



TFT DISPLAY MODULE DATA SHEET

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for
CFAF480640A-035T

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■ GENERAL INFORMATION

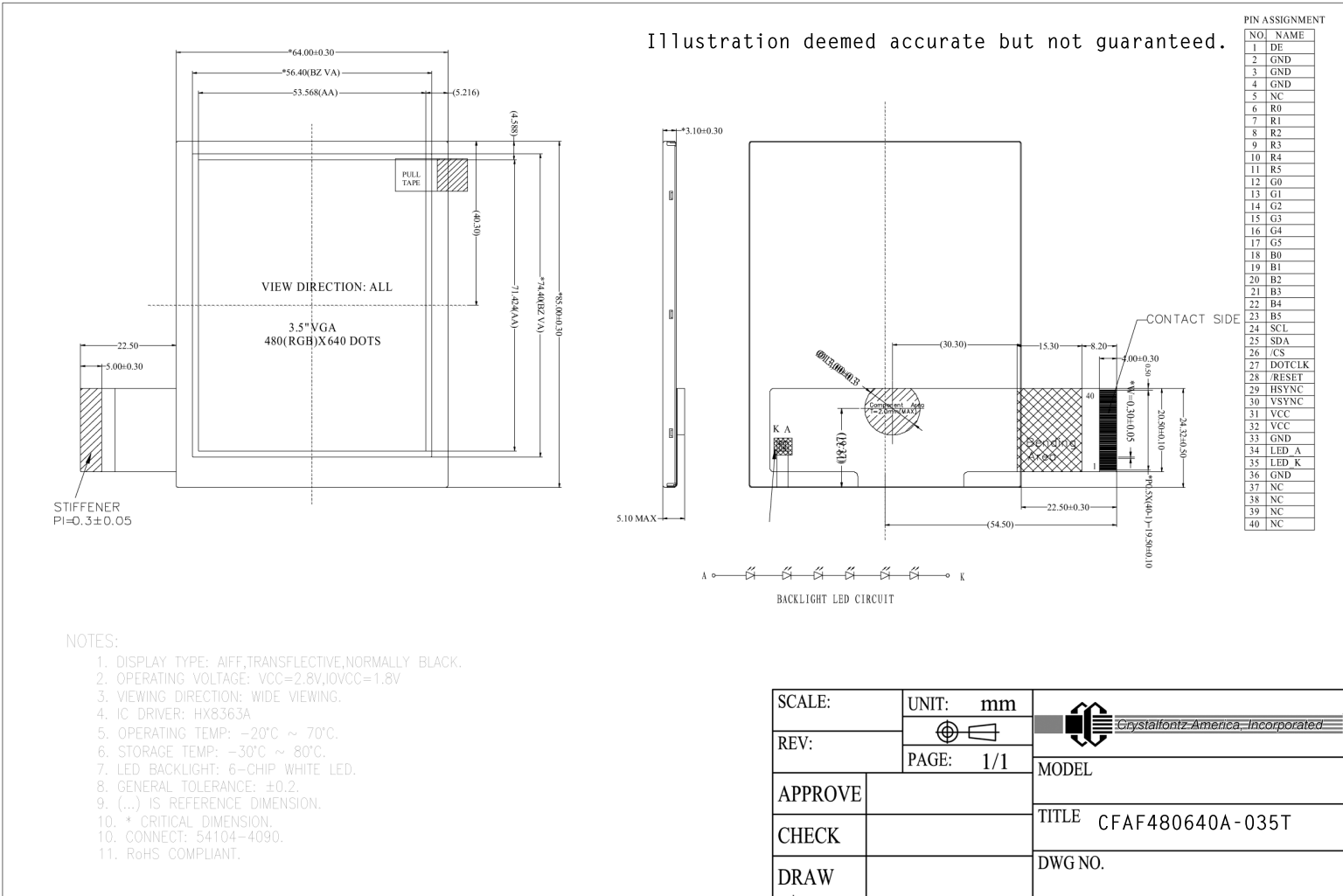
Item	Contents	Unit
LCD type	AIFF/Transflective/Normally black	/
Size	3.5	Inch
Viewing direction	Wide viewing	O' Clock
LCM (W × H × D)	64.00×85.00×3.10	mm ³
Active area (W×H)	53.568×71.424	mm ²
Dot pitch (W×H)	0.0372×0.1116	mm ²
Number of dots	480 (RGB) × 640	/
Driver IC	HX8363A	/
Backlight type	6 LEDs	/
Interface type	18bit RGB	/
Color depth	262K	/
Pixel configuration	R.G.B vertical stripe	/
Input voltage	2.8	V
With/Without TSP	Without TSP	/
Weight	TBD	g

Note 1: RoHS compliant;

Note 2: LCM weight tolerance: ± 5% .



EXTERNAL DIMENSIONS





■ ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min	Max	Unit
Analog supply voltage	VCC	-0.3	4.6	V
Operating temperature	T _{OP}	-20	70	°C
Storage temperature	T _{ST}	-30	80	°C
Storage humidity	HD	20	90	%RH

Note :VIN: R0-R5,G0-G5,B0-B5,ENABLE,DCLK,HSYNC,VSYNV,/CS,SCL,SDI,SDO/RESET.

■ ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Min	Typ	Max	Unit	Remark
Analog supply voltage	VCC	2.3	2.8	3.3	V	
Input voltage ' H ' level	V _{IH}	0.7IOVCC	-	IOVCC	V	Digital input pins
Input voltage ' L ' level	V _{IL}	GND	-	0.3IOVCC	V	Digital input pins
Output voltage ' H ' level	V _{OH}	0.8IOVCC	-	IOVCC	V	I _{OH} =-0.1mA
Output voltage ' L ' level	V _{OL}	GND	-	0.2IOVCC	V	I _{OH} =-0.1mA IOVCC=1.65~2.4V
I/O leak current	ILI	-1	-	1	uA	

■ BACKLIGHT CHARACTERISTICS

Item	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward voltage	V _f	18.0(Typ)	19.2(Typ)	21.0(Typ)	V	6 LEDs serial
Forward current	I _f	-	15	20	mA	
Operating life time	-	50000	-	-	Hrs	



CAUTION

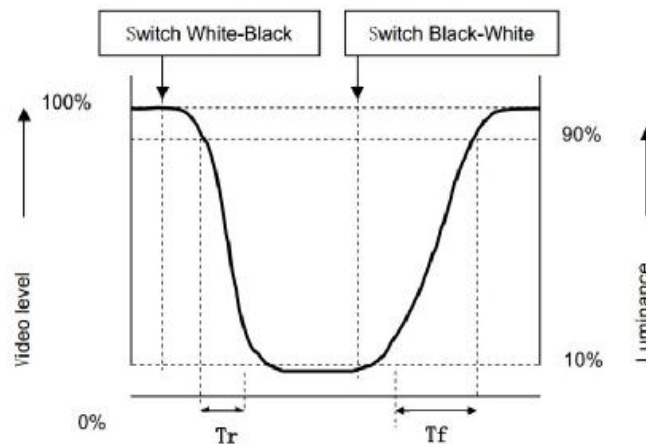
Do not drive the LEDs at any current over their rated maximum of 20mA (15mA recommended for longer life). Be aware that the forward voltage of white LEDs can vary (LED to LED, batch to batch, and over time) by a significant amount. We recommend using a constant current LED power supply such as the AP3036, NCP5007, FAN5333, or similar to drive the LEDs. Do not use a constant voltage source to drive the LEDs.



3.Definitions and measuring methods

[1] Response Time(Tr、 Tf)

The rise time 'Tr' is defined as the time for luminance to change from 90% to 10% as a result of a change of the electrical condition. The fall time 'Tf' is defined as the time for luminance to change from 10% to 90% as a result of a change of the electrical condition.

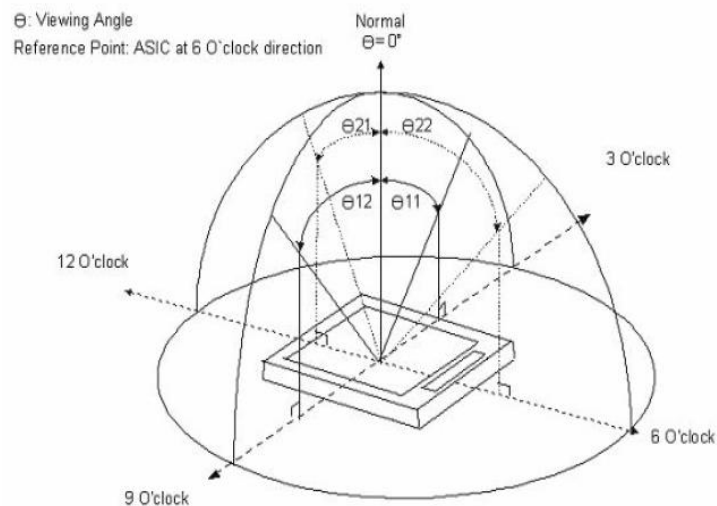


[2] Contrast ratio (Cr)

The contrast ratio (Cr), measured on a module, is the ratio between the luminance (L_w) in a full white area (R=G=B=1) and the luminance (L_d) in a dark area (R=G=B=0):

$$Cr = \frac{L_w}{L_d}$$

[3] Viewing angle diagram





[4] Definition of color gamut

Measuring machine:CFT-01. NTSC'S Primaries: R(x,y,Y)、 G(x,y,Y)、 B(x,y,Y).

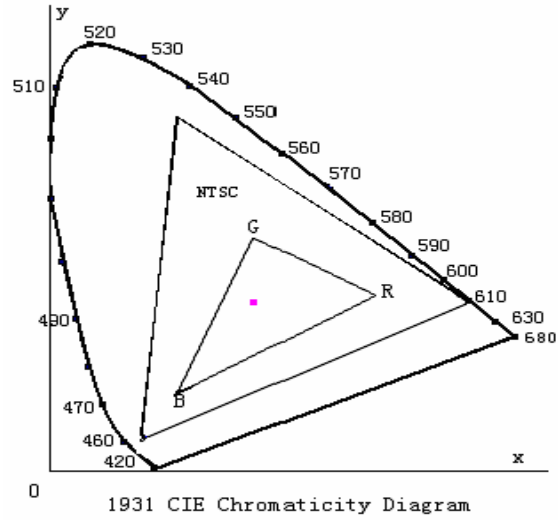


Fig. 1931 CIE chromaticity diagram

$$\text{Color gamut: } S = \frac{\text{Area of RGB triangle}}{\text{Area of NTSC triangle}} \times 100\%$$



■ INTERFACE DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	DE	Display enable pin from controller
2	GND	Ground
3	GND	Ground
4	GND	Ground
5	NC	Not connected
6	R0	DBI TYPE- B interface
7	R1	
8	R2	
9	R3	
10	R4	
11	R5	
12	G0	
13	G1	
14	G2	
15	G3	
16	G4	
17	G5	
18	B0	
19	B1	
20	B2	
21	B3	
22	B4	
23	B5	
24	SCL	Clock input pin in serial mode
25	SDA	Data pin in serial mode
26	/CS	Chip select signal.
27	DOTCLK	Dot clock signal
28	/RESET	Reset pin
29	HSYNC	Line synchronization signal
30	VSYNC	Frame synchronization signal
31	IOVCC	A power supply for the I/O circuit
32	VCC	A power supply for the analog power
33	GND	Ground
34	LEDA	Power supply for backlight anode input terminals.
35	LEDK	Power supply for backlight cathode input terminals.
36	GND	Ground
37	NC(XR)	Not connected
38	NC(YD)	Not connected
39	NC(XL)	Not connected
40	NC(YU)	Not connected

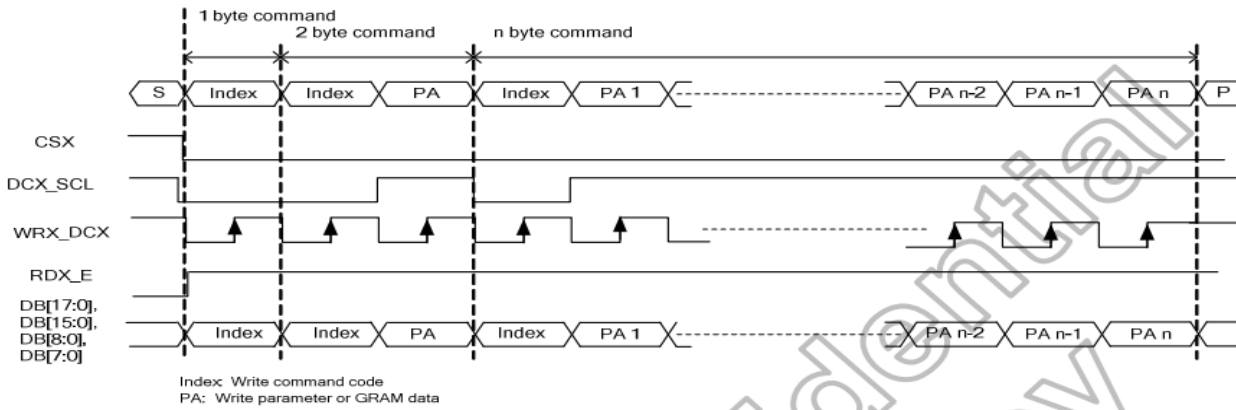


APPLICATION NOTES

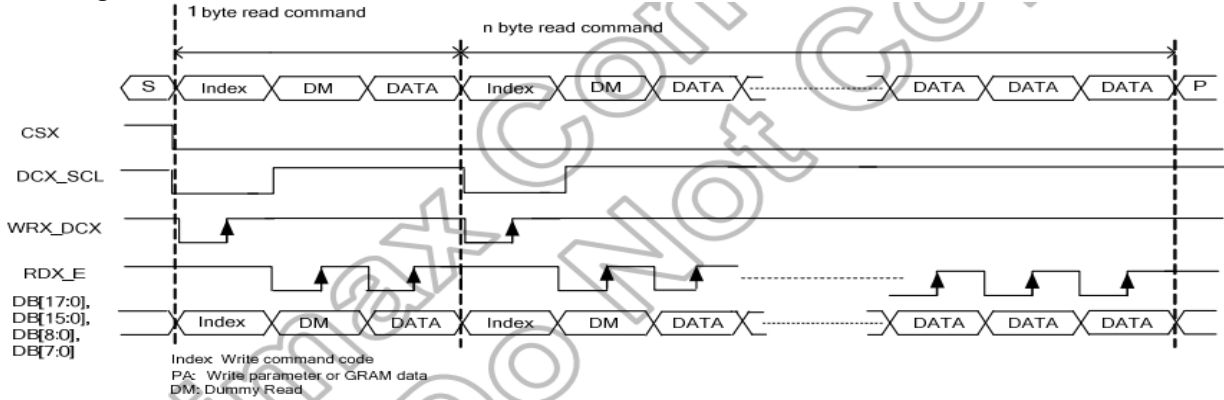
1. Timing Characteristics

1.1 DBI Type B Interface Timing Characteristics

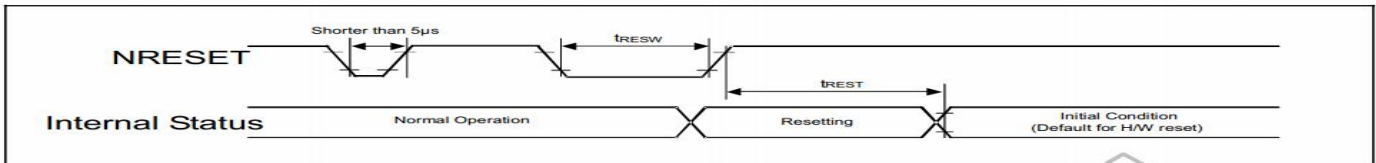
Write to register or GRAM



Read to register or GRAM



1.2 Reset Timing Characteristics



Symbol	Parameter	Related pins	Min.	Typ.	Max.	Note	Unit
t_{RESW}	Reset low pulse width ⁽¹⁾	NRESET	10	-	-	-	μs
t_{REST}	Reset complete time ⁽²⁾	-	5	-	-	When reset is applied during Sleep In mode	ms
		-	120	-	-	When reset is applied during Sleep Out mode	ms