

Doc. Number:

- Tentative Specification
- Preliminary Specification
- Approval Specification

MODEL NO.: WJ015ZE-01A
 (1.5PI-OLED)

Customer:	
APPROVED BY	SIGNATURE
Name / Title _____	_____
Note	

Please return 1 copy for your confirmation with your signature and comments.	

Approved By	Checked By	Prepared By
		鍾惠櫻 2019/11/4



Revision History

Version	Date	Page	Description
Ver 1.0	Nov.4 ,2019	All	Spec Ver.1.0 was first issued..

1. Purpose

CE Wearable 1.5"手環 is a color active matrix of Organic Light-Emitting Diode (OLED), which uses Low Temperature Poly-silicon (LTPS) as switching devices. This panel has a 1.5 inches diagonally measured active display area with 120 x 240 resolutions. This product is composed of a LTPS-AMOLED panel, Polarizer, driver IC(COF) and FPCa. The following describes the features of this product.

2. Features

- Product Applications: Smart 手環
- 1.5" (diagonal) inch configuration
- 120xRGBX240 resolution
- 180 PPI

3. General Specification

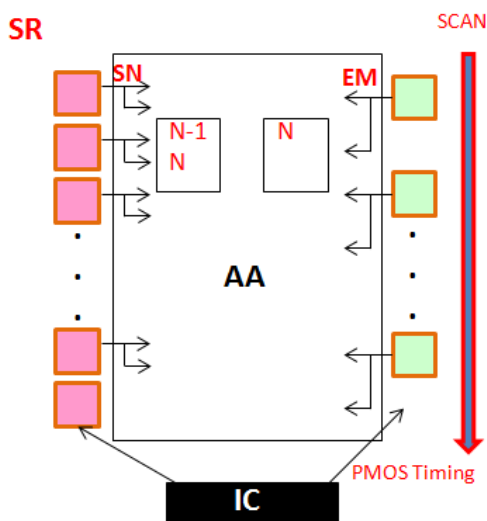
3.1 Physical Specification

No.	Item	Specification	Unit	Remark
1	Screen Size	1.5	inch	Diameter
2	Display Resolution	120 x 240	pixel	
3	Pixel Pitch	0.141(H) x 0.141(V)	mm	
4	Pixel Configuration	RGB-SBS	--	
5	Color Depth	16.7M	--	
6	Display Type	Color OLED	--	
7	Luminance	350	Cd/m2	Typ
8	Interface Type	SPI/MIPI	--	
9	Power Consumption	Panel power :110	mW	Typ
		IC:14.24	mW	Typ
10	Surface Treatment	Hard coat treating (Glare)	3H	

3.2 Mechanical Specification

Item		Min.	Typ.	Max.	Unit	Note
CAF Area (Carry film)	Horizontal (H)	-	26.12	-	mm	(1)
	Vertical (V)	-	39.54	-	mm	
Module Size (w/oCOF&FPCa& CAF)	Horizontal	19.92	20.12	20.32	mm	
	Vertical	38.74	38.94	39.14	mm	
	Thickness (T)	--	0.71	0.80	mm	
Polarizer Area	Horizontal	19.92	20.12	20.32	mm	
	Vertical	36.34	36.54	36.74	mm	
Active Area	Horizontal	-	16.92	-	mm	
	Vertical	-	33.84	-	mm	
Weight		-	1.1	-	g	

Note (1) Please refer to the attached drawings for more information of front and back outline dimensions.



4. Absolute Maximum Ratings

(Ta = 25 ± 2°C)

Item	Symbol	Min.	Max.	Unit	Remark
Power Supply Voltage	VCI	-0.3	5.5	V	Power for digital circuit
Interface supply voltage	VDDIO	-0.3	5.5	V	Power for Interface circuit
ELVDD power supply	ELVDD	-	5.0	V	Power for OLED
ELVSS power supply	ELVSS	-5.0	-	V	Power for OLED
Storage temperature	Tstg	-30	+70	°C	
Operating Temperature	Topr	-20	+60	°C	

Note:

- (1) All of the voltages listed above are with respect to GND= 0V
- (2) Device is subject to be damaged permanently if stresses beyond those absolute maximum ratings listed above.

5. Electrical Specification

5.1 Operating Conditions:

(Ta = 25 ± 2°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Driver driving voltage	VCI	2.7	2.8	3.6	V	(1)
	VDDIO	1.65	1.8	3.3	V	(1)
OLED driving voltage	ELVDD	4.55	4.6	4.65	V	(1)
	ELVSS	-2.35	-2.4	-2.45	V	(1)

Note:

(1) The operation is guaranteed under the recommended operating conditions only. The operation is not guaranteed if a quick voltage change occurs during the operation. To prevent the noise, a bypass capacitor must be inserted into the line closed to the power pin.

5.2 Power Consumption:

(Ta = 25 ± 2°C)

Display Mode	Item	Symbol	Spec	
			Typ	Max
			Current(mA)	Current(mA)
100% Pixel On (Normal mode)	Current of VDDIO	Ivddio	2.0	-
	Current of VCI	Ivci	3.8	-
	Current of ELVSS	Ielvss	15.71	-
50% Pixel On (Normal mode)	Current of VDDIO	Ivddio	2.0	-
	Current of VCI	Ivci	3.8	-
	Current of ELVSS	Ielvss	7.9	-
ALL Pixel Off (Normal mode)	Current of VDDIO	Ivddio	2.0	-
	Current of VCI	Ivci	3.7	-
	Current of ELVSS	Ielvss	0.0	-
ALL Pixel Off (Standby mode)	Current of VDDIO	Ivddio	-	<50uA
	Current of VCI	Ivci	-	<20uA
	Current of ELVSS	Ielvss	-	0

Note: (1) **Power supply** : VDDIO=1.8V VCI=2.8V

(2) **Frame Frequency** : Fframe =60Hz @25degC, Brightness 300nits MIPI CMD mode

(Ta = 25 ± 2°C)

Display Mode	Item	Symbol	Spec	
			Typ	Max
			Current(mA)	Current(mA)
10% Pixel On (Idle mode)	Current of VDDIO	Ivddio	1.8	-
	Current of VCI	Ivci	2.1	-
	Current of ELVSS	Ielvss	0.1	-

Note:

(1) **Power supply** : VDDIO=1.8V VCI=2.8V

(2) **Frame Frequency** : Frame =15Hz @25degC, Brightness 35nits MIPI CMD mode

6. DC Characteristics

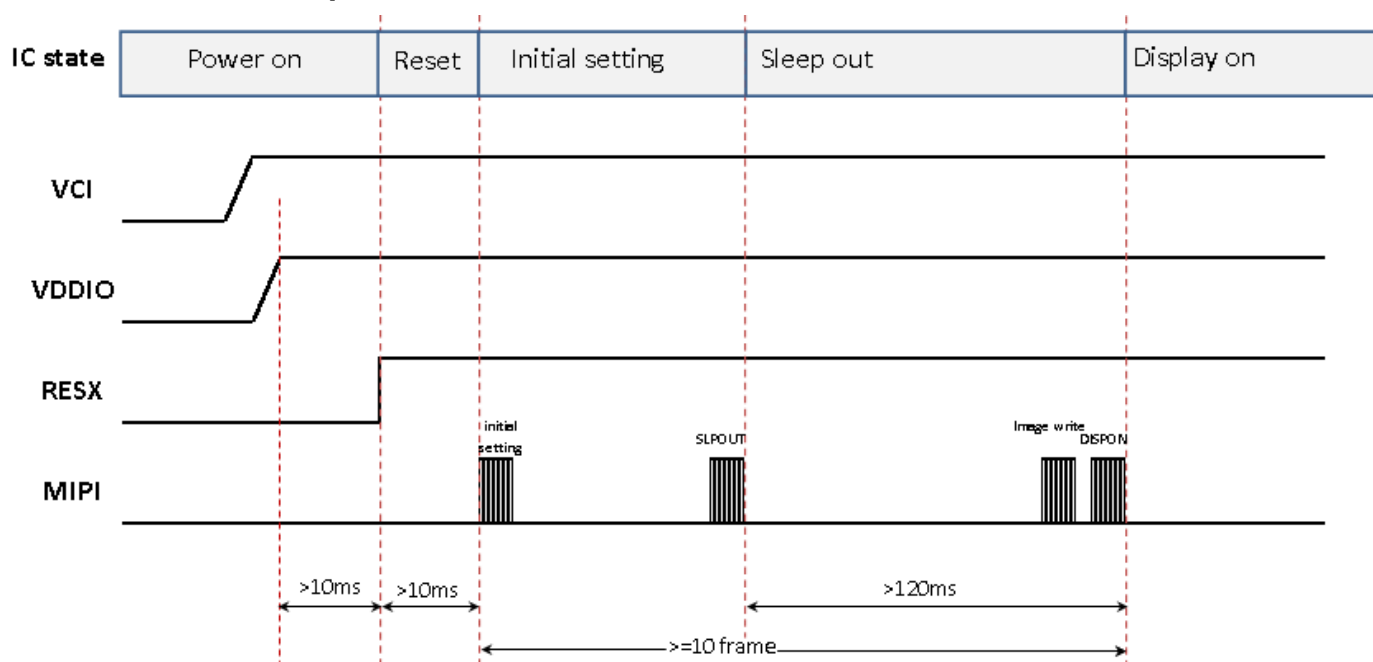
6.1 Parameter

(Ta = 25 ± 2°C)

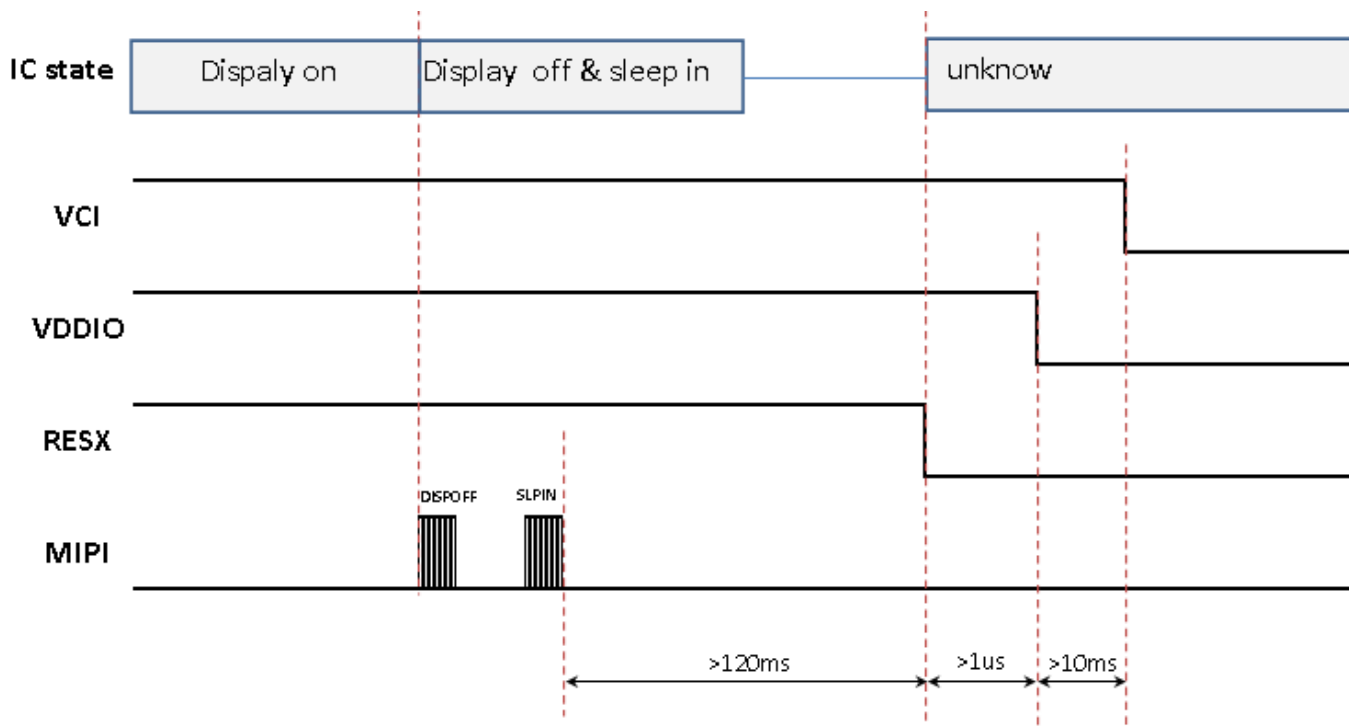
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	Note
High Level Input Signal Voltage	VIH	VDDIO=1.65~3.3V	0.8xVDDIO	-	VDDIO	V	
Low Level Input Signal Voltage	VIL	VDDIO=1.65~3.3V	0	-	0.2xVDDIO	V	
High Level Output Signal Voltage	VOH	VDDIO=1.65~3.3V	0.8xVDDIO	-	VDDIO	V	
Low Level Output Signal Voltage	VOL	VDDIO=1.65~3.3V	0-8	-	0.2xVDDIO	V	

6.2 Operating Power Sequence

6.2.1 Power on sequence



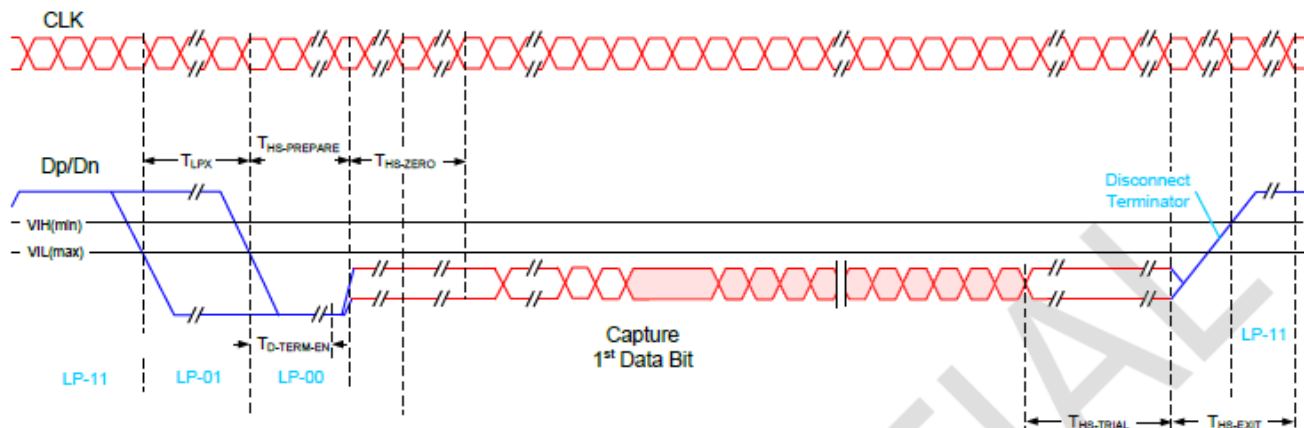
Power off sequence



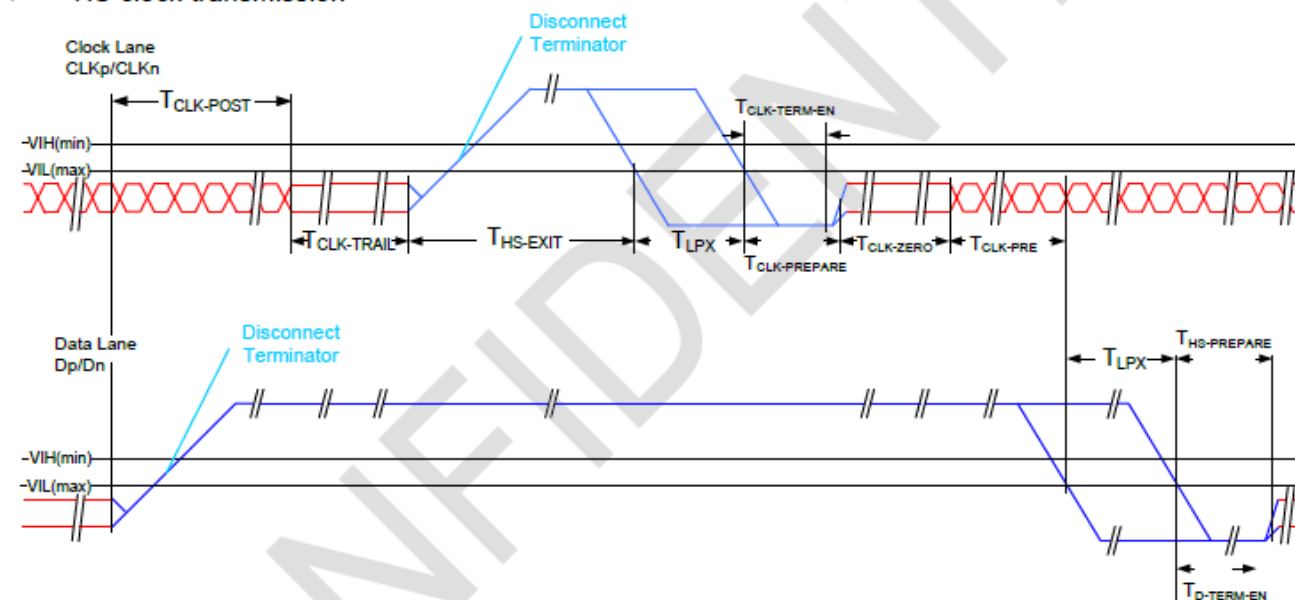
7. AC Characteristics

7.1 MIPI Interface Characteristics

HS Data Transmission Burst



➤ HS clock transmission



Turnaround Procedure

