



# Specification for Approval

Product No. : FG12864146-FLBS

Customer : \_\_\_\_\_

Prepared by	Checked by	Approved by
<b>Zeng Yu</b>	<b>Liwentao</b>	<b>Yaofuheng</b>

<b>Customer Approval</b>	<input type="checkbox"/> Accept
	<input type="checkbox"/> Reject
	Comment:
	Approved by: _____

**Your confirmation of this specification is very important! It's undoubted this attached specification will be regarded as your approval once you confirmed our LCM sample. Also, further mass production will subject to this specification .**



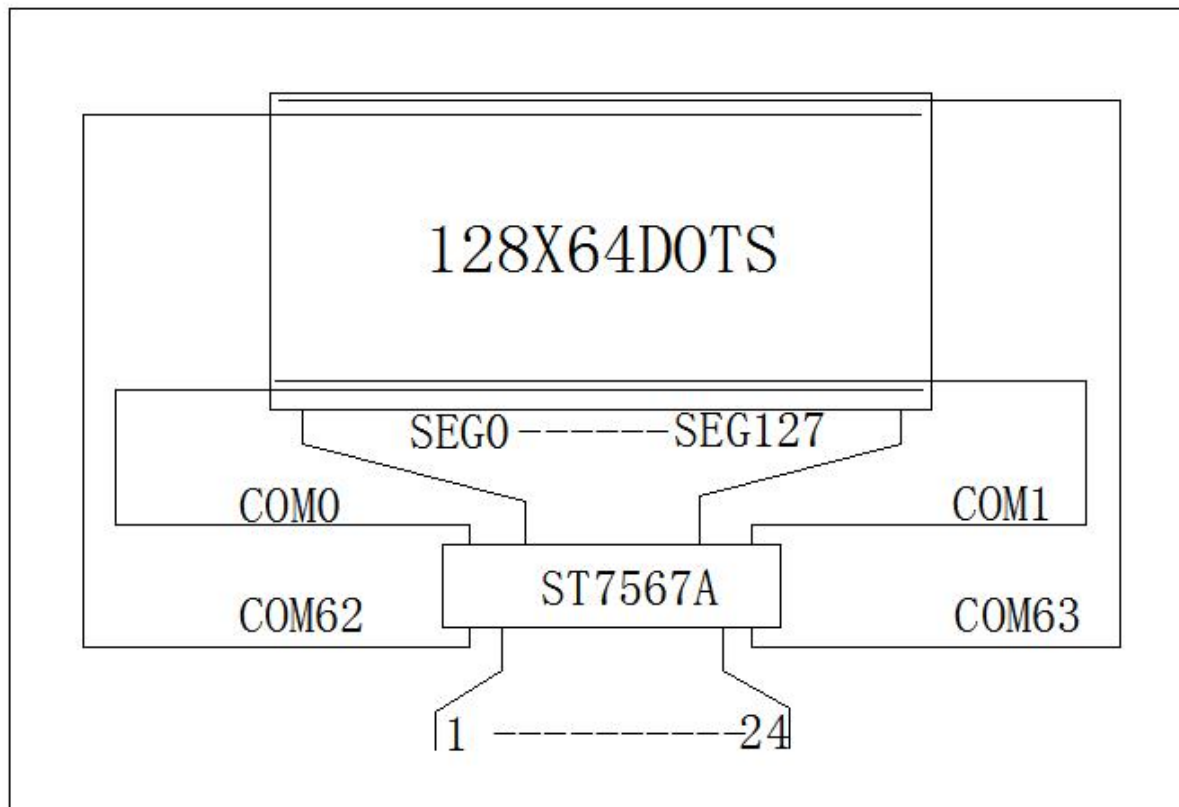
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## 1 FUNCTION & FEATURES

ITEM	Normal dimensions
Display Format	128*64 DOTS
Module dimension	90.2(W)*56.2(H)*6.1(T_Max)MM
Viewing area	84(W)*44(H) MM
Duty/bias	1/65DUTY,1/9BIAS
LCD mode	FSTN/POSITIVE/TRANSMISSIVE
Viewing direction	12:00 O'clock

## 2 BLOCK DIAGRAM



### 3 DIMENSIONAL CD DRAWING

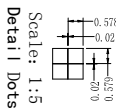
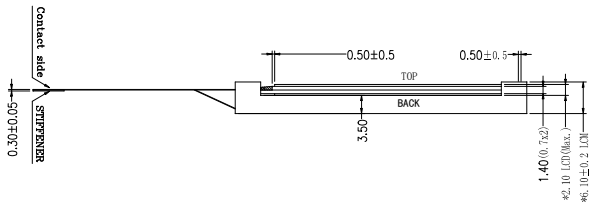
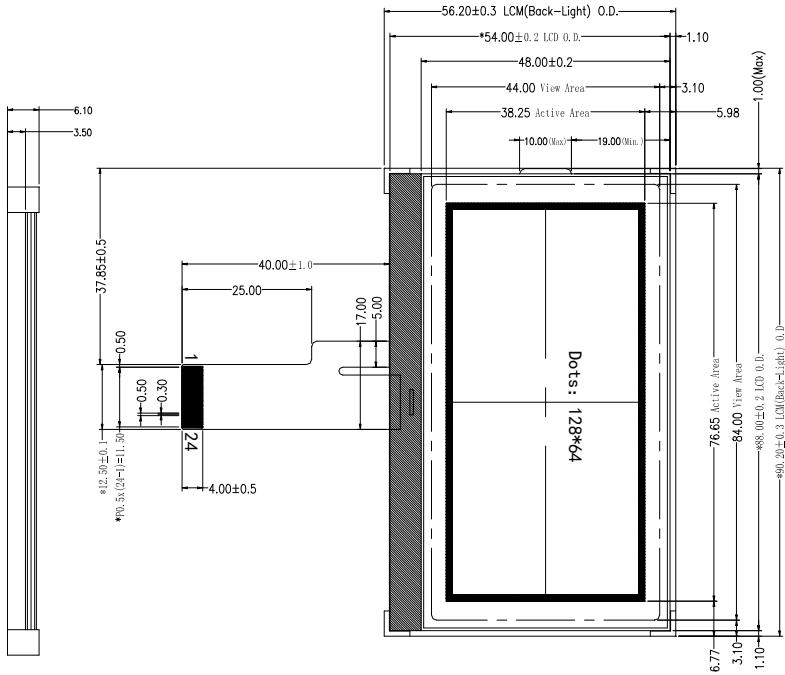
Customer Approve By

REV  
A0

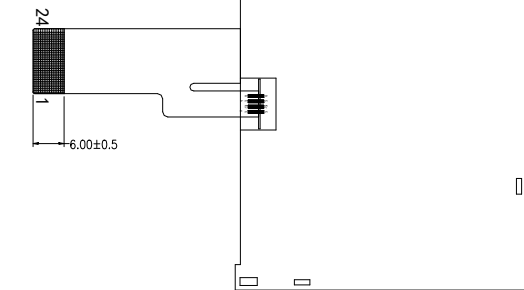
DESCRIPTION  
1<sup>ST</sup> DESIGN

MODIFY BY  
ZY

DATE  
2020-12-2



LED Circuit Diagram  
If=20mA/Vf=1.5V, VfG=16.5V, VfB=16.75V



PN	SYMBOL
1	LED KR
2	LED KR
3	LED KB
4	LED A
5	NC
6	CB6
7	VG
8	V0
9	XV0
10	VSS
11	VDD
12	D7
13	D6
14	D5
15	D4
16	D3
17	D2
18	D1
19	D0
20	EBD
21	RwR
22	A0
23	RSTB
24	CSB

- Note:
- 1.Display Model:
  - 2.Driving Condition:
  - 3.Viewing Direction:
  - 4.Operating Temp:
  - 5.LCD Connector:
  - 6.IC:
  - 7.Backlight: RGB LED 5\*3, If=20mA/Vf=1.5V, VfG=16.5V, VfB=16.75V
  - 8.Unspecified tolerance is ±0.2mm
  - 9.CENTRL DIMENSION: \*
  - 10.REFERENCE DIMENSION: ( )



湖南飞优特电子科技有限公司  
Hunan Future Electronics Technology Co., Ltd.

UNIT: MM  
SIZE: A4  
SHEET: 1 OF 2

LCM NO. : FG12864146-FLBS	DWG NO. : FG12864146-FLBS-CD	REV: A0
DRAWN BY : ZY	CHECKED BY : XD	APPROVED BY : YFH

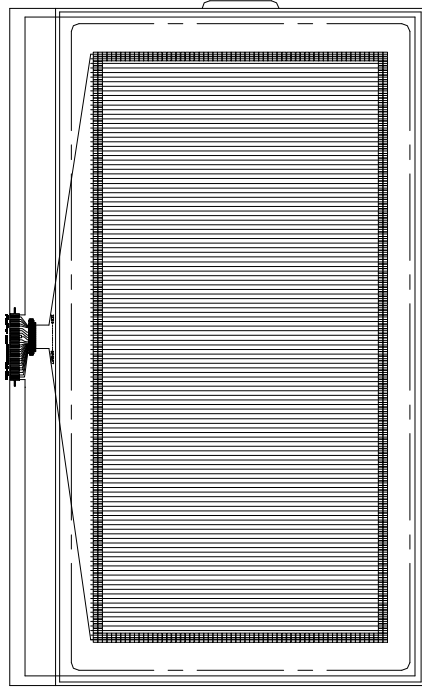
Customer Approve By

REV  
A0

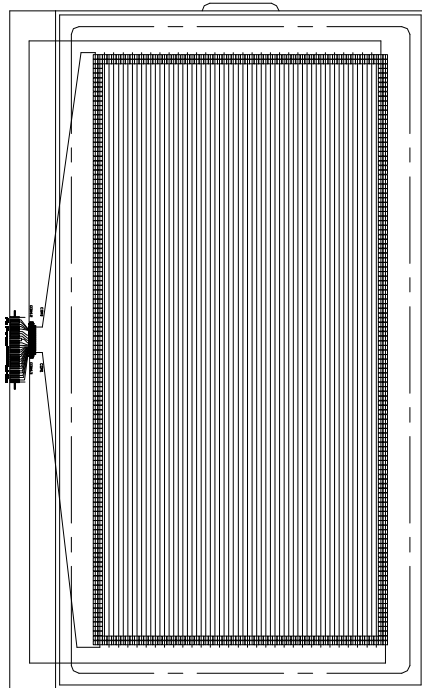
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1<sup>ST</sup> DESIGN

MODIFY BY  
ZY



DATE  
2020-12-2



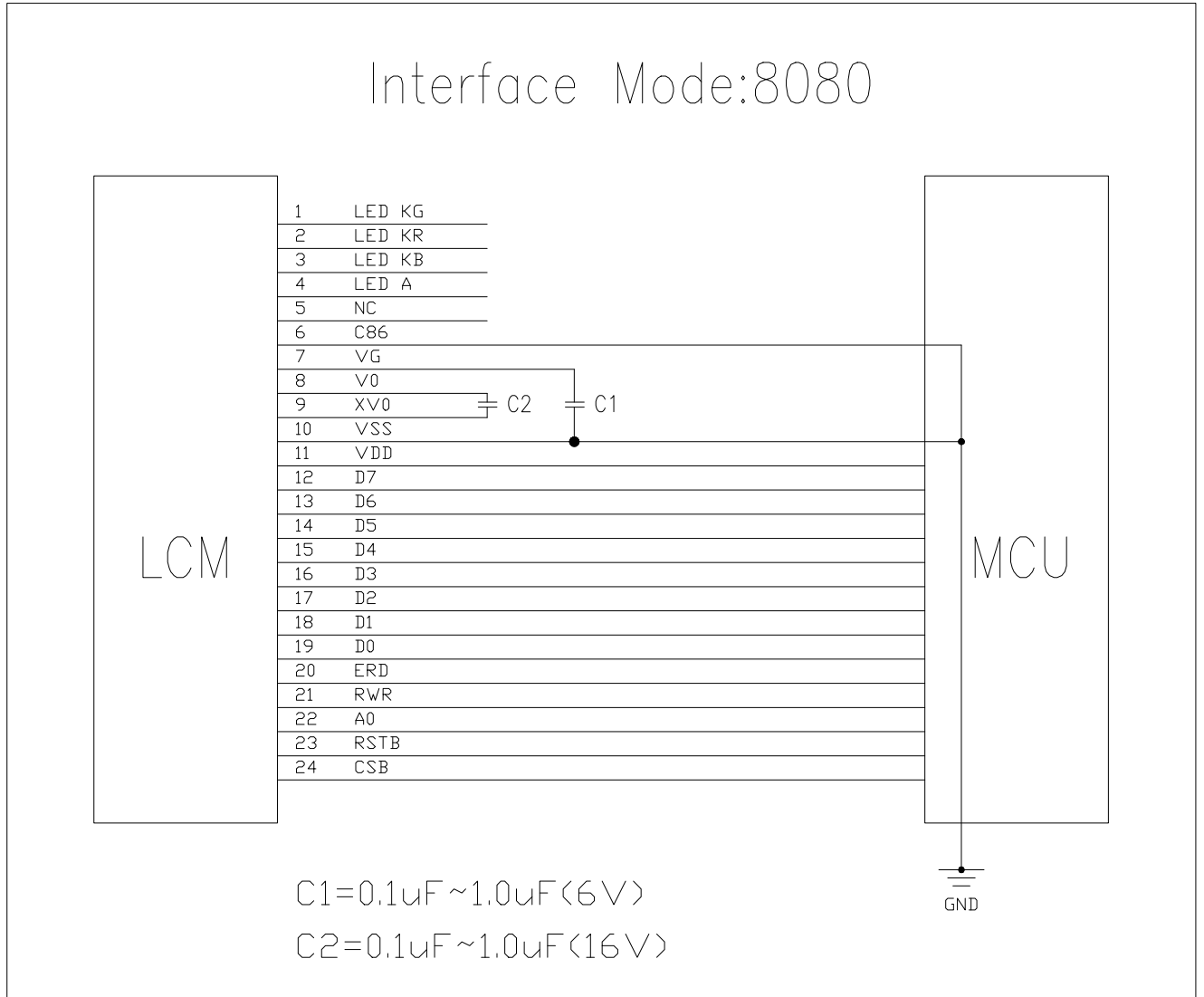
SEGMENT



COMMON

 湖南飞优特电子科技有限公司 Hunan Future Electronics Technology Co.,Ltd.	 CD
LCM NO.: FG12864146-FLBS      DWG NO.: FG12864146-FLBS-CD	REV: A0
DRAWN BY: ZY      CHECKED BY: XD      APPROVED BY:	YPH

## 4 POWER SUPPLY



## 5 PIN DESCRIPTION

Pin no.	Symbol	Function												
1	LED KG	BLG Ground												
2	LED KR	BLR Ground												
3	LED KB	BLB Ground												
4	LED A	BL Power suppl												
5	NC	NC												
6	C86	C86 selects the microprocessor type in parallel interface mode.												
7	VG	VG is the LCD driving voltage for segment circuits.												
8	V0	V0 is the LCD driving voltage for common circuits at negative frame.												
9	XV0	XV0 is the LCD driving voltage for common circuits at positive frame.												
10	VSS	Ground												
11	VDD	Power supply												
12	D7	8-bit bi-directional data bus. Connect to the data bus of 8-bit microprocessor. When CSB is non-active (CSB="H"), D[7:0] pins are high impedance.												
13	D6													
14	D5													
15	D4													
16	D3													
17	D2													
18	D1													
19	D0													
20	ERD	<table border="1"> <thead> <tr> <th>C86</th> <th>MPU Type</th> <th>ERD</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>H</td> <td>6800 series</td> <td>E</td> <td>Read/Write control input pin. R/W="H": When E is "H", D[7:0] are in output mode. R/W="L": Signals on D[7:0] are latched at the falling edge of E signal.</td> </tr> <tr> <td>L</td> <td>8080 series</td> <td>/RD</td> <td>Read enable input pin. When /RD is "L", D[7:0] are in output mode.</td> </tr> </tbody> </table>	C86	MPU Type	ERD	Description	H	6800 series	E	Read/Write control input pin. R/W="H": When E is "H", D[7:0] are in output mode. R/W="L": Signals on D[7:0] are latched at the falling edge of E signal.	L	8080 series	/RD	Read enable input pin. When /RD is "L", D[7:0] are in output mode.
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H	6800 series	E	Read/Write control input pin. R/W="H": When E is "H", D[7:0] are in output mode. R/W="L": Signals on D[7:0] are latched at the falling edge of E signal.											
L	8080 series	/RD	Read enable input pin. When /RD is "L", D[7:0] are in output mode.											



LCD,LCM Specialist

		Read/Write execution control pin. When PSB is "H",			
		C86	MPU Type	RWR	Description
21	RWR	H	6800 series	R/W	Read/Write control input pin. R/W="H": read. R/W="L": write.
		L	8080 series	/WR	Write enable input pin. Signals on D[7:0] will be latched at the rising edge of /WR signal.
22	A0	It determines whether the access is related to data or command. A0="H" : Indicates that signals on D[7:0] are display data. A0="L" : Indicates that signals on D[7:0] are command			
23	RSTB	When /RSTB is set to "L", the register settings are initialized (cleared).			
24	CSB	Chip select signal			

## 6 MAXIMUM ABSOLUTE LIMIT (T=25°C)

In accordance with the Absolute Maximum Rating System; please refer to notes 1 and 2.

Parameter	Symbol	Conditions	Unit
Digital Power Supply Voltage	VDD1	-0.3 ~ 3.6	V
Analog Power supply voltage	VDD2, VDD3	-0.3 ~ 3.6	V
LCD Power supply voltage	V0-XV0	-0.3 ~ 16	V
LCD Power driving voltage	VG, VM	-0.3 ~ VDD2	V
Operating temperature	TOPR	-30 to +85	°C
Storage temperature	TSTR	-65 to +150	°C

## 7 ELECTRICAL CHARACTERISTICS

### 7.1 DC Characteristics(T=25°C, VSS=0V)

VDD1=1.8V to 3.3V, VSS=0V; Tamb = -30°C to +85°C; unless otherwise specified.

Item	Symbol	Condition	Rating			Unit	Applicable Pin	
			Min.	Typ.	Max.			
Operating Voltage (1)	VDD1		1.8	—	3.3	V	VDD1	
Operating Voltage (2)	VDD2		2.4	—	3.3	V	VDD2	
Operating Voltage (3)	VDD3		2.4	—	3.3	V	VDD3	
Input High-level Voltage	V <sub>IHC</sub>		0.7 x VDD1	—	VDD1	V	MPU Interface	
Input Low-level Voltage	V <sub>ILC</sub>		VSS1	—	0.3 x VDD1	V	MPU Interface	
Output High-level Voltage	V <sub>OHC</sub>	I <sub>OUT</sub> =1mA, VDD1=1.8V	0.8 x VDD1	—	VDD1	V	D[7:0]	
Output Low-level Voltage	V <sub>OLC</sub>	I <sub>OUT</sub> =-1mA, VDD1=1.8V	VSS1	—	0.2 x VDD1	V	D[7:0]	
Input Leakage Current	I <sub>LI</sub>		-1.0	—	1.0	μA	MPU Interface	
Output Leakage Current	I <sub>LO</sub>		-3.0	—	3.0	μA	MPU Interface	
Liquid Crystal Driver ON Resistance	R <sub>ON</sub>	Ta=25°C	V <sub>OP</sub> =8.5V, ΔV=0.85V	—	0.6	0.8	KΩ	COMx
			V <sub>G</sub> =1.9V, ΔV=0.19V	—	1.3	1.5	KΩ	SEGx
Frame Frequency	FR	Duty=1/65, V <sub>OP</sub> =8.5V Ta = 25°C	70	75	80	Hz		

Note:

1. Recommend application V<sub>OP</sub> range : 4V ~ 9.5V (.
2. LCD module size : 1.8" (max).

Current consumption: During Display, with internal power system, current consumed by whole IC (bare die).

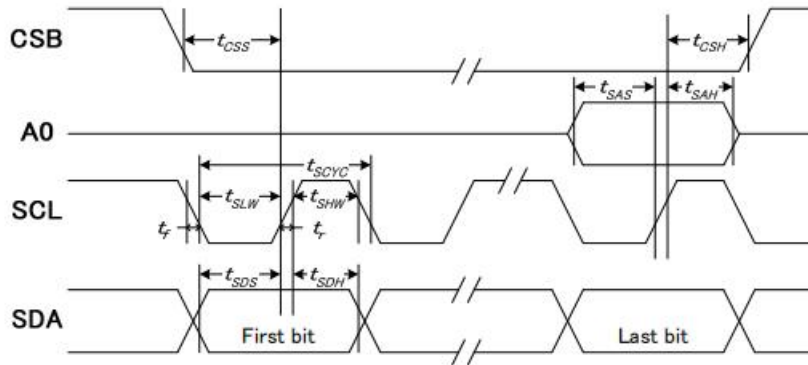
Test Pattern	Symbol	Condition	Rating			Unit	Note
			Min.	Typ.	Max.		
Display Pattern: SNOW (Static)	ISS	VDD1=VDD2=VDD3=3.0V, Booster X5 V <sub>OP</sub> = 8.5 V, Bias=1/9 Ta=25°C	—	140	220	μA	
Power Down	ISS	VDD1=VDD2=3.0V, Ta=25°C	—	10	16	μA	

## 7.2 Backlight Specifications (Ta=25°C)

Item	Symbol	Min	Typ	Max	Unit	Condition
Forward voltage	Vf R	-	11.5V	-	V	A-K
	Vf G		16.5			A-K
	Vf B		16.75			A-K
forward current	If	---	20mA	---	mA	A-K
Color	RGB					

## 7.3 AC Characteristics

System Bus Timing for 4-Line Serial Interface



(VDD = 3.3V, Ta = -30~85°C)

Item	Signal	Symbol	Condition	Min.	Max.	Unit
Serial clock period		tSCYC		50	—	ns
SCLK "H" pulse width	SCLK	tSHW		25	—	
SCLK "L" pulse width		tSLW		25	—	
Address setup time	A0	tSAS		20	—	
Address hold time		tSAH		10	—	
Data setup time	SDA	tSDS		20	—	
Data hold time		tSDH		10	—	
CSB-SCLK time	CSB	tCSS		20	—	
CSB-SCLK time		tCSH		40	—	

(VDD = 2.8V, Ta = -30~85°C)

Item	Signal	Symbol	Condition	Min.	Max.	Unit
Serial clock period		tSCYC		100	—	ns
SCLK "H" pulse width	SCLK	tSHW		50	—	
SCLK "L" pulse width		tSLW		50	—	
Address setup time	A0	tSAS		30	—	
Address hold time		tSAH		20	—	
Data setup time	SDA	tSDS		30	—	
Data hold time		tSDH		20	—	
CSB-SCLK time	CSB	tCSS		30	—	
CSB-SCLK time		tCSH		60	—	

## 8 Instruction Description

### 8. INSTRUCTION TABLE

INSTRUCTION	A0	R/W (RWR)	COMMAND BYTE								DESCRIPTION
			D7	D6	D5	D4	D3	D2	D1	D0	
(1) Display ON/OFF	0	0	1	0	1	0	1	1	1	D	D=1, display ON D=0, display OFF
(2) Set Start Line	0	0	0	1	S5	S4	S3	S2	S1	S0	Set display start line
(3) Set Page Address	0	0	1	0	1	1	Y3	Y2	Y1	Y0	Set page address
(4) Set Column Address	0	0	0	0	0	1	X7	X6	X5	X4	Set column address (MSB)
	0	0	0	0	0	0	X3	X2	X1	X0	Set column address (LSB)
(5) Read Status	0	1	0	MX	D	RST	0	0	0	0	Read IC Status
(6) Write Data	1	0	D7	D6	D5	D4	D3	D2	D1	D0	Write display data to RAM
(7) Read Data	1	1	D7	D6	D5	D4	D3	D2	D1	D0	Read display data from RAM
(8) SEG Direction	0	0	1	0	1	0	0	0	0	MX	Set scan direction of SEG MX=1, reverse direction MX=0, normal direction
(9) Inverse Display	0	0	1	0	1	0	0	1	1	INV	INV=1, inverse display INV=0, normal display
(10) All Pixel ON	0	0	1	0	1	0	0	1	0	AP	AP=1, set all pixel ON AP=0, normal display
(11) Bias Select	0	0	1	0	1	0	0	0	1	BS	Select bias setting 0=1/9; 1=1/7 (at 1/65 duty)
(12) Read-modify-Write	0	0	1	1	1	0	0	0	0	0	Column address increment: Read:+0, Write:+1
(13) END	0	0	1	1	1	0	1	1	1	0	Exit Read-modify-Write mode
(14) RESET	0	0	1	1	1	0	0	0	1	0	Software reset
(15) COM Direction	0	0	1	1	0	0	MY	-	-	-	Set output direction of COM MY=1, reverse direction MY=0, normal direction
(16) Power Control	0	0	0	0	1	0	1	VB	VR	VF	Control built-in power circuit ON/OFF
(17) Regulation Ratio	0	0	0	0	1	0	0	RR2	RR1	RR0	Select regulation resistor ratio
(18) Set EV	0	0	1	0	0	0	0	0	0	1	Double command!! Set electronic volume (EV) level
	0	0	0	0	EV5	EV4	EV3	EV2	EV1	EV0	
(19) Set Booster	0	0	1	1	1	1	1	0	0	0	Double command!! Set booster level: 00=4X, 01=5X, 10=6X
	0	0	0	0	0	0	0	0	BL1	BL0	
(20) Power Save	0	0	Compound Command								Display OFF + All Pixel ON
(21) NOP	0	0	1	1	1	0	0	0	1	1	No operation
(22) Test	0	0	1	1	1	1	1	1	1	-	Do NOT use. Reserved for testing.

Note: Symbol "-" means this bit can be "H" or "L".

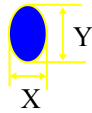
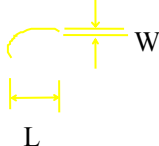
## 9 QUALITY SPECIFICATIONS

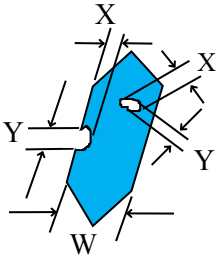
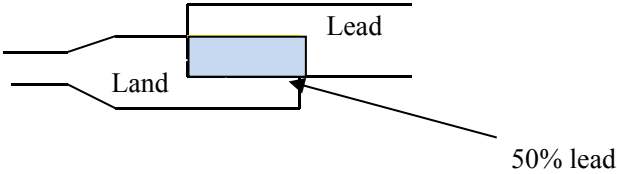
### 9.1 Defect classification

Classify	Item		Note	AQL
Major	Display state	Short or open circuit	1	0.65
		Contrast defect (dim, ghost)		
		LC leakage		
		Flickering		
		No display		
		Wrong viewing direction	2	
		Wrong Back-light	7	
	Non-display	Flat cable or pin reverse	9	
		Wrong or missing component	10	
	Minor	Display state	Background color deviation	
Black spot and dust			3	
Line defect			4	
Scratch				
Rainbow			5	
Pin hole			6	
Polarizer		Bubble and foreign material	3	
		Scratch	4	
PCB		Scratch	4	
Soldering		Poor connection	8	
Wire		Poor connection	9	



**9.2 Note on defect classification**

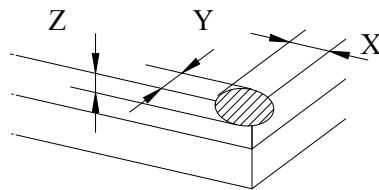
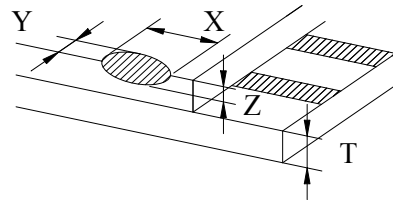
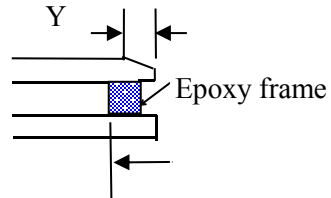
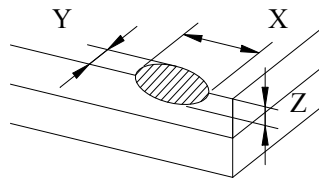
No.	Item	Criterion																			
1	Short or open circuit	Not allow																			
	LC leakage																				
	Flickering																				
	No display																				
	Wrong viewing direction																				
	Wrong Back-light																				
2	Contrast defect	Refer to approval sample																			
	Background color deviation																				
3	Point defect, Black spot, dust (incl. Polarizer)  $\phi = (X+Y)/2$	 <table border="1" data-bbox="941 896 1380 1187"> <thead> <tr> <th>Point Size</th> <th>Acceptable Qty.</th> </tr> </thead> <tbody> <tr> <td><math>\phi \leq 0.10</math></td> <td>Disregard</td> </tr> <tr> <td rowspan="2"><math>0.10 &lt; \phi \leq 0.15</math></td> <td>Positive:3</td> </tr> <tr> <td>Negative:2</td> </tr> <tr> <td rowspan="2"><math>0.15 &lt; \phi \leq 0.25</math></td> <td>Positive:2</td> </tr> <tr> <td>Negative:1</td> </tr> <tr> <td><math>\phi &gt; 0.25</math></td> <td>0</td> </tr> </tbody> </table> <p style="text-align: right;">Unit: mm</p>	Point Size	Acceptable Qty.	$\phi \leq 0.10$	Disregard	$0.10 < \phi \leq 0.15$	Positive:3	Negative:2	$0.15 < \phi \leq 0.25$	Positive:2	Negative:1	$\phi > 0.25$	0							
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	Negative:1																				
$\phi > 0.25$	0																				
4	Line defect	 <table border="1" data-bbox="869 1377 1420 1635"> <thead> <tr> <th colspan="2">Line</th> <th rowspan="2">Acceptable Qty.</th> </tr> <tr> <th>L</th> <th>W</th> </tr> </thead> <tbody> <tr> <td>---</td> <td><math>0.015 \geq W</math></td> <td>Disregard</td> </tr> <tr> <td><math>3.0 \geq L</math></td> <td><math>0.03 \geq W</math></td> <td rowspan="2">2</td> </tr> <tr> <td><math>2.0 \geq L</math></td> <td><math>0.05 \geq W</math></td> </tr> <tr> <td><math>1.0 \geq L</math></td> <td><math>0.1 &gt; W</math></td> <td>1</td> </tr> <tr> <td>---</td> <td><math>0.05 &lt; W</math></td> <td>Applied as point defect</td> </tr> </tbody> </table> <p style="text-align: right;">Unit: mm</p>	Line		Acceptable Qty.	L	W	---	$0.015 \geq W$	Disregard	$3.0 \geq L$	$0.03 \geq W$	2	$2.0 \geq L$	$0.05 \geq W$	$1.0 \geq L$	$0.1 > W$	1	---	$0.05 < W$	Applied as point defect
Line		Acceptable Qty.																			
L	W																				
---	$0.015 \geq W$	Disregard																			
$3.0 \geq L$	$0.03 \geq W$	2																			
$2.0 \geq L$	$0.05 \geq W$																				
$1.0 \geq L$	$0.1 > W$	1																			
---	$0.05 < W$	Applied as point defect																			
5	Rainbow	Not more than two color changes across the viewing area.																			

No.	Item	Criterion								
6	Segment pattern W = Segment width $\phi = (X+Y)/2$	<p>(1) Pin hole <math>\phi &lt; 0.10\text{mm}</math> is acceptable.</p>  <table border="1" data-bbox="933 526 1394 696"> <thead> <tr> <th>Point Size</th> <th>Acceptable Qty</th> </tr> </thead> <tbody> <tr> <td><math>\phi \leq 1/4W</math></td> <td>Disregard</td> </tr> <tr> <td><math>1/4W &lt; \phi \leq 1/2W</math></td> <td>1</td> </tr> <tr> <td><math>\phi &gt; 1/2W</math></td> <td>0</td> </tr> </tbody> </table> <p style="text-align: right;">Unit: mm</p>	Point Size	Acceptable Qty	$\phi \leq 1/4W$	Disregard	$1/4W < \phi \leq 1/2W$	1	$\phi > 1/2W$	0
Point Size	Acceptable Qty									
$\phi \leq 1/4W$	Disregard									
$1/4W < \phi \leq 1/2W$	1									
$\phi > 1/2W$	0									
7	Back-light	<p>(1) The color of backlight should correspond its specification.</p> <p>(2) Not allow flickering</p>								
8	Soldering	<p>(1) Not allow heavy dirty and solder ball on PCB. (The size of dirty refer to point and dust defect)</p> <p>(2) Over 50% of lead should be soldered on Land.</p> 								
9	Wire	<p>(1) Copper wire should not be rusted</p> <p>(2) Not allow crack on copper wire connection.</p> <p>(3) Not allow reversing the position of the flat cable.</p> <p>(4) Not allow exposed copper wire inside the flat cable.</p>								
10	PCB	<p>(1) Not allow screw rust or damage.</p> <p>(2) Not allow missing or wrong putting of component.</p>								

11

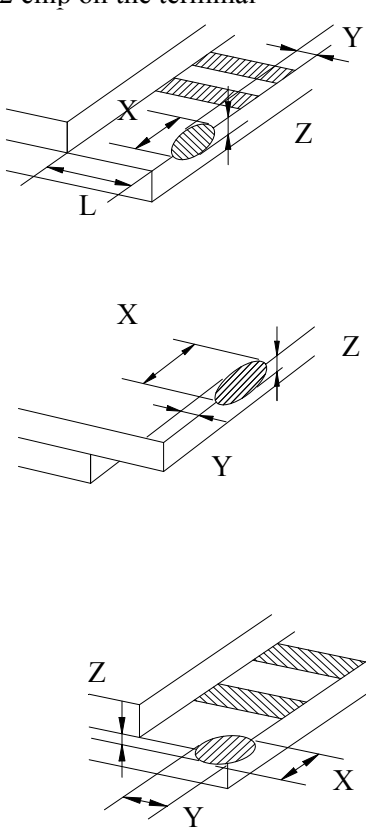
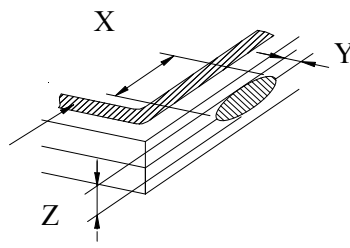
LCD

1.1 chip on the surface



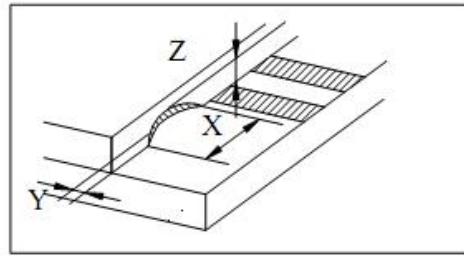
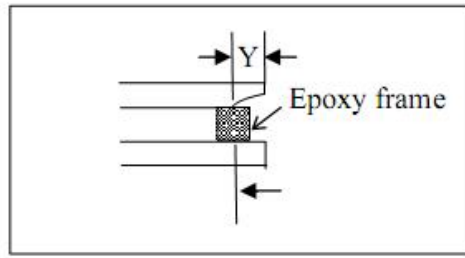
X	Y	Z
$>1/8A$	$\leq 0.3\text{mm}$	$\leq 1/2T$
$\leq 1/8A$	Not enter into epoxy frame	$\leq T$
	Not enter into the inner edge of epoxy	$\leq 1/2T$



11	LCD	<p>1.2 chip on the terminal</p>  <table border="1" data-bbox="726 1075 1388 1321"> <thead> <tr> <th>X</th> <th>Y</th> <th>Z</th> </tr> </thead> <tbody> <tr> <td><math>&gt;1/8A</math></td> <td><math>\leq 0.3\text{mm}</math></td> <td><math>\leq 1/2T</math></td> </tr> <tr> <td><math>\leq 1/8A</math></td> <td><math>\leq 1/2L</math></td> <td><math>\leq T</math></td> </tr> <tr> <td><math>\leq 1/8A</math> 且 <math>\leq 1\text{mm}</math></td> <td><math>\leq L</math></td> <td><math>\leq T</math></td> </tr> <tr> <td><math>\leq 1/8A</math> 且 <math>\leq 2\text{mm}</math></td> <td><math>\leq L</math></td> <td><math>\leq 1/2T</math></td> </tr> </tbody> </table> <p>Note:</p> <p>1) the distance between crack and contact pad must be greater than the width of 1<sup>st</sup> contact pad</p> <p>2) A : length of the LCD</p>	X	Y	Z	$>1/8A$	$\leq 0.3\text{mm}$	$\leq 1/2T$	$\leq 1/8A$	$\leq 1/2L$	$\leq T$	$\leq 1/8A$ 且 $\leq 1\text{mm}$	$\leq L$	$\leq T$	$\leq 1/8A$ 且 $\leq 2\text{mm}$	$\leq L$	$\leq 1/2T$
		X	Y	Z													
$>1/8A$	$\leq 0.3\text{mm}$	$\leq 1/2T$															
$\leq 1/8A$	$\leq 1/2L$	$\leq T$															
$\leq 1/8A$ 且 $\leq 1\text{mm}$	$\leq L$	$\leq T$															
$\leq 1/8A$ 且 $\leq 2\text{mm}$	$\leq L$	$\leq 1/2T$															
	<p>1.3 chip out on between side</p> 																

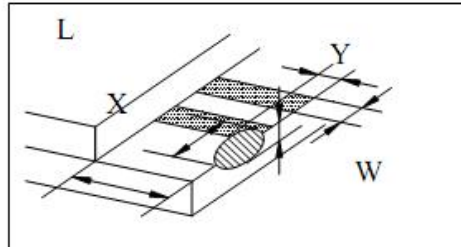
II

LCD

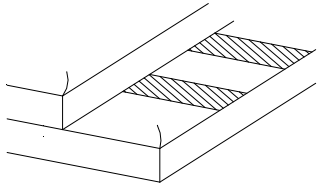
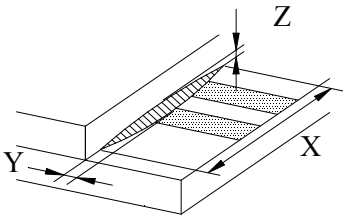


X	Y	Z
$\leq 1/8A$	Not enter into epoxy frame	$Z \leq 2T$
	Not enter into 1/2 epoxy frame	$Z \leq 1/2T$

2.1.4 including corner chip and side chip



X	Y	Z
$> 1/8A$	$\leq 1/6L$	$\leq 1/2T$
$\leq 1/8A$	$\leq 1/3L$	
$\leq 1/4W$	$\leq 2/3L$	

11	LCD	<p>1.5 Chip out</p>  <ol style="list-style-type: none"> <li>1) Chip out is that crackles extend to inner edge .</li> <li>2) Crackles round epoxy frame will be rejected.</li> <li>3) Chip out on the terminal will be rejected:  <math>Z=T</math>, length <math>&gt;1\text{mm}</math>                      or <math>Z&lt;T</math>, length <math>&gt;2\text{mm}</math></li> <li>4) The chip out at ITO will be rejected.</li> </ol>							
		<p>1.6 Poor cutting</p>  <table border="1" data-bbox="874 1245 1356 1442"> <thead> <tr> <th>X</th> <th>Y</th> <th>Z</th> </tr> </thead> <tbody> <tr> <td><math>&gt;1/8A</math></td> <td><math>\leq 0.3</math></td> <td><math>\leq 1/2T</math></td> </tr> <tr> <td><math>\leq 1/8A</math></td> <td>According to drawing</td> <td><math>\leq T</math></td> </tr> </tbody> </table> <p>Any one out of the specification will be rejected.</p>	X	Y	Z	$>1/8A$	$\leq 0.3$	$\leq 1/2T$	$\leq 1/8A$
X	Y	Z							
$>1/8A$	$\leq 0.3$	$\leq 1/2T$							
$\leq 1/8A$	According to drawing	$\leq T$							

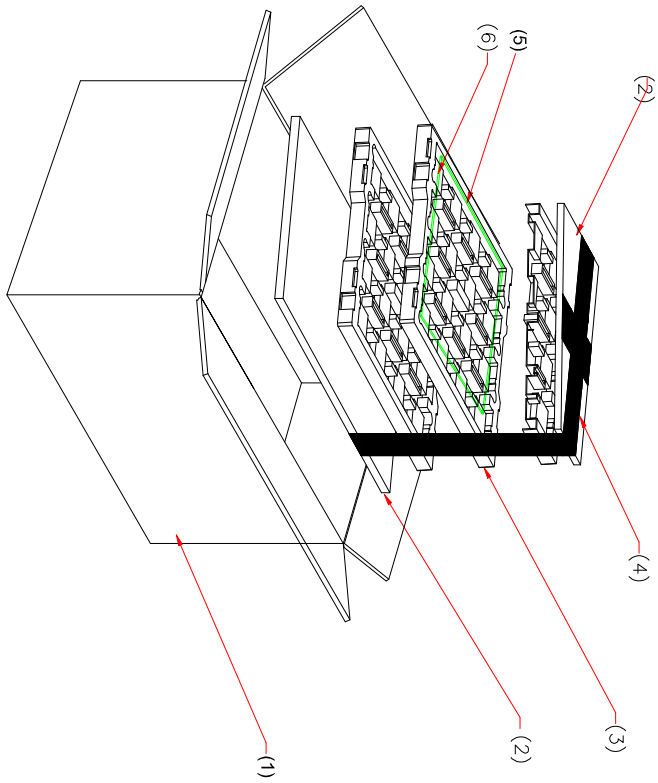
## 10 RELIABILITY OF LCM

Item	Condition	Time (hrs)	Assessment
High temp. Storage	+80°C	72	No abnormalities in functions and appearance
High temp. Operating	+70°C	72	
Low temp. Storage	-30°C	72	
Low temp. Operating	-20°C	72	
Humidity	40°C/ 90%RH	72	
Temp. Cycle	-20°C ← 25°C → +70°C (1 hour ← 5 min → 1 hour)	10cycles	
Vibration Test	Frequency: 10Hz~55Hz~10Hz Amplitude: 1.5mm X, Y, Z direction (Packing Condition)	3	
Drooping Test	Drop to the ground from 1M height one time every side of carton. (Packing Condition)		

# 11 PACKAGING SPECIFICATION

Customer Approved By

REV	DESCRIPTION	MODIFY BY	DATE
A0	1 <sup>ST</sup> DESIGN	ZY	2021-5-25



NO	NAME	UNIT	QTY PER	SPEC	MATERIAL
1	Z3S CARTON	PCS	1	390*342*350	PAPER
2	纸板	PCS	4	370*335*6	PU
3	G12864146-FSPK-A0	PCS	32	360*330*15	PET
4	ADHESIVE TAP	M	3	1	PE
5	PP(珍珠棉)	PCS	30	360*310*1.0	EPE(Red)
6	MODULE	PCS	360		

**Specification:**

- 1、每箱装30层产品。
- 2、分2束，每束上、下均以纸板加紧后用透明胶包扎。
- 3、每层吸塑盘装12个产品，每吸塑面垫一层360\*310\*1.0mm防静电珍珠棉。
- 4、每束最顶层预留一层不装产品。
- 5、每箱数量：12\*30=360PCS。



湖南飞优特电子科技有限公司  
Hunan Future Electronics Technology Co., Ltd.



UNIT: MM SIZE: A4

SHEET: 1 OF 1

PKG

LCM NO.: FG1264146-FLBS

DWG NO.: FG1264146-PKG

REV: A0

DRAWN BY :

ZY

CHECKED BY :

XD

APPROVED BY :

YFH

## 12 WARRANTY

- 1) Any change of specification will be approved by customers.
- 2) Problem with item not shown in this approval specification will be solved by mutual discussin . Limit sample can be exchanged if necessary.
- 3) LCD products stored or used under normal conditions within the specification shall be capable of meeting all characteristics for a period of 12 months from the date of shipment.This warranty will not be valid for the products not stored or used as specified herein.
- 4) Our object is the rate of customer complaint  $\leq 5000\text{PPM}$ .

## ◆ PRECAUTIONS

### 1) Handling precautions

- (1) Treat polarizer very carefully since it is easy to be damaged.
- (2) When cleaning the display surface, use soft cloth (eg.,gauss) with a solvent (recommended blow) and wipe lightly.

- ◆ ethylalcohol

- ◆ iso-propanol

Do not wipe the display surface with dry or hard materials that will damage the polarizer surface.

Do not use the following solvents:

- ◆ water

- ◆ ketone

- ◆ aromatics

- (3) Direct curent cause electro-chemical reaction with remarkable degradation of the display quality. Give careful consideration to prevent direct current ON/OFF turning and during operation.
- (4) Avoid strong shock and drop from a height.
- (5) To prevent LCD panels from degradation, do not operate or store them exposed directly to sunshine or high temperature/humidity.
- (6) Give careful consideration to avoid electrical static discharge which causes uneven contrast.
- (7)Even a small condensation on the contact pads(terminals) causes electro-chemical reaction which makes missing row and column. Give careful

attention to avoid condensation. When assembling with zebra connector, clean the surface of the pads with alcohol and keep the air very clean.

## 2) Precautions for operation

- a) The protecting film of the polarizer should be removed before setting.
- b) Do not apply DC voltage to LCD panels.
- c) Soldering work should be done within 5 seconds with  $300\pm 5$  °C soldering iron of constant temperature .
- d) Power supplies should always be turned on before the input signals are applied.And input signals should be turned off befor power supplies are turned off.

## 3) Precautions for storage

- a) Dot not store the LCD in high temperature and high humidity.
- b) Do not expose the LCD panel to the direct sunlight or UV light etc.
- c) Do not place the LCD panel together with chemicals.
- d) Keep the panels at a temperature of 10 to 30 and a relative humidity of 60%or less and dark place without acid, alkali and harmful gas is recomm ended.and Under this condition the products without unpacking can be kept for one year ,and they should be used within 2 months after unpacking

4) Generally, life time of the LCD product can reach 6 years under normal conditions within the specification, but the time is not the product warranty time.