DMA016Q1NXCSI-1A

PRODUCT SPECIFICATION

Version 0.1
Sep 09, 2024

Customer's Approval	
Signature	***Date***

Prepared *by Yvette Hsieh*
Approved by *Eric Wan*

Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
0.1	Sep 09, 2024	Preliminary	Yvette Hsieh

Legal Notice

Table of Contents

1. General Description

1.1 Introduction

This is a 1.6” size colour AMOLED display module. The display is 16.7M colour, has a resolution of 320 x 360 and supports MIPI/3-wire SPI/4-wire SPI/QAD-SPI interface and with optical bonding touch panel.

1.2 Main Features

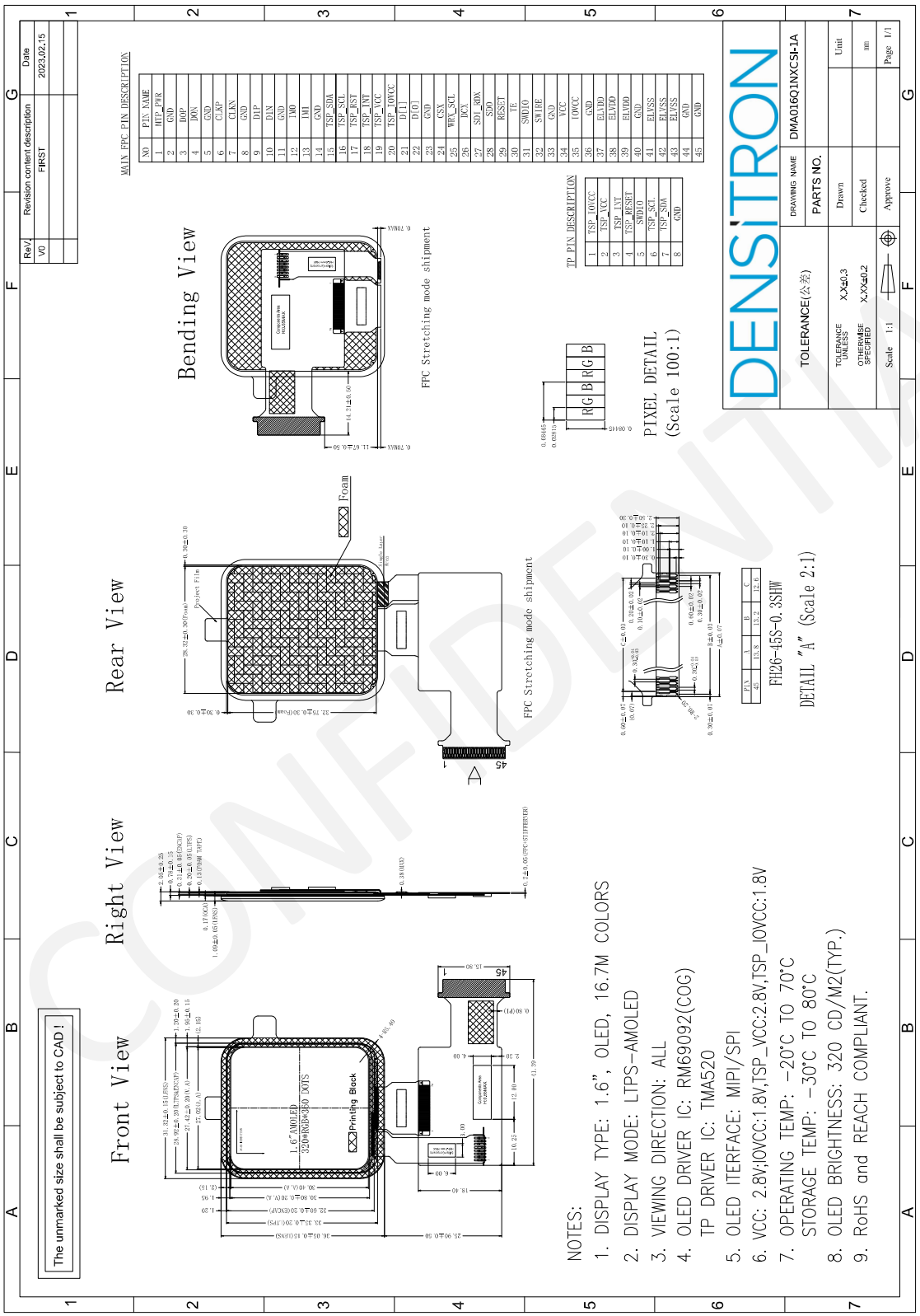
Item	Contents
Display Type	AMOLED
Screen Size	1.6” Diagonal
Display Format	320 x RGB x 360 Dots
No. of Colour	16.7M
Mode	AMOLED
Overall Dimensions	31.32 (W) x 36.05 (H) x 2.05 (D) mm
Active Area	27.02 (W) x 30.40 (H) mm
Surface Treatment	Glare (6H)
Viewing Direction	All round
Interface	MIPI/3/4-wire SPI/QAD-SPI
Display Driver IC	RM69092
Touch Interface	I^2C
Touch Controller	TMA520
Operating Temperature	-20°C ~ +70°C
Storage Temperature	-30°C ~ +80°C
ROHS	RoHS Compliance

2. Mechanical Specification

2.1 Mechanical Characteristics

Item	Characteristic	Unit
Display Format	320 x RGB x 360	Dots
Overall Dimensions	31.32 (W) x 36.05 (H) x 2.05 (D)	mm
Active Area	27.02 (W) x 30.40 (H)	mm
Dot Pitch	0.08445 (W) x 0.08445 (H)	mm
Weight	TBD	g
IC Controller/Driver	RM69092	

2.2 Mechanical Drawing



3. Electrical Specification OLED

3.1 Absolute Maximum Ratings

Item	Symbol	Min	Max	Unit
Supply Voltage (Display)	VCC	-0.3	5.5	V
	IOVCC	-0.3	5.5	V
	ELVDD	0	6.0	V
	ELVSS	-6.5	0	V
Supply Voltage (Touch)	TSP_VSS	-0.5	6.0	V
	TSP_IOVCC	-0.5	6.0	V
Operating Temperature	T_{OP}	-20	+70	°C
Storage Temperature	T_{ST}	-30	+80	°C
Humidity	RH	-	90	%RH

Note 1: When this module is used beyond the above absolute maximum ratings, permanent breakage of the module may occur. Also, for normal operations, it is desirable to use this module under the conditions according to Section 3.2 “DC Electrical Characteristics OLED” and Section 5 “Optical Characteristics OLED.” If this module is used beyond these conditions, malfunctioning of the module can occur and the reliability of the module may deteriorate.

3.2 DC Characteristics

Item		Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage (Display)		VCC	-	2.7	2.8	3.6	V
		VDDIO	-	1.65	1.8	3.3	V
		ELVDD	-	4.55	4.6	4.65	V
		ELVSS	-	-2.25	-2.20	-2.15	V
Supply Voltage (TP)		TSP_VCC	-	2.65	2.8	4.7	V
		TP_IOVCC	-	1.71	1.8	1.95	V
Input Voltage	"L" Level	VIL	IOVCC = 1.65V~3.3V	GND	-	0.2 IOVCC	V
	"H" Level	VIH		0.8 IOVCC	-	IOVCC	V
Output Voltage	"L" Level	VOL	IOH = -1mA	GND	-	0.2 IOVCC	V
	"H" Level	VOH	IOL = 1mA	0.8 IOVCC	-	IOVCC	V
Current (TP)		I_{VDD_TP}	-	-	TBD	TBD	mA
Current (Display)	Sleep Out Mode	I_{VCC}	Full white display	-	2.5	5.0	mA
		I_{OVCC}		-	2	4	mA
		I_{VSYS}		-	15	25	mA
	Sleep In Mode	I_{VCC}	-	-	TBD	TBD	uA
		I_{OVCC}		-	TBD	TBD	uA
	Deep Standby Mode	I_{VCC}	-	-	TBD	TBD	uA
		I_{OVCC}	-	-	TBD	TBD	uA
Frame Frequency		f_{FRM}	-	-	TBD	-	Hz

3.3 Interface Pin Assignment

No.	Symbol	I/O	Function
1	MTP_PWR	P	MTP programming power supply pin (7.5V typical)
2	GND	P	Ground
3	D0P	I/O	MIPI Interface
4	D0N	I/O	MIPI Interface
5	GND	P	Ground
6	CLKP	I	MIPI Interface
7	CLKN	I	MIPI Interface
8	GND	P	Ground
9	D1P	I	MIPI Interface
10	D1N	I	MIPI Interface
11	GND	P	Ground
12	IM0	I	Interface type selection pin
13	IM1	I	Interface type selection pin
14	GND	P	Ground
15	TSP_SDA	I/O	Touch I^2C data
16	TSP_SCL	I	Touch I^2C clock
17	TSP_RST	I	TSP reset signal. Active low
18	TSP_INT	O	Touch state change interrupt
19	TSP_VCC	P	TP power supply
20	TSP_IOVCC	P	TP power supply
21	D [1]	I/O	4-bit data bus for Q-SPI
22	D [0]	I/O	4-bit data bus for Q-SPI
23	GND	P	Ground
24	CSX	I	Chip select input pin (“Low” enable) in SPI I/F
25	WRX_SCL	O	SCL: A synchronous clock signal in SPI I/F
26	DCX	I	Display data/command selection in 4-wire SPI I/F. DCX = “0”: Command. DCX = “1”: Display data of parameter
27	SDI_RDX	I/O	SDI: Serial inputs signal in SPI I/F. The data is input on the rising edge of the SCL signal.
28	SDO	O	Serial outputs signal in SPI I/F. The data is output on the rising/falling edge of the SCL signal. If the host places the SDI line into high-impedance state during the read interval, the SDI and SDO can be tied together.
29	RESET	I	This signal will reset the device and must be applied to properly initialize the chip.

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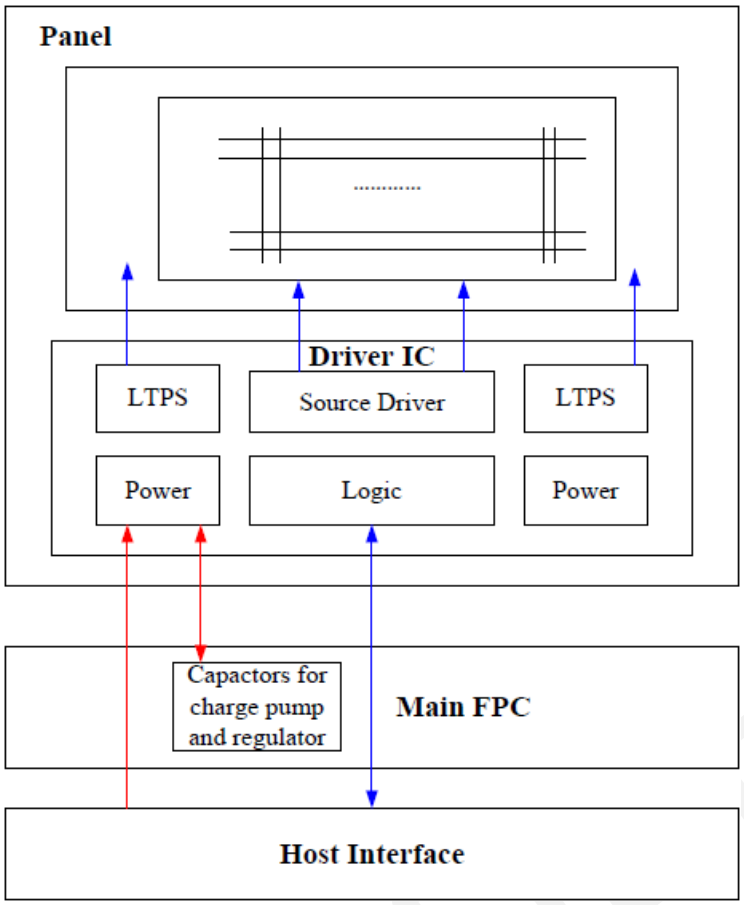
No.	Symbol	I/O	Function
			Signal is active low
30	TE	O	Tearing effect output pin to synchronize MCU to frame writing, active by S/W command
31	SWDIO	I/O	Serial wire debug input/output
32	SWIRE	O	Swire protocol setting pin (“H” = IOVCC level, “L” = GND level)
33	GND	P	Ground
34	VCC	P	Input voltage for anolog power supply
35	IOVCC	P	Input voltage for logic/interface power supply
36	GND	P	Ground
37-39	ELVDD	P	Power supply for pixel circuit
40	GND	P	Ground
41-43	ELVSS	P	Power supply for pixel circuit
44-45	GND	P	Ground

Note: Interface Type Selection

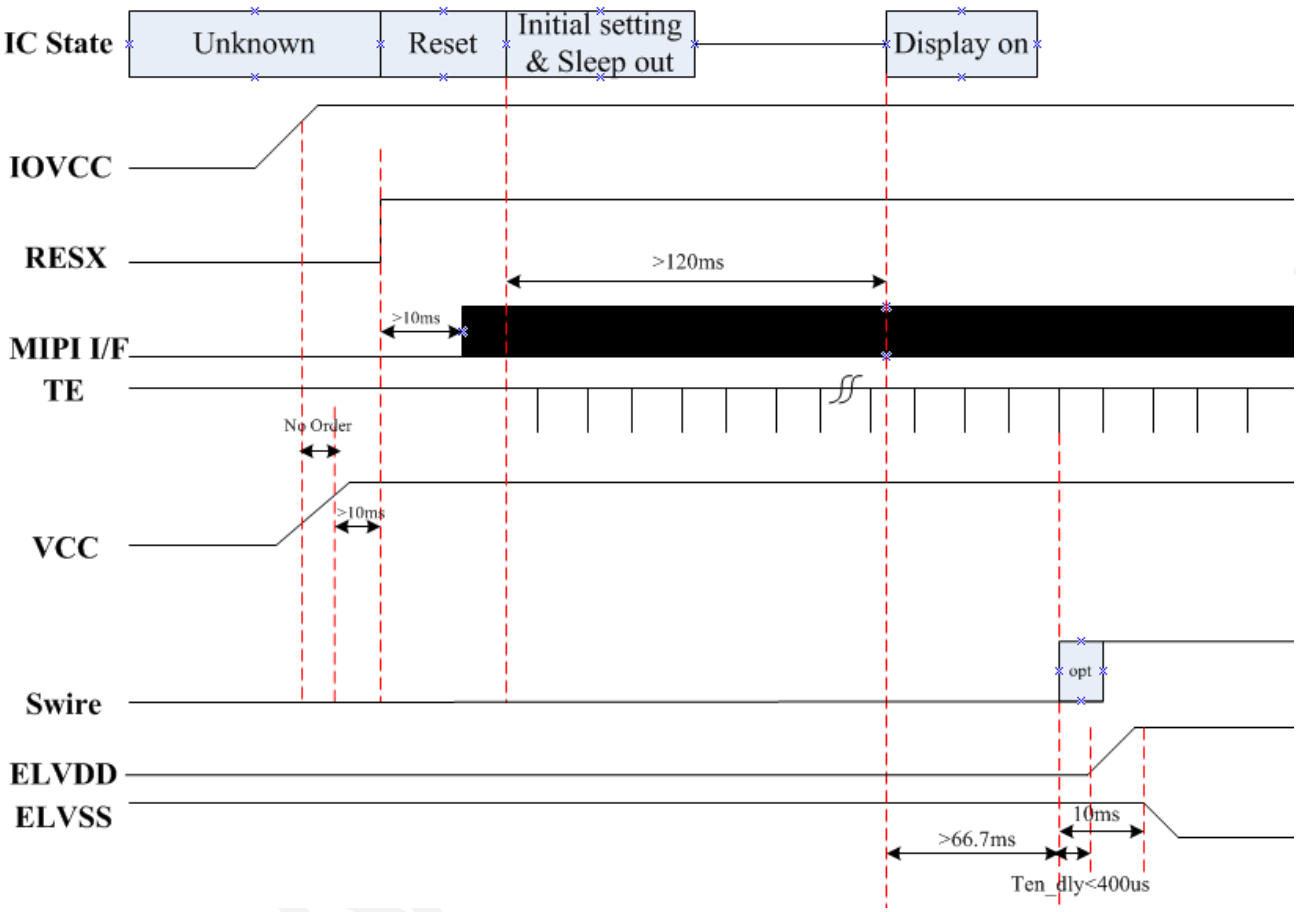
IM [1:0]	Display Data	Command
00	MIPI/3-wire SPI	MIPI/3-wire SPI
01	MIPI/4-wire SPI	MIPI/4-wire SPI
10	MIPI/QAD SPI	MIPI/QAD SPI

3.4 Block Diagram

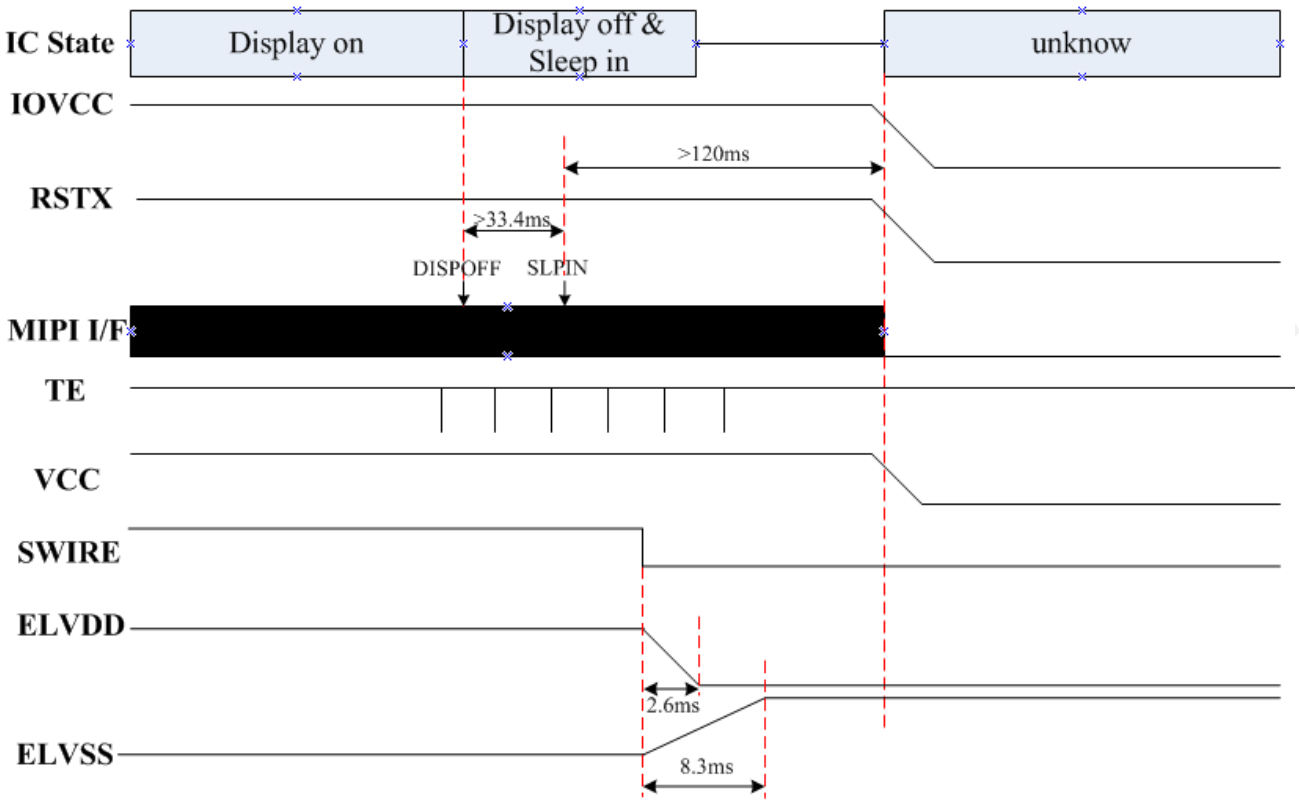


3.5 Timing Characteristics

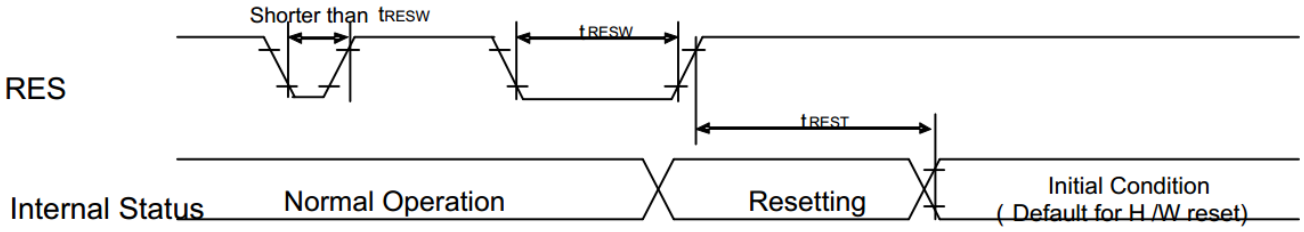
3.5.1 Power On sequence



3.5.2 Power Off Sequence



3.5.3 Reset Timing



Reset input timing

(IOVCC=1.65 to 3.3V, VCC=2.7 to 3.6V, AGND=DGND=0V, Ta=-40 to 85°C)

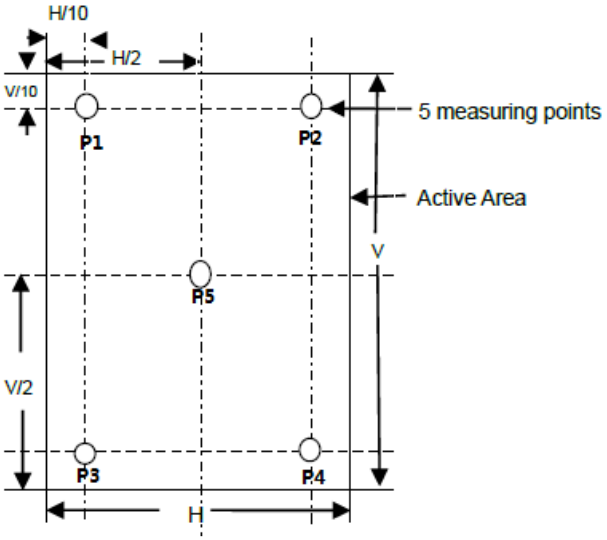
Parameter	Symbol	Related Pins	Min	Typ	Max	Unit	Note
Reset low pulse width	tRW	RESX	10	-	-	Us	-
Reset Complete Time	tREST	-	-	-	5	ms	When reset applied during Sleep In mode
		-	-	-	120	ms	When reset applied during Sleep Out mode

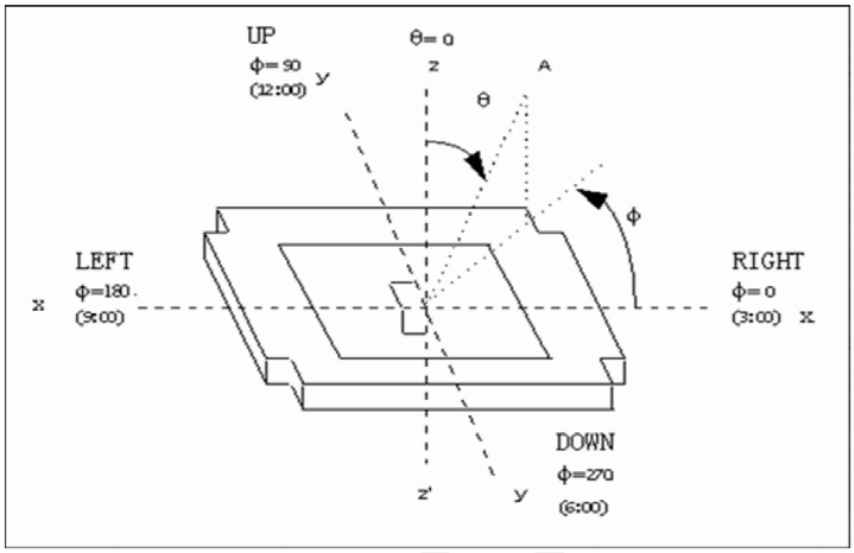
4. Optical Specification OLED

4.1 Optical Characteristics

Characteristics		Symbol	Conditions	Min	Typ.	Max	Unit	Note
Surface Brightness		Lv	θ=0° Φ=0° Ta=25°C	270	320	360	cd/m^2	1
Uniformity		δ WHITE		85	-	-	%	2
Contrast Ratio		CR		100000	-	-	-	3
Viewing Angle	Left	ΘL	CR ratio ≥ 200	88	-	-	Deg	4
	Right	ΘR						
	Top	ΘU						
	Bottom	ΘD						
Color Chromaticity	Red	Rx	θ=0° Φ=0° Ta=25°C	-0.04	0.687	+0.04	-	5
		Ry			0.312			
	Green	Gx			0.225			
		Gy			0.732			
	Blue	Bx			0.137			
		By			0.053			
	White	Wx			0.30			
		Wy			0.31			
NTSC Ratio		-	-	90	100	-	%	CIE1931
Response Time		Tr + Tf	-	-	-	TBD	ms	-
Lifetime		T95	Lv=450nit, Ta=25°C	200	-	-	Hrs	-

Note: Measuring Condition = CS2000 or similar equipment. In a dark room, Ta=25°C.

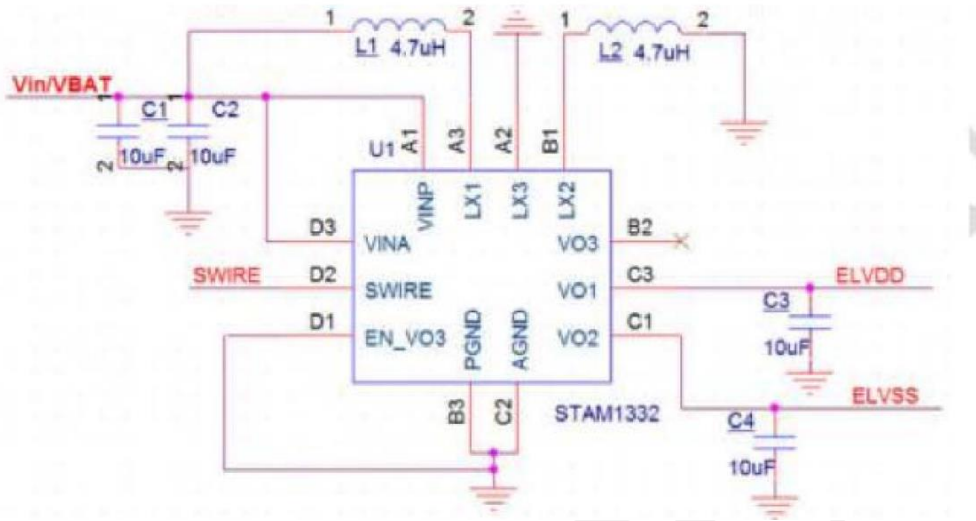
Note	Item	Test method
1	Definition of Surface Luminance	The data are measured after OLEDs are lighted on for more than 5 minutes and all pixels are fully white. The Surface Luminance is the average value of 5 measured spots (Fig-1): Lv = Average Luminance with all white pixels (P1, P2, P3, P4, P5)
2	Definition of Uniformity	The data are measured after OLEDs are lighted on for more than 5 minutes and all pixels are fully white. The Luminance Uniformity is calculated by using following formula: d WHITE = Lp (Min.) / Lp (Max.)×100 (%) Lp (Min.) = Minimum Luminance with all white pixels (P1, P2, P3, P4, P5) Lp (Max.) = Maximum Luminance with all white pixels ((P1, P2, P3, P4, P5)
3	Definition of Contrast Ratio	The data are measured after OLEDs are lighted on for more than 5 minutes. The Contrast Ratio is calculated by using following formula: **Contrast Ratio(Cr)** = Lw / Lb Lw = Average Luminance with all **white** pixels (P1, P2, P3, P4, P5) Lb = Average Luminance with all **black** pixels (P1, P2, P3, P4, P5) 
4	Definition of Viewing Angle	The Viewing Angle is the angle at which the contrast ratio is greater than 10. The angles are determined for the horizontal or x axis and the vertical or y axis

Note	Item	Test method
		with respect to the z axis which is normal to the display surface. 
5	Color Coordinate of CIE1931	The x, y value of Color Coordinate is determined by measuring at center position of the display panel.

5. Functional Specification OLED

5.1 Application Circuit

ELVDD&ELVSS power supply schematic, The Triple DC/DC converter STAM1332 is recommended. The application schematics and external components are as below.



Component	Part Number	Specification	Quantity	Manufacture
Capacitance	LMK105CBJ106MVLF	10uF/10V, X5R, 0402, ±20%	4	TAIYO YUDEN
	CL05A106MP5NUNC			Samsung
Inductance	KMNR201610-4R7M-S-Z	4.7uH±20%, 444mΩ, 0.76A	2	Ke ming
	ACPI201610PF-4R7MT			Amode

6. Packaging

TBD

7. Quality Assurance Specification

7.1 Conformity

The performance, function and reliability of the shipped products conform to the Product Specification.

7.2 Environment Required

Customer's test & measurement are required to be conducted under the following conditions:

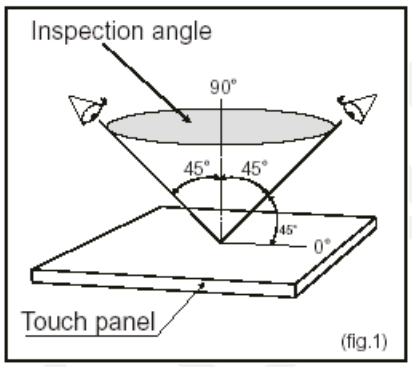
Temperature:	25 ± 5℃
Humidity:	65% ± 10% RH
Viewing Angle:	Within 45°against perpendicular line
Illumination:	1000 ± 200LUX
Viewing distance:	30cm

Finger glove (or finger cover) must be worn by the inspector.

Inspection table or jig must be anti-electrostatic.

Cosmetic inspection time is 10s, judged pass if the defect cannot be seen in 15s.

Inspection pattern: Red/Green/Blue/White/Black/128 gray scale.

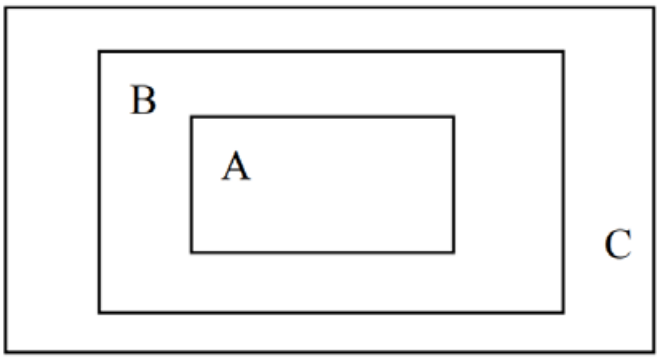


7.3 Delivery Assurance

7.3.1 Delivery Inspection Standards

Class II, Normal Inspection, MIL-STD-105E

7.3.2 Zone Definition



Zone A: Character/Digit area

Zone B: Viewing area except Zone A (Zone A + Zone B=minimum Viewing area)

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

7.3.3 Criteria & Acceptable Quality Level

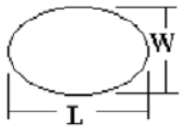
Partition	AQL
Major	0.65
Minor	1.5

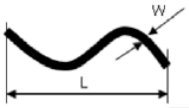
LCD: Liquid Crystal Display, LCM: Liquid Crystal Module, CTP: Capacitive Touch Panel

No.	Items	Criteria	Classification of defects
1	Functional defects	1. No display is not allowed 2. Display abnormally not allowed 3. Bright/dark line and other line-shape function defect are not allowed	Major
2	Component	Missing/breakage component is not allowed	
3	Outline Dimension	Overall outline dimension beyond the drawing or deformation is not allowed.	
4	Sharp edge	Not allowed	
5	FPC	Split/breakage FPC is not allowed	

7.3.4 Criteria & Classification

Units: mm

<table>
<tr><th rowspan="2">Item</th><th colspan="2">Criteria</th></tr>
<tr><th>Grade A</th><th>Grade B</th></tr>
<tr><td>Spot defect: Black and white spot, foreign particle, dirt under polarizer (Except dark pixel)
 

D = (L + W)/2
D: Diameter, L: Length, W: Width, DS: Distance</td><td><table><tr><th>Size</th><th>Acceptable Qty</th></tr><tr><td>D ≤ 0.1, DS ≥ 10</td><td>Disregard</td></tr><tr><td>0.1 < D ≤ 0.2, DS ≥ 10</td><td>N ≤ 2</td></tr><tr><td>D > 0.2</td><td>N = 0</td></tr></table></td><td><table><tr><th>Size</th><th>Acceptable Qty</th></tr><tr><td>D ≤ 0.1, DS ≥ 10</td><td>Disregard</td></tr><tr><td>0.1 < D ≤ 0.25, DS ≥ 10</td><td>N ≤ 3</td></tr><tr><td>D > 0.25</td><td>N = 0</td></tr></table></td></tr>
<tr><td>Bright spot (pixel)</td><td>N ≤ 0</td><td>N ≤ 0</td></tr>
<tr><td>Dark spot (pixel)</td><td>N ≤ 4, DS ≥ 10</td><td>N ≤ 8, DS ≥ 10</td></tr>
<tr><td>Line defect: Black line, white line, foreign material under polarizer
 

D: Diameter, L: Length, W: Width, DS: Distance</td><td><table><tr><th>Length</th><th>Width</th><th>Acceptable Qty</th></tr><tr><td>-</td><td>W ≤ 0.02</td><td>Disregard</td></tr><tr><td>L ≤ 2.0</td><td>0.02 < W ≤ 0.03</td><td>N ≤ 2</td></tr><tr><td>L ≤ 1.0</td><td>0.03 < W ≤ 0.05</td><td>N ≤ 2</td></tr><tr><td>-</td><td>W > 0.5</td><td>N = 0</td></tr></table></td><td><table><tr><th>Length</th><th>Width</th><th>Acceptable Qty</th></tr><tr><td>-</td><td>W ≤ 0.02</td><td>Disregard</td></tr><tr><td>L ≤ 2.0</td><td>0.02 < W ≤ 0.03</td><td>N ≤ 3</td></tr><tr><td>L ≤ 1.0</td><td>0.03 < W ≤ 0.05</td><td>N ≤ 3</td></tr><tr><td>-</td><td>W > 0.5</td><td>N = 0</td></tr></table></td></tr>
<tr><td>Mura</td><td>Judged OK if unviewable by using 3% ND filter on 128 gray scale pattern.
Special requirement refer to the limit sample signed by customer</td><td>Not affect assembly use.
Special requirement refer to the limit sample signed by customer.</td></tr>
<tr><td>Color mixing</td><td>Judged OK if unviewable by using 2% ND filter on white (255 gray scale) pattern.
Special requirement refer to the limit sample signed by customer</td><td>Not affect assembly use.
Special requirement refer to the limit sample signed by customer.</td></tr>
<tr><td>Bubble</td><td><table><tr><th>Size</th><th>Acceptable Qty</th></tr><tr><td>D ≤ 0.2</td><td>Disregard</td></tr></table></td><td><table><tr><th>Size</th><th>Acceptable Qty</th></tr><tr><td>D ≤ 0.2</td><td>Disregard</td></tr></table></td></tr>
</table>

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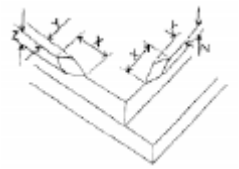
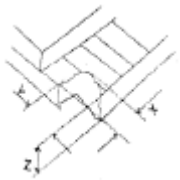
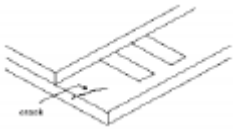
<table>
<tr><th rowspan="2">Item</th><th colspan="4">Criteria</th></tr>
<tr><th colspan="2">Grade A</th><th colspan="2">Grade B</th></tr>
<tr><td></td><td>0.2 < D ≤ 0.5</td><td>N ≤ 2</td><td>0.2 < D ≤ 0.5</td><td>N ≤ 3</td></tr>
<tr><td></td><td>D > 0.5</td><td>N = 0</td><td>D > 0.5</td><td>N = 0</td></tr>
<tr><td>Fingerprint</td><td colspan="4">Not allowed</td></tr>
<tr><td>Usual surface cracks
 
Z: Crack thickness
t: Glass thickness</td><td colspan="2">Y ≤ 0.5mm, X ≤ 2mm, z ≤ t</td><td colspan="2">Y ≤ 1mm, X ≤ 3mm, z ≤ t</td></tr>
<tr><td>Chips on corner
 
Z: Crack thickness
t: Glass thickness</td><td colspan="2">Y ≤ 2mm, X ≤ 2mm, z ≤ t</td><td colspan="2">Y ≤ 3mm, X ≤ 3mm, z ≤ t</td></tr>
<tr><td>Cracks tend to break
  </td><td colspan="4">Cracks tend to break are not allowed.
Edge burrs disregard</td></tr>
</table>

7.4 Dealing with Customer Complaints

7.4.1 Non-conforming Analysis

Purchaser should supply Densitron with detailed data of non-conforming sample.

After accepting it, Densitron should complete the analysis in reasonable time and update the status to the purchaser.

7.4.2 Handling of Non-conforming Displays

If any non-conforming displays are found during customer acceptance inspection which Densitron is clearly responsible for, return them to Densitron.

Both Densitron and customer should analyse the reason and discuss the handling of non-conforming displays when the reason is not clear.

Equally, both sides should discuss and come to agreement for issues pertaining to modification of Densitron quality assurance standard.

8. Reliability Specification

8.1 Reliability Tests

Test Item	Test Condition	Inspection After Test
High Temperature Operating	70±2°C, 240 hrs	Inspection after 2 hours storage at room temperature, The sample shall be free from defects: 1. Remarkable deterioration of no clearly visible defects or display quality. However, any polarizer's deteriorations by the high temperature/ High humidity Storage test and the High temperature/ High humidity Operation test are permitted. 2. No function-related abnormalities. 3. Optical criteria: White △u'v' ≤0.02 4. No visible defects. (optical /mechanical).
Low Temperature Operating	-20±2°C, 240 hrs	
High Temperature Storage	80±2°C, 240 hrs	
Low Temperature Storage	-30±2°C, 240 hrs	
High Temperature & High Operating	60±5°C, 90% RH, 240 hours.	
Thermal Shock (Non-operation)	-20°C, 30 min ↔ 70°C, 30 min, Change time:5min 30CYC.	
ESD Test	Voltage: ±8KV R: 330Ω C:150pF, Air discharge, 10time (Environment: 15°C~35°C, 30%~60%).	
Vibration (Non-operation)	Frequency：10Hz~55Hz~10Hz Amplitude: 1.5mm, X, Y, Z direction for total 3hours (Packing condition)	
Box Drop Test	Drop to the ground from 75cm height, one time, every side of carton. (Packing condition)	

Note 1: The test samples should be applied to only one test item.

Note 2: Sample size for each test item is 5~10pcs.

Note 3: For Damp Proof Test, Pure water(Resistance＞10MΩ) should be used.

Note 4: In case of malfunction defect caused by ESD damage, if it would be recovered to normal state after resetting, it would be judged as a good part.

Note 5: Failure Judgment Criterion: Basic Specification, Electrical Characteristic, Mechanical Characteristic, Optical Characteristic.

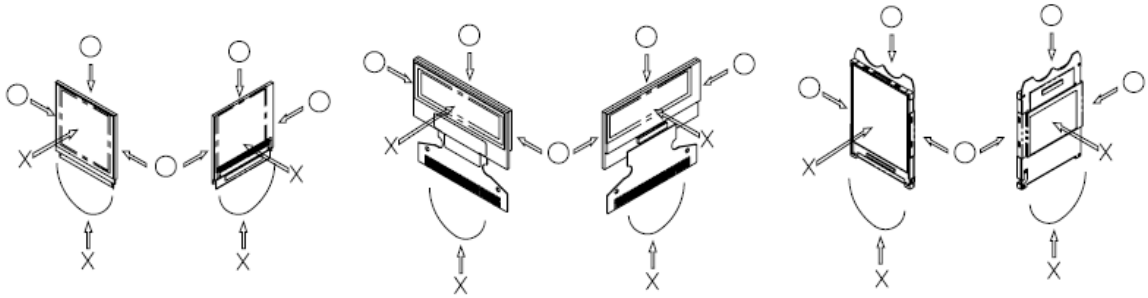
8.1.1 Failure Check Standard

After the completion of the described reliability test, the samples were left at room temperature for 2 hrs prior to conducting the failure teat at 23±5 °C；55±15% RH.

9. Handling Precautions

9.1 Handling Precautions

1) Since the display panel is being made of glass, do not apply mechanical impacts such us dropping from a high position.
2) If the display panel is broken by some accident and the internal organic substance leaks out, be careful not to inhale nor lick the organic substance.
3) If pressure is applied to the display surface or its neighborhood of the OEL display module, the cell structure may be damaged and be careful not to apply pressure to these sections.
4) The polarizer covering the surface of the OEL display module is soft and easily scratched. Please be careful when handling the OEL display module.
5) When the surface of the polarizer of the OEL display module has soil, clean the surface. It takes advantage of by using following adhesion tape.
   a. Scotch Mending Tape No. 810 or an equivalent
   b. Never try to breathe upon the soiled surface nor wipe the surface using cloth containing solvent such as ethyl alcohol, since the surface of the polarizer will become cloudy.
   c. Also, pay attention that the following liquid and solvent may spoil the polarizer:
      - Water
      - Ketone
      - Aromatic Solvents
6) Hold OEL display module very carefully when placing OEL display module into the system housing. Do not apply excessive stress or pressure to OEL display module. And, do not over bend the film with electrode pattern layouts. These stresses will influence the display performance. Also, secure sufficient



rigidity for the outer cases.
7) Do not apply stress to the LSI chips and the surrounding molded sections.
8) Do not disassemble nor modify the OEL display module.
9) Do not apply input signals while the logic power is off.
10) Pay sufficient attention to the working environments when handing OEL display modules to prevent occurrence of element breakage accidents by static electricity.

- Be sure to make human body grounding when handling OEL display modules.
- Be sure to ground tools to use or assembly such as soldering irons.
- To suppress generation of static electricity, avoid carrying out assembly work under dry environments.
- Protective film is being applied to the surface of the display panel of the OEL display module. Be careful since static electricity may be generated when exfoliating the protective film.

11) Protection film is being applied to the surface of the display panel and removes the protection film before assembling it. At this time, if the OEL display module has been stored for a long period of time, residue adhesive material of the protection film may remain on the surface of the display panel after removed of the film. In such case, remove the residue material by the method introduced in the above Section 5).
12) If electric current is applied when the OEL display module is being dewed or when it is placed under high humidity environments, the electrodes may be corroded and be careful to avoid the above.

9.2 Storage Precautions

1) When storing OEL display modules, put them in static electricity preventive bags avoiding exposure to direct sun light nor to lights of fluorescent lamps, etc. and, also, avoiding high temperature and high humidity environments or low temperature (less than 0°C) environments. (We recommend you to store these modules in the packaged state when they were shipped from Densitron Technologies Plc.) At that time, be careful not to let water drops adhere to the packages or bags nor let dewing occur with them.
2) If electric current is applied when water drops are adhering to the surface of the OEL display module, when the OEL display module is being dewed or when it is placed under high humidity environments, the electrodes may be corroded and be careful about the above.

9.3 Designing Precautions

1) The absolute maximum ratings are the ratings which cannot be exceeded for OEL display module, and if these values are exceeded, panel damage may be happen.
2) To prevent occurrence of malfunctioning by noise, pay attention to satisfy the VIL and VIH specifications and, at the same time, to make the signal line cable as short as possible.
3) We recommend you to install excess current preventive unit (fuses, etc.) to the power circuit (VDD). (Recommend value: 0.5A)
4) Pay sufficient attention to avoid occurrence of mutual noise interference with the neighboring devices.
5) As for EMI, take necessary measures on the equipment side basically.
6) When fastening the OEL display module, fasten the external plastic housing section.

7) If power supply to the OEL display module is forcibly shut down by such errors as taking out the main battery while the OEL display panel is in operation, we cannot guarantee the quality of this OEL display module.
8) The electric potential to be connected to the rear face of the IC chip should be as follows: RM692H0

*Connection (contact) to any other potential than the above may lead to rupture of the IC.

9.4 Operation Precautions

1) When an OEL display module is operated for a long of time with fixed pattern may remain as an after image or slight contrast deviation may occur. Nonetheless, if the operation is interrupted and left unused for a while, normal state can be restored. Also, there will be no problem in the reliability of the module.
2) To protect OEL display modules from performance drops by static electricity rapture, etc., do not touch the following sections whenever possible while handling the OEL display modules.
   a. Pins and electrodes
   b. Pattern layouts such as the FPC
3) With this OEL display module, the OEL driver is being exposed. Generally speaking, semiconductor elements change their characteristics when light is radiated according to the principle of the solar battery. Consequently, if this OEL driver is exposed to light, malfunctioning may occur.
   a. Design the product and installation method so that the OEL driver may be shielded from light in actual usage.
   b. Design the product and installation method so that the OEL driver may be shielded from light during the inspection processes.
4) Although this OEL display module stores the operation state data by the commands and the indication data, when excessive external noise, etc. enters into the module, the internal status may be changed. It therefore is necessary to take appropriate measures to suppress noise generation or to protect from influences of noise on the system design.
5) We recommend you to construct its software to make periodical refreshment of the operation statuses (re-setting of the commands and re-transference of the display data) to cope with catastrophic noise.

9.5 Other Precautions

1) Request the qualified companies to handle industrial wastes when disposing of the OEL display modules. Or, when burning them, be sure to observe the environmental and hygienic laws and regulations.