



ePAPER DISPLAY MODULE DATASHEET

CFAP800480A1-0750

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CONTENTS

1. General Information.....	3
2. Description Overview	4
3. Features	4
4. Mechanical Specifications	4
5. Pin Functions.....	5
6. Maximum Ratings.....	6
6.1. Absolute Maximum Ratings	6
6.2. DC Characteristics	6
7. Optical Characteristics	7
7.1. Specifications	7
7.2. Definition of Contrast Ratio	7
7.3. Reflection Ratio	7
8. Mechanical Drawing	8
9. Reference Circuits.....	9
9.1. General.....	9



1. General Information

Datasheet Revision History

Datasheet Release Date: 2026-06-18
Datasheet for the CFAP800480A1-0750 ePaper display module.

Product Change Notifications

You can check for or subscribe to [Part Change Notices](#) for this display module on our website.

Variations

Slight variations between lots are normal (e.g., contrast, color, or intensity).

Volatility

This display module has volatile memory.

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2. Description Overview

A rectangle black-and-white 800x480 pixel ePaper display module, perfect for medium, low power, long term display. Once an image is shown on the display, it remains visible while entirely disconnected from power. The display is an active matrix electrophoretic display (AMEPD).

Built-in voltage generation requires only a few external components. An integrated circuit contains a gate buffer, source buffer, interface, timing control logic, oscillator, DC-DC, SRAM, LUT, VCOM, and border. See the [CFA10084 ePaper breakout board](#) for an example of implementing this display.

3. Features

- 800x480 Pixels, 124.39 ppi
- High Contrast
- High Reflectance, Pure Reflective Mode
- Ultra-Wide Viewing Angle
- Ultra-Low Power Consumption, Bi-Stable Display, Ultra Low Current Deep Sleep Mode
- Commercial Temperature Range
- Antiglare Hard-Coated Front-Surface
- On-Chip Display RAM
- Serial Peripheral Interface (SPI)
- On-Chip Booster and Regulator Control for Generating VCOM, Gate and Source Driving Voltage
- I²C Signal Master Interface to Read External Temperature Sensor
- Full screen update time: 3 seconds
- Fast screen update time: 1.5 seconds (a full screen update is recommended once every 5 fast updates)
- Partial refresh time: 0.3 seconds
- Recommended time between updates: 180 seconds
- UC8179 Controller chip

4. Mechanical Specifications

Parameter	Specifications (mm)	Specification (in)
Screen Size	190.5	7.5
Active Area	163.2 (W) x 97.72 (H)	6.43 x 3.85
Pixel Pitch	0.204 x 0.204	0.008 x 0.008
Outline Dimension	170.2 (W) x 111.2 (H) x 1.25 (D)	6.70 x 4.38 x 0.04
Weight (typical)	44 grams	1.55 ounces
Display Resolution	800 (W) x 480 (H)	



5. Pin Functions

Pin #	Type	Single	Description
1	NC	NC	No Connection and Do Not Connect with Other NC Pins
2	O	GDR	N-Channel MOSFET Gate Drive Control
3	I	RESE	Current Sense Input for the Control Loop
4	NC	NC	No Connection and Do Not Connect with Other NC Pins
5	C	VSH2	Positive Source Driving Voltage
6	O	TSCL	I ² C Interface to Digital Temperature Sensor Clock Pin <i>External pull-up resistor required</i>
7	I/O	TSDA	I ² C Interface to Digital Temperature Sensor Data Pin <i>External pull-up resistor required</i>
8	I	BS1	Bus Selection Pin – Low 4-Wire SPI, High 3-Wire SPI
9	O	BUSY	Busy State Output Pin – high when chip is busy
10	I	RES#	Reset Pin – active low
11	I	D/C#	Data /Command Control Pin – Data high, command low Tie low for 3-wire SPI
12	I	CS#	Chip Select Input Pin - active low
13	I	SCL	Serial Clock Pin (SPI)
14	I	SDA	Serial Data Pin (SPI)
15	P	VDDIO	Power for Interface Logic Pins. Connect to VCI
16	P	VCI	Power Supply Pin for the Chip
17	P	VSS	Ground
18	C	VDD	Core Logic Power Pin. This pin is regulated internally. Connect a capacitor between VDD and VSS
19	P	VPP	Power Supply for OTP Programming, leave open if not used
20	C	VSH1	Positive Source Driving Voltage
21	C	VGH	Positive Gate Driving Voltage
22	C	VSL	Negative Source Driving Voltage
23	C	VGL	Negative Gate Driving Voltage
24	C	VCOM	VCOM Driving Voltage

I – Input
O – Output
P – Power
C – Capacitor
NC – No connection, do not connect to other NC pins
See Section 12: Reference Circuits



6. Maximum Ratings

6.1. Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Logic Supply Voltage	V_{CI}	-0.3 to +6.0	V
Operating Temp. Range	T_{OPR}	0 to +50	°C
Storage Temp. Range	T_{STG}	-25 to +70	°C
IMPORTANT: A UV protective film is recommended when operating the module in direct sunlight.			

Recommended Storage temp is 23°C±2, and humidity of 55%RH±10

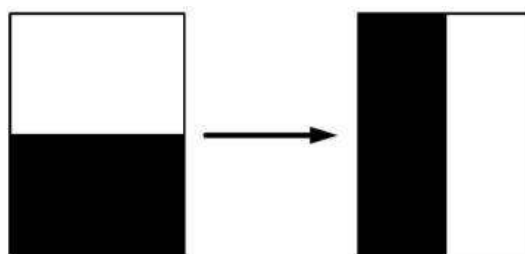
6.2. DC Characteristics

The following specifications apply for: $V_{SS} = 0V$, $V_{CI} = 3.0V$, $T_{OPR} = 23^{\circ}C$

Parameter	Symbol	Conditions	Module Pin	Min	Typ	Max	Unit
Logic Supply Voltage	V_{CI}	-	V_{CI}	2.5	3.3	3.6	V
High Level Input Voltage	V_{IH}	-	SCL, SDA, CS#, D/C#, RES#, BS1	0.7 V_{CI}	-	V_{CI}	V
Low Level Input Voltage	V_{IL}	-		-	-	0.3 V_{CI}	V
High Level Output Voltage	V_{OH}	$I_{OH} = -400\mu A$	BUSY	0.4 V_{CI}	-	-	V
Low Level Output Voltage	V_{OL}	$I_{OL} = 400\mu A$		-	-	0.4 V_{CI}	V
Module Operating Current	I_{UPDATE}	-	-	-	8	12	mA
Deep Sleep Mode	I_{SLEEP}	-	-	-	2	5	μA

The typical power consumption is measured with the following pattern transition: from horizontal pattern to vertical pattern, shown below.

Note: 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 Crystallfontz. V_{COM} is recommended to be set in the range of assigned value $\pm 0.1V$.





7. Optical Characteristics

7.1. Specifications

Measurements are made with the illumination under an angle of 45 degrees, the detection is perpendicular unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit	Note
R	Reflectance	White	30	35	-	%	13-1
Gn	2Gray Level	-	-	$DS + (WS - DS) \times n \times (m - 1)$	-	L*	13-2
CR	Contrast Ratio	Indoor	8:1	-	-	-	-
-	Panel Life	0°C~50°C	-	5 years or 1,000,000 times	-	-	13-3
-	Refresh Rate	25°C	-	3	-	seconds	-

Note (13-1): Luminance meter: Eye – One Pro Spectrophotometer

Note (13-2): WS: White State, DS: Dark State, m: 2

Note (13-3): Panel life is not guaranteed when used outside of conditions described herein, or outside of the 45-70%RH. Display must be updated at least once per day.

7.2. Definition of Contrast Ratio

The contrast ratio (CR) is the ratio between the reflectance in a full white area (R1) and the reflectance in a dark area (Rd) ():

R1: White Reflectance Rd: Dark Reflectance

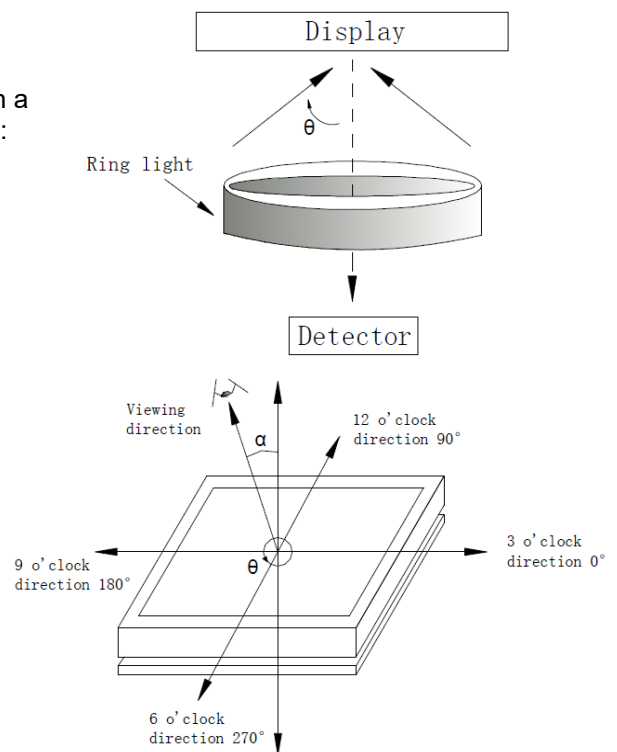
$$CR = R1/Rd$$

7.3. Reflection Ratio

The reflection ratio is expressed as:

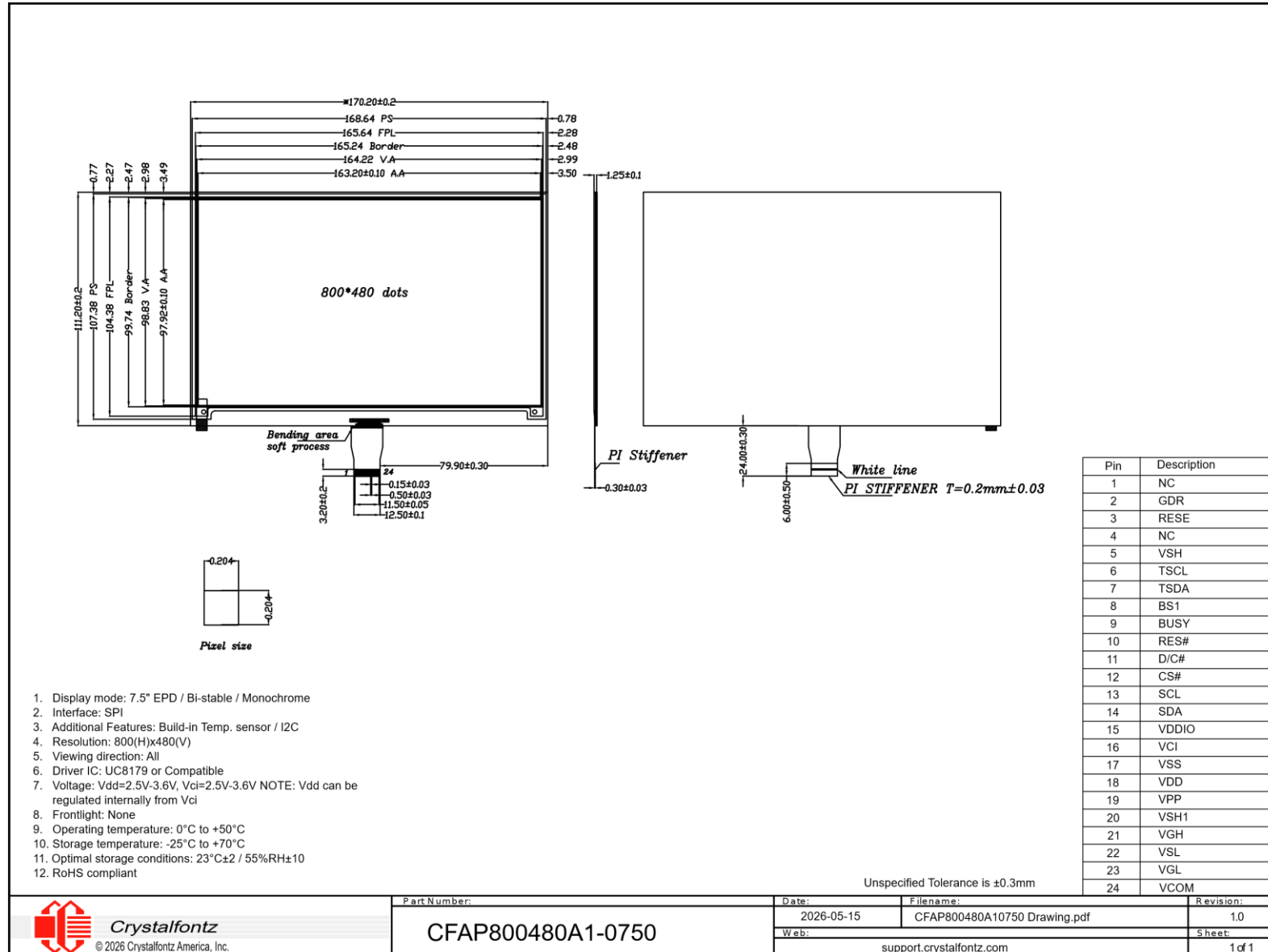
$$R = \text{Reflectance Factor}_{\text{white board}} \times (L_{\text{CENTER}} / L_{\text{WHITE BOARD}})$$

L_{CENTER} is the luminance measured at center in a white area ($R=G=B=1$). $L_{\text{WHITE BOARD}}$ is the luminance of a standard white board. Both are measured with equivalent illumination source. The viewing angle shall be no more than 2 degrees.





8. Mechanical Drawing





9. Reference Circuits

9.1. General

