

Specification			
Part Number:	MCT101D12S1024600LML		
Version:	1		
Date:	2016/04/06		
Revision			
VERSION	DATE	REVISED PAGE NO.	Note
0	2015/06/29		First issue
A	2016/01/21		Modify Static electricity test
Key Attributes		Display Accessories	
TFT LCD " " " " ‡ of 8 " " Landscape RGB 3.3V Of) o Interface cd/m2 x mm - 0 ~ + 0 deg C 40 Way		MCIB-1	



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Midas Active Matrix Display Part Number System

MC T 057 A 6 * W 320240 L M L * *
1 2 3 4 5 6 7 8 9 10 11 12 13

- 1 = **MC:** Midas Components
- 2 = **T:** TFTA: Active Matrix OLED **M:** Monitor
- 3 = **Size**
- 4 = **Series**
- 5 = **Viewing Angle:** **6:** 6 O'clock **12:** 12 O'clock **O:** All Round Viewing Angle
- 6 = **Blank:** No Touch **T:** Resistive Touchscreen **C:** Capacitive Touchscreen
- 7 = **Operating Temp Range:** **S:** 0+50Deg C **B:** -20+60Deg C
 W: -20+70Deg C **E:** -30+85Deg C
 X: -30+80Deg C
- 8 = **No of Pixels**
- 9 = **Orientation:** **P:** Portrait **L:** Landscape
- 10 = **Mode:** **R:** Reflective **M:** Transmissive **T:** Transflective
S: Sunlight Readable (Transmissive) **W:** White on Black (Monochrome)
- 11 = **Backlight:** **Blank:** None **L:** LED **C:** CCFL
- 12 = **Blank:** No Module/board **C:** Controller board module (E-Tech)
- 13 = **Blank:** None **OB:** Optically Bonded **IPS:** In-plane switching

3.General Specifications

- Size: 10.1 inch
- Dot Matrix: 1024 RGB X 600 dots
- Module dimension: 235(W) x143(H) x 3.0(D) mm
- Active area: 222.72 (H) x 125.28(V) mm
- Dot pitch: 0.2175(W) x 0.2088(H) mm
- LCD type: TFT, Normally White, Transmissive
- View Direction: 12 o'clock
- Gray Scale Inversion Direction: 6 o'clock
- Backlight Type: LED, Normally White
- With /Without TP: Without TP
- Surface: Anti-Glare

*Color tone slight changed by temperature and driving voltage.

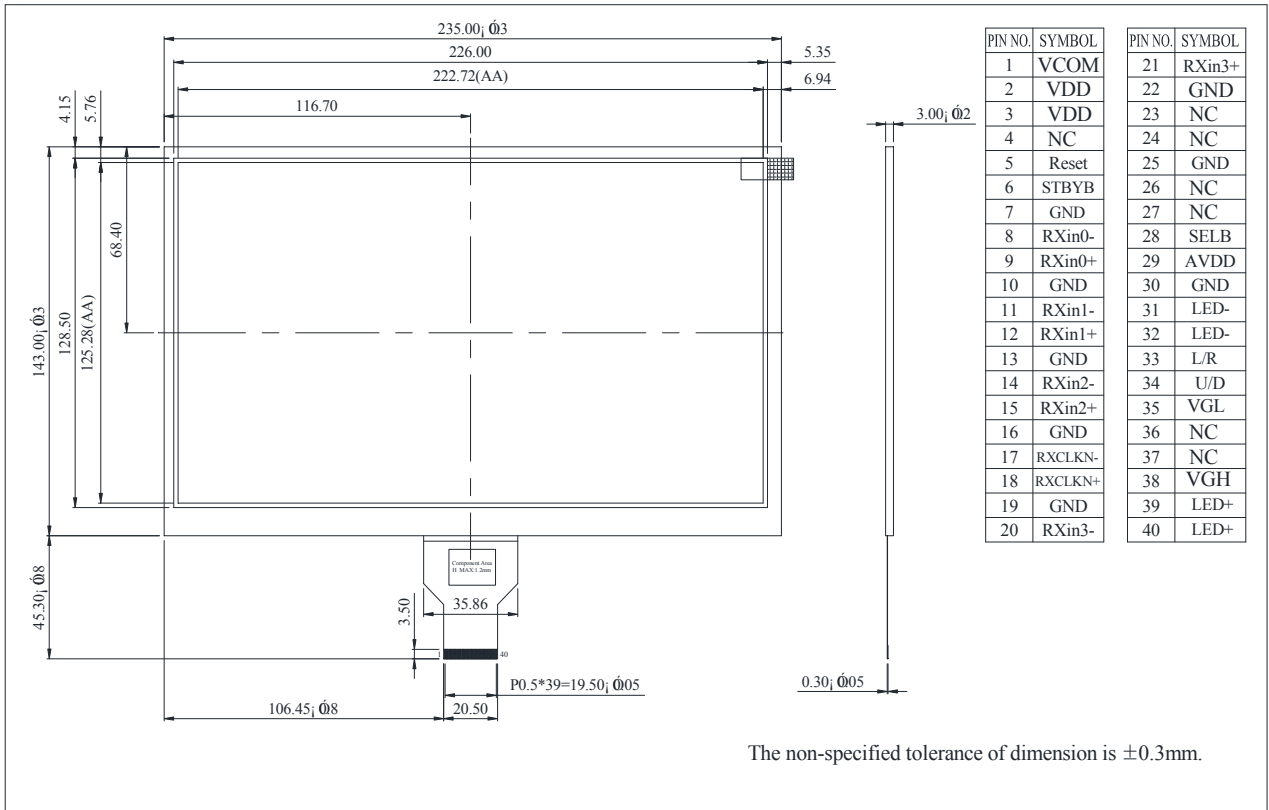
4.Interface

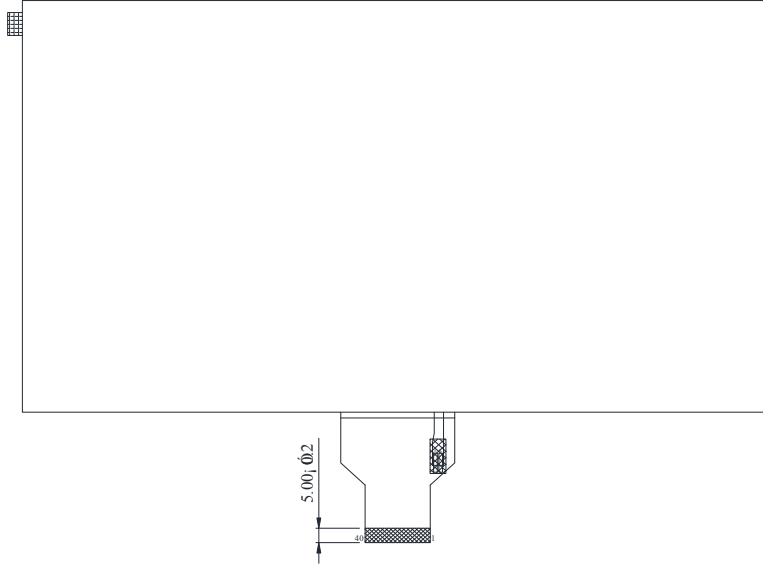
4.1. TFT LCD MODULE

PinNo.	Symbol	Description
1	VCOM	Common voltage
2	VDD	Digital power
3	VDD	Digital power
4	NC	Not connect
5	RESET	Global reset pin. Active low to enter reset state. Suggest to connecting with an RC reset circuit for stability. Normally pull high. (R=10K Ω , C=1 μ F)
6	STBYB	Standby mode, normally pull high STBYB="1", normal operation STBYB="0", timing control, source driver will turn off, all output are high-Z
7	GND	Digital ground
8	NIND0	Negative LVDS differential data inputs
9	PIND0	Positive LVDS differential data inputs
10	GND	Digital ground
11	NIND1	Negative LVDS differential data inputs
12	PIND1	Positive LVDS differential data inputs
13	GND	Digital ground
14	NIND2	Negative LVDS differential data inputs
15	PIND2	Positive LVDS differential data inputs
16	GND	Digital ground
17	NINC	Negative LVDS differential clock inputs
18	PINC	Positive LVDS differential clock inputs
19	GND	Digital ground
20	NIND3	Negative LVDS differential data inputs
21	PIND3	Positive LVDS differential data inputs
22	GND	Digital ground
23	NC	Not connect
24	NC	Not connect
25	GND	Digital ground
26	NC	Not connect
27	NC	Not connect
28	SELB	6-bit/8-bit input select SELB = L , 8-bit ; SELB = H , 6-bit
29	AVDD	Analog power
30	GND	Digital ground
31	VLED-	LED Cathode
32	VLED-	LED Cathode
33	SHLR	Left or right display control
34	UPDN	Up / down display control
35	VGL	Negative power for TFT
36	NC	Not connect

37	NC	Not connect
38	VGH	Positive power for TFT
39	VLED+	LED Anode
40	VLED+	LED Anode

5. Contour Drawing





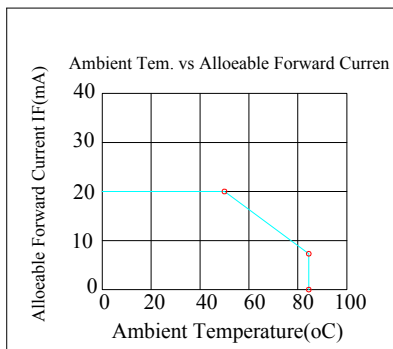
The non-specified tolerance of dimension is $\pm 0.3\text{mm}$.

6. Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	TOP	-10	—	+60	□
Storage Temperature	TST	-20	—	+70	□

Note: Device is subject to be damaged permanently if stresses beyond those absolute maximum ratings listed above

- Temp. $\leq 60^\circ\text{C}$, 90% RH MAX. Temp. $> 60^\circ\text{C}$, Absolute humidity shall be less than 90% RH at 60°C



7. Electrical Characteristics

7.1. Typical Operation Conditions (At Ta = 25 °C,)

ITEM	SYMBOL	MIN	TYP	MAX	UNIT	NOTE
Digital Power Supply Voltage For LCD	VDD	3	3.3	3.6	V	-
Analog Power Supply Voltage	AVDD	--	10.4	11	V	-
Gate On Power Supply Voltage	VGH	20	21	22	V	-
Gate Off Power Supply Voltage	VGL	-8.5	-8	-7	V	-
Common Power Supply Voltage	VCOM	--	3.8	--	V	Note1
Logic Input Voltage	VIH	0.7*DVDD	-	DVDD	V	-
	VIL	GND	-	0.3*DVDD	V	

Note1. Please adjust VCOM to make the flicker level be minimum.

7.2. Backlight Driving Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Supply voltage of white LED backlight	VL	8.4	9.6	10.8	V	Note 1
Current for LED backlight	IL	135	140	150	mA	
Uniformity	Δ	70	75	-	%	
LED life time	-	20,000	-	-	Hr	Note2

Note 1: The LED Supply Voltage is defined by the number of LED at Ta=25°C and IL =140mA.

Note 2: The "LED life time" is defined as the module brightness decrease to 50% original brightness at Ta=25°C and IL =140mA. The LED lifetime could be decreased if operating IL is larger than 140mA.

8. Timing Characteristics

DE mode

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Horizontal Display Area	thd	-	1024	-	DCLK	
DCLK Frequency	fclk	40.8	51.2	67.2	MHz	
One Horizontal Line	th	1114	1344	1400	DCLK	
HS Blanking	Thb+thfp	90	320	376	DCLK	
Vertical display area	tvd	-	600	-	H	
VSYNC period time	tv	610	635	800	H	
VSYNC blanking	tvb+tvfp	10	85	200	H	

9. Optical Characteristics

Item	Symbol	Condition.	Min	Typ.	Max.	Unit	Remark
Response time	Tr	$\theta=0^\circ, \phi=0^\circ$	-	4	-	.ms	Note 3
	Tf		-	4	-	.ms	Note 3
Contrast ratio	CR	At optimized viewing angle	-	600	-	-	Note 4
Color Chromaticity	White	Wx	0.245	0.295	0.345	-	Note 2,5
		Wy	0.281	0.331	0.381	-	
Viewing angle (Gray Scale Inversion Direction)	Hor.	Θ_R	-	65	-	Deg.	Note 1
		Θ_L	-	65	-		
	Ver.	Φ_T	-	55	-		
		Φ_B	-	65	-		
Brightness	-	-	140	160	-	cd/m ²	Center of display

Ta=25±2□

Note 1: Definition of viewing angle range

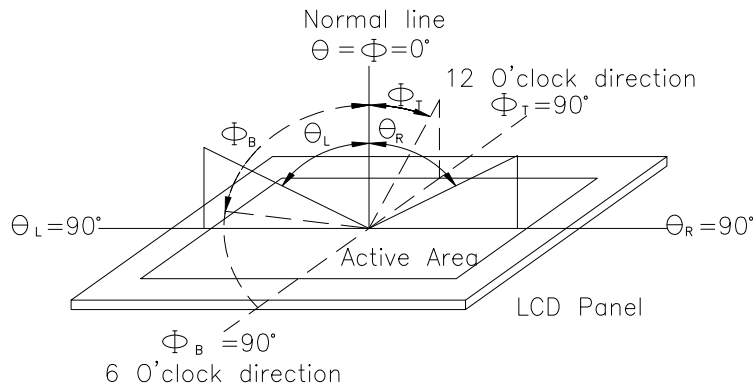


Fig. 9.1. Definition of viewing angle

Note 2: Test equipment setup:

After stabilizing and leaving the panel alone at a driven temperature for 10 minutes, the measurement should be executed. Measurement should be executed in a stable, windless, and dark room. Optical specifications are measured by Topcon BM-7 or BM-5 luminance meter 1.0° field of view at a distance of 50cm and normal direction.

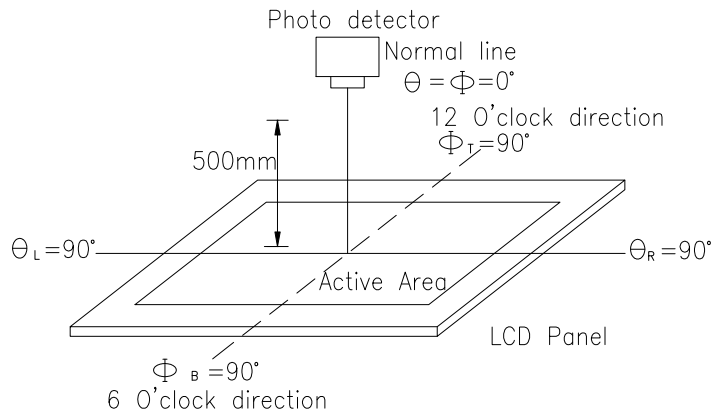
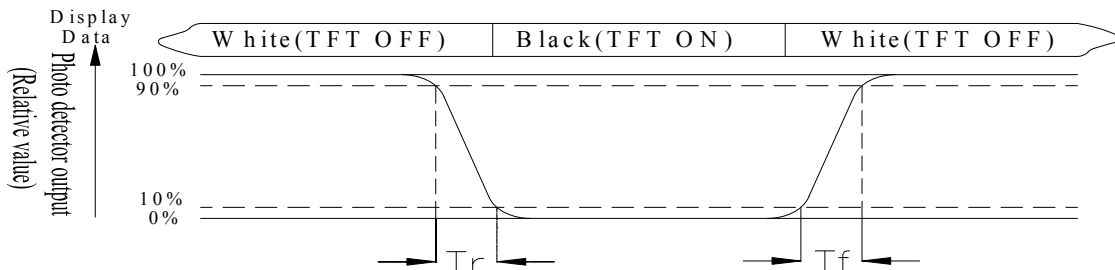


Fig. 9.2. Optical measurement system setup

Note 3: Definition of Response time:

The response time is defined as the LCD optical switching time interval between “White” state and “Black” state. Rise time, T_r , is the time between photo detector output intensity changed from 90% to 10%. And fall time, T_f , is the time between photo detector output intensity changed from 10% to 90%



Note 4: Definition of contrast ratio:

The contrast ratio is defined as the following expression.

$$\text{Contrast ratio (CR)} = \frac{\text{Luminance measured when LCD on the "White" state}}{\text{Luminance measured when LCD on the "Black" state}}$$

Note 5: White $V_i = V_{i50} \pm 1.5V$

Black $V_i = V_{i50} \pm 2.0V$

“±” means that the analog input signal swings in phase with VCOM signal.

“±” means that the analog input signal swings out of phase with VCOM signal.

The 100% transmission is defined as the transmission of LCD panel when all the input terminals of module are electrically opened.

Note 6: Definition of color chromaticity (CIE 1931)

Color coordinates measured at the center point of LCD

Note 7: Measured at the center area of the panel when all the input terminals of LCD panel are electrically opened.