

1.7cm (0.68inch) Active Matrix Color OLED Microdisplay

ECX343EN

1 Overview / Applications

ECX343EN is a 1.7cm (0.68inch) diagonal 1920 (RGB) x 1200 active matrix color OLED Microdisplay panel module using based on a single crystal silicon transistor.

The module integrates a panel driver circuit, it is compact, lightweight, and high definition.

Potential applications: Head-mounted displays, View finders, Small monitors, AR/VR Glass, etc.

2 Features

Small size heigh definition : 0.68inch, WUXGA display dots 1920 (RGB) x 1200 = 6.91 million dots

Maximum luminance : 5,000cd/m² (panel unique maximum luminance)

Power consumption : 500mW @ 2000cd/m²

Contrast : more than 100,000:1 @ 500 to 5000cd/m²

Color gamut : sRGB 108 % (area ratio)

Display bit depth : R 8bit G 8bit B 8bit

Response speed : 0.01ms or less

Frame rate : 60 to 120Hz

Compact and light : Panel outline 13×20.5×1.5 (mm), Mass 0.9(g)

Orbit : Total number of dots : 1952 (RGB)×1232 = 7.21 million dots

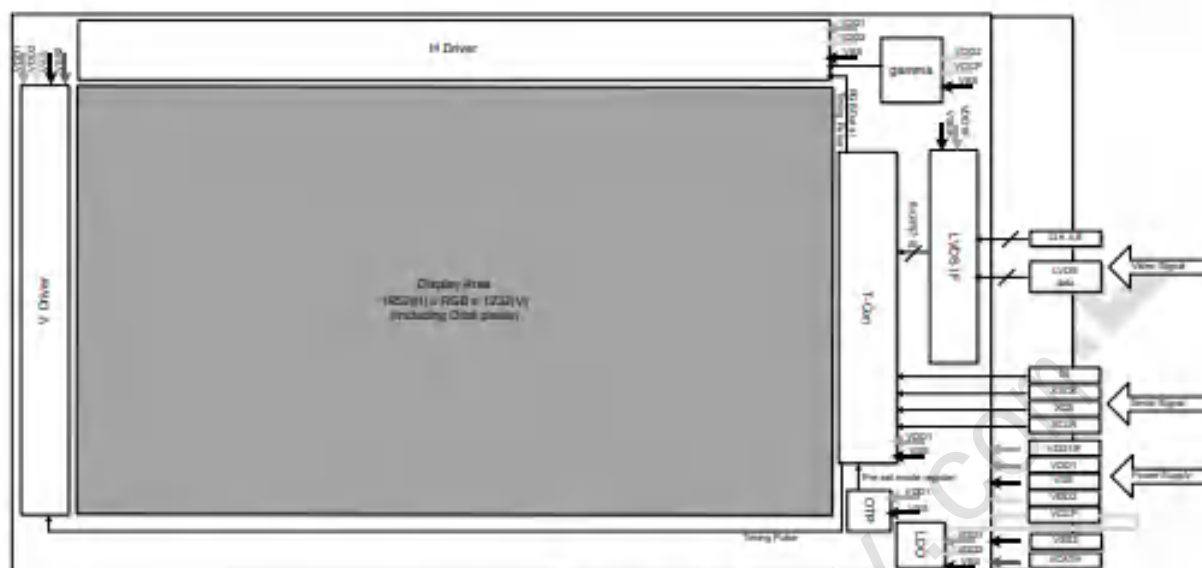
Input interface : RGB 24bit/YCbCr 24bit, 16bit LVDS input interface

Built-in sequence : One frame start-up sequence is available

3 Functions

- Dual line progressive drive
Simultaneous 2 vertical lines scan with the same data can compatible higher frame rate and reasonable power consumption.
- Up/down and right/left Inversion
Up/down and right/left inverse display of the panel can be set by the registers.
- Luminance setting
Peak luminance setting can be changed. (Peak luminance: Luminance at maximum gray level)
- Direct duty setting
The ratio of the light-emitting period in one vertical scan period can be set.
- Luminance changing speed
When you use the luminance setting, it is possible to change the speed to reach the set luminance.
- OLED illumination mode selection
Support for both rolling and global illumination mode, selectable.
- Orbit function
Scanning area shift for relaxing burn-in phenomena.
- Power saving function
To be able to halt some circuits for power save purpose.
- SPI access
Support serial communication of normal / burst transfer.

5 System Block Diagram



6 Absolute Maximum Ratings

Item	Symbol	Min.	Maximum Ratings	Unit
1.8V power supply	VDD1	-0.3	2.0	V
1.8V power supply	VDD1IF	-0.3	2.0	V
3.3V power supply	VDD2	-0.3	4.0	V
-6.6V power supply	VSS2	-8.5	0.3	V
	VDD2 - VSS2	0	12.5	V
-6.6V power supply	VCATH	-8.5	0.3	V
Logic input voltage *	V _i	-0.3	VDD1+0.3	V
IF input voltage **	V _{iIF}	-0.3	VDD1IF+0.3	V
Storage temperature	T _{pinl}	-30	80	°C

*Pin # 12-14,17

**Pin # 20-31,35-46

7 Electrical characteristics

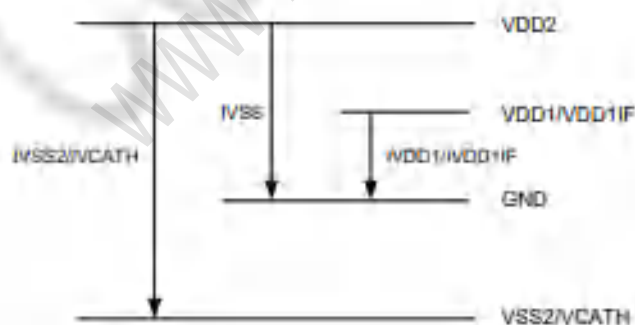
7.1 Operating Conditions

Item	Symbol	Min.	Typ.	Max.	Unit
1.8V power supply	VDD1	1.62	1.8	1.98	V
1.8V power supply	VDD1IF	1.62	1.8	1.98	V
3.3V power supply	VDD2	3.0	3.3	3.6	V
-6.6V power supply	VSS2	-6.9	-6.6	-6.3	V
-6.6V power supply	VCATH	-6.9	-6.6	-6.3	V
Panel temperature range	Tpnl	-20	40	70	°C

7.2 Current Consumption

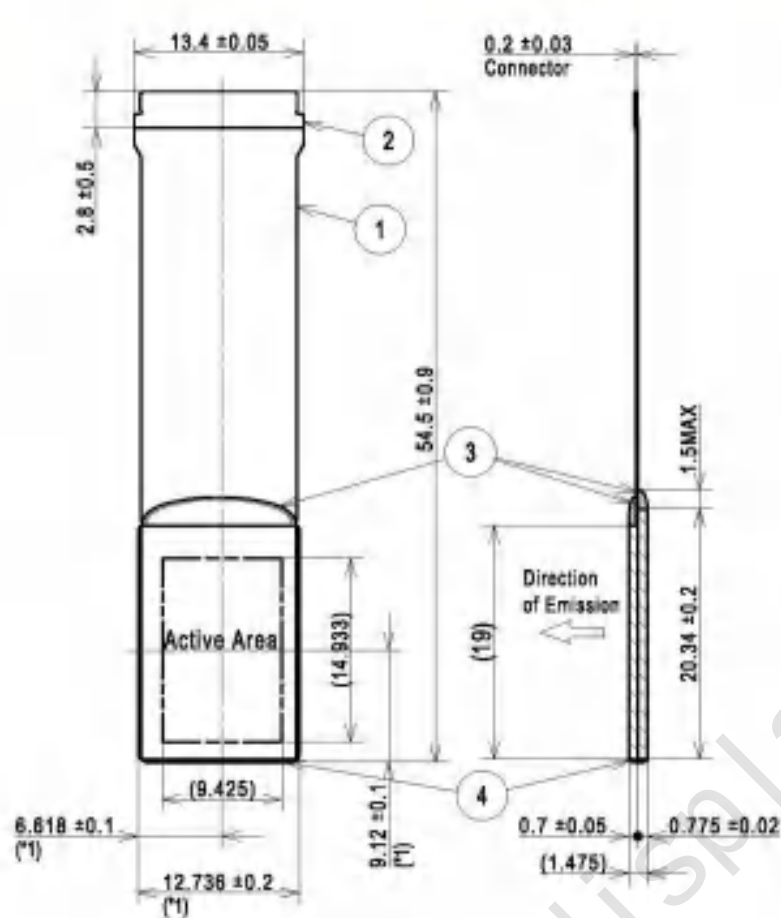
Item	Symbol	Condition		Stand-by	60Hz Drive WUXGA	120Hz Drive WUXGA		Unit	
		Drive	Luminance cd/m ²	Typical value	Typical value	Typical value	Maximum value		
(Drive)		VDD1=1.8V VDD1IF=1.8V VDD2=3.3V VSS=GND VSS2=-6.6V VCATH=-6.6V		0.1	13	23	25	mA	
VDD1	IVDD1			0	35	41	46	mA	
VDD1IF	IVDD1IF			0	14	17	26	mA	
VDD2 - VSS	IVSS			0	0.2	0.2	0.3	mA	
VDD2 - VSS2	IVSS2								
(EL)		all white clock frequency =75MHz Tpnl = 40 °C LVDS		0	0	0	0	mA	
VDD2 - VCATH	IVCATH			3500		60	60	70	mA
				5000		86	86	100	mA

Current path

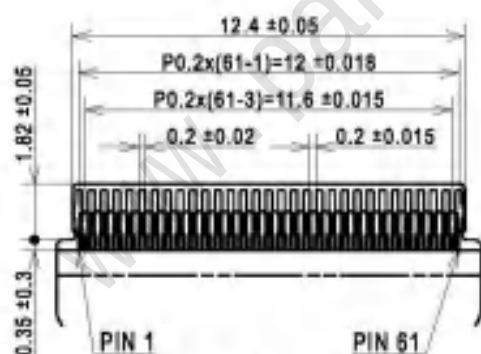


16 Module Outline

Unit : mm



*1:including End-face coating



Electrode

Recommended Connector	
Manufacturer	JST Connector
Part Number	61 FVXS - RSM 1 - GAN - TF



No	Description
1	FPC
2	Stiffener
3	Reinforcing Material
4	End-face coating

Mass 0.9g