



TFT LCD MODULE

0.99 inch 40RGB\*160DOTS

MODULE NUMBER: HXM099-0416THBIG03-C10

REVISION: A

Customer:
Approved by

From:
Approved by

## Revised History

Part Number	Revision	Revision Content	Revised on
HXM099-0416THBIG03-C10	A	New	20211108

受控文件

## **Contents**

### **Revision History**

### **Contents**

- 1. General Description**
- 2. Mechanical Drawing**
- 3. Pin Description**
- 4. Electrical Characteristics**
- 5. Optical characteristics**
- 6. Reliability**
- 7. Package Specifications**
- 8. Precaution Relating Product Handling**
- 9. Warranty**
- 10. Notice**



## 1. General Description

- **Description**

HXM099-0416THBIG03-C10 is a 40RGBX160 dot-matrix TFT LCD module. This module is composed of a TFT LCD Panel, driver ICs, FPC and a Backlight unit.

- **Features**

NO.	Item	Contents	Unit
1	LCD Size	0.99 inch(Diagonal)	-
2	Display Mode	Normally black	-
3	Resolution	40(H)RGB x 160(V)	-
4	Dot pitch	0.1524(H) x 0.1524(V) mm	-
5	Active area	6.096(H) x 24.384(V) mm	-
6	Module size	8.6(H) x 29.8(V) x1.5(D) mm	-
7	Color arrangement	RGB Vvertical stripe	-
8	Interface	SPI4 LINE	-
9	Drive IC	GC9D01	-
10	Luminance(cd/m2)	400 (T $\phi$ )	
11	Viewing Direction	All View	
12	Backlight	1 White LED	
13	Operating Temp.	-20 ~ + 70	-
14	Storage Temp.	-30 ~+ 80	-
15	Weight	TBD	g



### 3. Pin Definition

FPC Connector is used for the module electronics interface.

Note:

NO.	Symbol	Description
1	SDA	SPI interface input/output pin. the data is latched on the rising edge of the SCL signal.
2	SCL	This pin is used to be serial interface clock
3	D/C	Display data/command selection pin in 4-line serial interface.
4	RESET	This signal will reset the device and it must be applied to properly initialize the chip. Signal is active low.
5	CS	Chip selection pin; Low enable, high disable.
6	GND	Power Ground
7	VDD	Power Supply for Analog
8	LEDA	LED Anode
9	LEDK	LED Cathode
10	GND	Power Ground



## 4. Electrical Characteristics

- Absolute Maximum Ratings**

Parameter	Symbol	Min	Max	Unit	Notes
Supply Voltage (I/O)	VDD	-0.3	4.6	V	
Analog Supply Voltage	VDDIO	-0.3	4.6	V	
Logic Input Voltage	VIN	-0.3	VDD+0.3	V	
Operation Temperature	Top	-20	70	-	
Storage Temperature	Tst	-30	80	-	

### 4.2 Operating Conditions

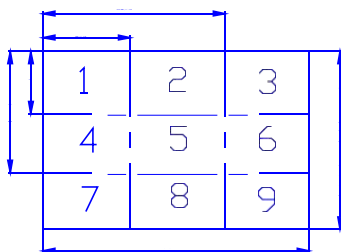
Parameter	Symbol	Min	TYP	MAX	Unit	Notes
Voltage for LED backlight	VLED	2.9	3.0	3.1	V	
System Voltage	VDD	2.4	2.8	3.3	V	
Interface Operation	VDDIO	1.65	1.8	3.3	V	
Gate Driver High Voltage	VGH	12.2	-	14.97	V	
Gate Driver Low Voltage	VGL	-12.5	-	-7.16	V	
Operating Current for V <sub>DD</sub>	I <sub>DD</sub>	-	8	10	mA	
Current for LED backlight	I <sub>LED</sub>	15	20	25	mA	1 LED
Brightness	L <sub>br</sub>	370	400	-	cd/m <sup>2</sup>	
Sleep_In Mode VDD	I <sub>dd</sub>	-	15	30	uA	
Sleep_In Mode VDDIO	I <sub>ddio</sub>	-	5	10	uA	

1 Test condition is:

- a:Center point on active area
- b:Best Contrast

2 Uniform measure condition:

- a:Measure 9 point,Measure location is show below:
- b:Uniform=(Min brightness/Max.brightness)x100%
- c:Best Contrast.



## 5. OPTICAL CHARACTERISTICS

Item	Symbol	Measuring		Min.	Typ	Max	Unit	Remark
Response Time	Tr+Tf	$\theta = 0^\circ$ $\phi = 0^\circ$	25 °C	-	30	35	ms	
Viewing Angle	$\theta$	$\phi = 0^\circ$	25 °C	-	85	-	Deg	Note
		$\phi = 180^\circ$	25 °C	-	85	-		
	$\theta$	$\phi = 90^\circ$	25 °C	-	85	-		
		$\phi = 270^\circ$	25 °C	-	85	-		
Contrast Ratio	CR	-	25 °C	800	100	-	-	Note
Color of CIE Coordinate	White	X	25 °C	0.300	0.30	0.30	-	-
		Y	25 °C	0.323	0.32	0.32		
	Red	X	25 °C	0.622	0.62	0.62		
		Y	25 °C	0.327	0.32	0.33		
	Green	X	25 °C	0.286	0.28	0.29		
		Y	25 °C	0.520	0.52	0.52		
	Blue	X	25 °C	0.134	0.13	0.13		
		Y	25 °C	0.135	0.13	0.13		
Transmittance (with	--	--	-	5.3	5.9	-	%	-

Note1: Definition of Response Time.(white-black)

The response time is defined as the time interval between the 10% and 90% amplitudes

## 6. Reliability

- **Contents of Reliability Tests**

Item	Conditions	Criteria
High Temperature Operation	70°C, 120 hrs	The operational functions work.
Low Temperature Operation	-20°C, 120 hrs	
High Temperature Storage	80°C, 120 hrs	
Low Temperature Storage	-30°C, 120 hrs	
High Temperature/Humidity Operation	50°C, 85% RH, 120 hrs	
Temperature Cycling	-10°C ⇔ 25°C⇔ 60°C⇔25°C,	

Note:

No moisture condensation is observed during tests.  
Condition of image sticking test : 25°C 2°C.

- **Shock and Vibration**

Test Item	Conditions
Packing Vibration	Frequency range 10~50HZ, Stroke:1.0mm, sweep:10~50Hz, X,y,z 2 hours

- **ESD**

Test Item	Conditions
ESD	150 33 ,Contact: ±2KV, pF 0Ω 150 33 , Air: ±4KV

## 7. Package Specifications

Item	Quantity
<b>Module</b>	<b>540 per Primary Box</b>
<b>Holding Trays (A)</b>	<b>1. per Primary Box</b>
<b>Total Trays (B)</b>	<b>2. per Primary Box (Including 1 Empty</b>
<b>Primary Box (C)</b>	<b>Tray) 1~4 per Carton (4 as Major / Maximum)</b>

