9.2 Bezel must comply with job specifications.	2.5 0.65
10	PCB 、 COB	10.1 COB seal may not have pinholes larger than 0.2mm or contamination. 10.2 COB seal surface may not have pinholes through to the IC. 10.3 The height of the COB should not exceed the height indicated in the assembly diagram. 10.4 There may not be more than 2mm of sealant outside the seal area on the PCB. And there should be no more than three places. 10.5 No oxidation or contamination PCB terminals. 10.6 Parts on PCB must be the same as on the production characteristic chart. There should be no wrong parts, missing parts or excess parts. 10.7 The jumper on the PCB should conform to the product characteristic chart. 10.8 If solder gets on bezel tab pads, LED pad, zebra pad or screw hold pad, make sure it is smoothed down. 10.9 The Scraping testing standard for Copper Coating of PCB 	2.5 2.5 0.65 2.5 2.5 0.65 0.65 2.5 2.5 2.5
11	Soldering	11.1 No un-melted solder paste may be present on the PCB. 11.2 No cold solder joints, missing solder connections, oxidation or icicle. 11.3 No residue or solder balls on PCB. 11.4 No short circuits in components on PCB.	2.5 2.5 2.5 0.65

NO	Item	Criterion	AQL
12	General appearance	<p>12.1 No oxidation, contamination, curves or, bends on interface Pin (OLB) of TCP.</p> <p>12.2 No cracks on interface pin (OLB) of TCP.</p> <p>12.3 No contamination, solder residue or solder balls on product.</p> <p>12.4 The IC on the TCP may not be damaged, circuits.</p> <p>12.5 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.</p> <p>12.6 The residual rosin or tin oil of soldering (component or chip component) is not burned into brown or black color.</p> <p>12.7 Sealant on top of the ITO circuit has not hardened.</p> <p>12.8 Pin type must match type in specification sheet.</p> <p>12.9 LCD pin loose or missing pins.</p> <p>12.10 Product packaging must the same as specified on packaging specification sheet.</p> <p>12.11 Product dimension and structure must conform to product specification sheet.</p>	<p>2.5</p> <p>0.65</p> <p>2.5</p> <p>2.5</p> <p>2.5</p> <p>2.5</p> <p>2.5</p> <p>0.65</p> <p>0.65</p> <p>0.65</p> <p>0.65</p>

14. Material List of Components for RoHs

1. WINSTAR Display Co., Ltd hereby declares that all of or part of products (with the mark “#”in code), including, but not limited to, the LCM, accessories or packages, manufactured and/or delivered to your company (including your subsidiaries and affiliated company) directly or indirectly by our company (including our subsidiaries or affiliated companies) do not intentionally contain any of the substances listed in all applicable EU directives and regulations, including the following substances.

Exhibit A : The Harmful Material List

Material	(Cd)	(Pb)	(Hg)	(Cr6+)	PBBs	PBDEs
Limited Value	100 ppm	1000 ppm				

Above limited value is set up according to RoHS.

2.Process for RoHS requirement :

(1) Use the Sn/Ag/Cu soldering surface ; the surface of Pb-free solder is rougher than we used before.

(2) Heat-resistance temp. :

Reflow : 250 ,30 seconds Max. ;

Connector soldering wave or hand soldering : 320 , 10 seconds max.

(3) Temp. curve of reflow, max. Temp. : 235±5 ;

Recommended customer's soldering temp. of connector : 280 , 3 seconds.



winstar

LCM Sample Estimate Feedback Sheet

1、Panel Specification :

- | | | |
|----------------------------|-------------------------------|-------------------------------------|
| 1. Panel Type : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 2. View Direction : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 3. Numbers of Dots : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 4. View Area : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 5. Active Area : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 6. Operating Temperature : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 7. Storage Temperature : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 8. Others : | _____ | |

2、Mechanical Specification :

- | | | |
|-----------------------------|-------------------------------|-------------------------------------|
| 1. PCB Size : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 2. Frame Size : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 3. Material of Frame : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 4. Connector Position : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 5. Fix Hole Position : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 6. Backlight Position : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 7. Thickness of PCB : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 8. Height of Frame to PCB : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 9. Height of Module : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 10. Others : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |

3、Relative Hole Size :

- | | | |
|-----------------------------|-------------------------------|-------------------------------------|
| 1. Pitch of Connector : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 2. Hole size of Connector : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 3. Mounting Hole size : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 4. Mounting Hole Type : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 5. Others : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |

4、Backlight Specification :

- | | | |
|--|---|-------------------------------------|
| 1. B/L Type : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 2. B/L Color : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 3. B/L Driving Voltage (Reference for LED) | <input type="checkbox"/> Pass <input type="checkbox"/> NG , _____ | |
| 4. B/L Driving Current : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 5. Brightness of B/L : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 6. B/L Solder Method : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 7. Others : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |

>> Go to page 2 <<

Module Number : _____

Page: 2

5、Electronic Characteristics of Module :

- | | | |
|------------------------------|-------------------------------|-------------------------------------|
| 1. Input Voltage : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 2. Supply Current : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 3. Driving Voltage for LCD : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 4. Contrast for LCD : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 5. B/L Driving Method : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 6. Negative Voltage Output : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 7. Interface Function : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 8. LCD Uniformity : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 9. ESD test : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 10. Others : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |

6、Summary :

Sales signature : _____

Customer Signature : _____

Date : / /