![GooDisplay]

13.3 inch
E-paper Display Series
GDEP133C01

GooDisplay

Product Specifications

Customer	Standard
Description	13.3" E-PAPER DISPLAY
Model Name	GDEP133C01
Date	2023/11/22
Revision	1.0

	Design Engineering		
	Approval	Check	Design
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4. Input / Output Interface

4.1 Pin Assignment

Pin	Signal	Description	Remark
1	VNEG	Negative power supply source driver	
2	VPOS	Positive power supply source driver	
3	VSS	Ground	
4	VDD	Digital power supply drivers	
5	XCL	Clock source driver	
6	XLE	Latch enable source driver	
7	XOE	Output enable source driver	
8	VSS	Ground	
9	VSS	Ground	
10	NC	No Connection	
11	XSTL	Start pulse source driver	
12	D0	Data signal source driver	
13	D1	Data signal source driver	
14	D2	Data signal source driver	
15	D3	Data signal source driver	
16	D4	Data signal source driver	
17	D5	Data signal source driver	
18	D6	Data signal source driver	
19	D7	Data signal source driver	
20	VSS	Ground	
21	VCOM_FPL	Common Voltage	
22	VCOM_TFT	Common Voltage	
23	VGH	Positive power supply gate driver	
24	VGL	Negative power supply gate driver	
25	NC	No Connection	
26	NC	No Connection	
27	XON	All the gate pins output mode	
28	MODE	Output modeselection gate driver	
29	VSS	Ground	
30	VSS	Ground	
31	VSS	Ground	
32	SPV	Start pulse gate driver	
33	CKV	Clock gate driver	
34	BORDER	Border connection	
35	VSS	Ground	
36	VSS	Ground	
37	VSS	Ground	
38	VSS	Ground	
39	VSS	Ground	

5 Display Module Electrical Characteristics

5.1 Absolute maximum rating

Parameter	Symbol	Rating	Unit
Logic Supply Voltage	VDD	-0.3 to +7	V
Positive Supply Voltage	V_{POS}	-0.3 to +18	V
Negative Supply Voltage	V_{NEG}	+0.3 to -18	V
Max .Drive Voltage Range	V_{POS} - V_{NEG}	36	V
Supply Voltage	VGH	-0.3 to +55	V
Supply Voltage	VGL	-32 to +0.3	V
Supply Range	VGH-VGL	-0.3 to +55	V
Operating Temp. Range	TOTR	+15 to +35	℃
Storage Temperature	TSTG	-25 to +50	℃

Note

- Maximum ratings are those values beyond which damages to the device may occur.

- Functional operation should be restricted to the limits in the Electrical Characteristics chapter.

- **The recommended operating temperature should be kept from 15℃ to 35℃**

5.2 Panel DC characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Signal ground	VSS			0		V
Logic voltage supply	VDD		2.7	3.3	3.6	V
	IDD	VDD=3.3V		8.5	12.5	mA
Gate negative supply	VGL		-22	-20	-19	V
	IGL	VGL=-20V		10	120	mA
Gate Positive supply	VGH		26	27	29	V
	IGH	VGH=27V		6	12	mA
Source negative supply	VNEG*		-16	Adjusted	-9	V
	INEG	VNEG=-15V		12	50	mA
Source Positive supply	VPOS*		6	Adjusted	17	V
	IPOS	VPOS=15V		15	75	mA
Border supply	(Vcom_FPL)*		(-19)	(Adjusted)	(16)	V
Asymmetry source	Vasm	VPOS+VNEG	-300		300	mV
Common voltage	Vcom_TFT*		-19	Adjusted	16	V
	Icom_TFT			15	120	mA
	Vcom_FPL*		-19	Adjusted	16	V
	Icom_FPL			6	6	mA
Maximum Power panel	Pmax				1500	mW
Typical power panel	Ptyp			500		mW
Standby power panel	Pstby				30	mW

Note

- Voltage adjusted by WFM setting.

- Border should be available controlled by WFM setting or floating.

Rush current	IDD	VDD=3.3V	-100		100	mA
	IGL	VGL=-20V	-800		800	mA
	IGH	VGH=27V	-400		400	mA
	INEG	VNEG=-15V	-600			mA
	IPOS	VPOS=15V			1500	mA
	Icom		-1600		1600	mA

Note

- The Maximum power consumption is measured with following pattern transition: from LineA to LineB.(Note 5-1)

- The Typical power consumption is measured with following pattern transition: from horizontal 8 generic color pattern to vertical 8 generic color pattern (Note 5-2)

- VNEG & VPOS should be available controlled by WFM setting.

- Vcom-TFT & Vcom-FPL should be available controlled by WFM setting.

- The standby power is the consumed power when the panel controller is in standby mode.

- The listed electrical/optical characteristics are only guaranteed under the controller & waveform provided by Good Display.

- Vcom is recommended to be set in the range of assigned value ± 0.1V.
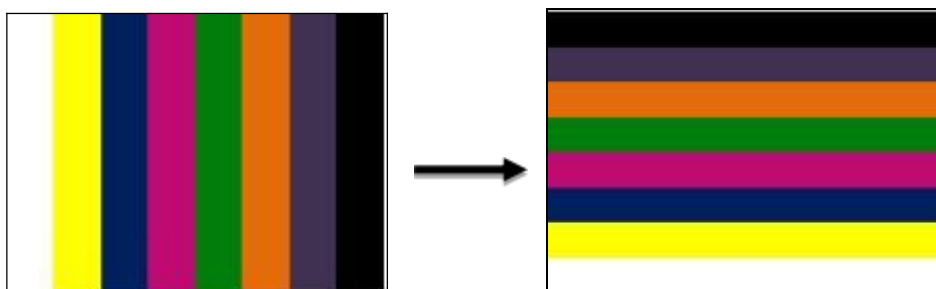
- The rush current is for reference only.

Note 5-1
The Maximum power consumption
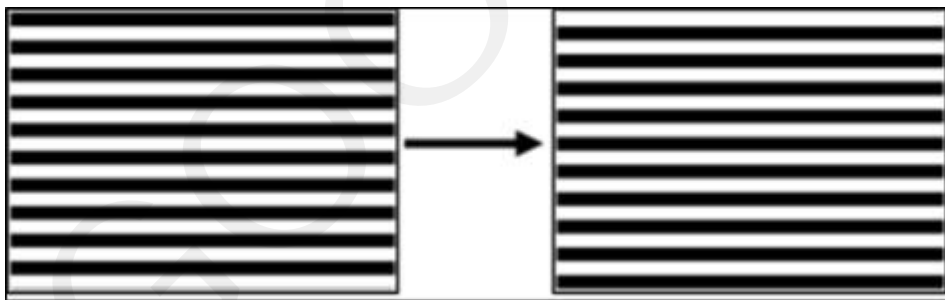
Note 5-2
The Typical power consumption

6. Handling, Safety and Environmental Requirements

WARNING
The display glass may break when it is dropped or bumped on a hard surface. Handle with care. Should the display break, do not touch the electrophoretic material. In case of contact with electrophoretic material, wash with water and soap.

CAUTION
The display module should not be exposed to harmful gases, such as acid and alkali gases, which corrode electronic components.
Disassembling the display module can cause permanent damage and invalidate the warranty agreements.

Observe general precautions that are common to handling delicate electronic components. The glass can break and front surfaces can easily be damaged. Moreover the display is sensitive to static electricity and other rough environmental conditions.

Data sheet status	
Product specification	The data sheet contains final product specifications.
Limiting values	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
Application information	
Where application information is given, it is advisory and dose not form part of the specification.	

Product Environmental certification
RoHS

7. Precautions

(1) Do not apply pressure to the EPD panel in order to prevent damaging it.

(2) Do not connect or disconnect the interface connector while the EPD panel is in operation.

(3) Do not touch IC bonding area. It may scratch TFT lead or damage IC function.

(4) Please be mindful of moisture to avoid its penetration into the EPD panel, which may cause damage during operation.

(5) If the EPD Panel / Module is not refreshed every 24 hours, a phenomena known as "Ghosting" or "Image Sticking" may occur. It is recommended to refreshed the ESL / EPD Tag every 24 hours in use case. It is recommended that customer ships or stores the ESL / EPD Tag with a completely white image to avoid this issue

(6) High temperature, high humidity, sunlight or fluorescent light may degrade the EPD panel's performance. Please do not expose the unprotected EPD panel to high temperature, high humidity, sunlight, or fluorescent for long periods of time.

https://www.good-display.com/news/80.html