



HIGHNESSTM

One of a kind

HM478FH111MX

47.8" Stretch Color TFT-LCD

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HIGHNESS MICROELECTRONICS LTD.

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1.0 GENERAL SPECIFICATION

Parameter	Specification	Unit	Remarks
Diagonal Size	47.8" color TFT active matrix, wide LCD	in	
Active area	1209.6(H) × 116.6(V)	mm	
Number of pixels	1920(H) × 185(V)	pixels	
Pixel pitch	210(H) × 630(V)	μm	
Pixel arrangement	Pixels RGB Vertical stripe		
Display colors	16.7M	colors	8bits True
Response Time	14	ms	
Brightness	500	cd/m2	
Contrast Raio	1000:1	CR	
Display mode	Normally Black		
Dimensional outline	1238(H) × 145(V) × 16.8(D)	mm	
Weight	5.5±0.5	kg	
Power Consumption	24.96	Watt	Tpy.
Surface Treatment	Haze 1%, 3H		
Display Direction	landscape		
Operation Temperature	-20 ~ +70	°C	
Storage Temperature	-30 ~ +80	°C	

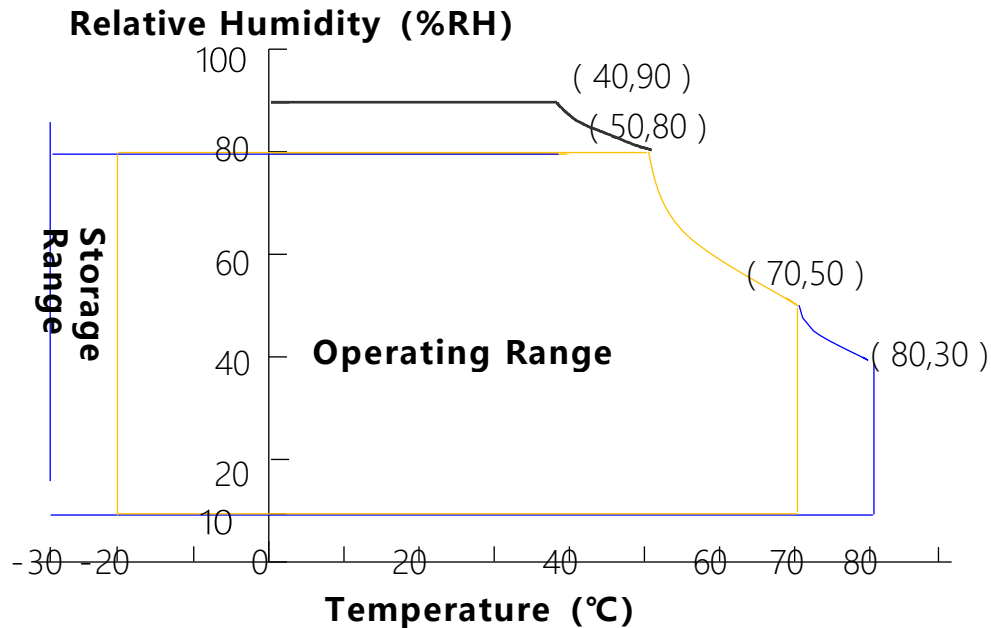
2.0 ABSOLUTE MAXIMUM RATINGS

The following are maximum values which, if exceed, may cause faulty operation or damage to the unit. The operational and non-operational maximum voltage and current values are listed in Table.

[VSS=GND=0V]

Parameter	Symbol	Min.	Max.	Unit	Remark
Power Supply Voltage	VDD	VSS-0.3	13.2	V	Ta = 25 °C
Operating Temperature	T _{OP}	-20	+70	°C	Note 1
	T _{SUR}	-20	+70	°C	
Storage Temperature	T _{ST}	-30	+80	°C	
Operating Ambient Humidity	Hop	10	80	%RH	
Storage Humidity	Hst	10	80	%RH	

Note 1 : Temperature and relative humidity range are shown in the figure below.
Wet bulb temperature should be 39 °C max. and no condensation of water.



3.0 ELECTRICAL SPECIFICATIONS

[Ta =25±2 °C]

Parameter		Symbol	Values			Unit	Remark
			Min	Typ	Max		
Power Supply Input Voltage		VDD	10.8	12	13.2	V	Note 1
Power Supply Current		IDD	-	300	940	mA	
Power Supply Ripple Voltage		VRP	-	-	300	mV	
Rush Current		IRUSH	-	-	3	A	Note 2
LVDS Interface	Differential Input High Threshold Voltage	VLVTH	-	-	+100	mV	VLVC=1.2V
	Differential Input Low Threshold Voltage	VLVTL	-100	-	-	mV	
	Input Differential Voltage	VID	100	400	600	mV	
	Common Input Voltage	VLVC	0.6	1.2	2.4 - VID /2	V	
CMOS Interface	Input High Threshold Voltage	VIH	2.7	-	3.3	V	
	Input Low Threshold Voltage	VIL	0	-	0.6	V	
Power Consumption		PDD	-	10.96		W	

Note 1 : The supply voltage is measured and specified at the interface connector of LCM.

The current draw and power consumption specified is for VDD=12.0V,

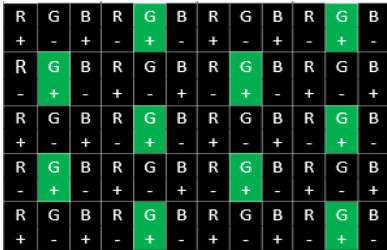
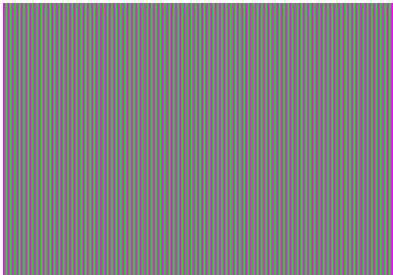
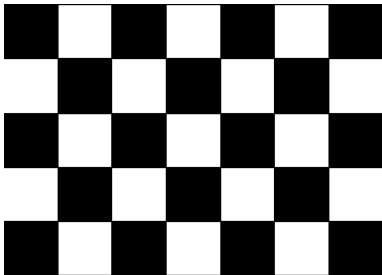
Frame rate fV=60Hz and Clock frequency = 74.25MHz.

Test Pattern of power supply current

a. Typ : Mosaic 7X5 (L0/L255)

b) Max : Vline Subline (L255))

c) Flicker Pattern



Note 2 : The duration of rush current is about 2ms and rising time of Power Input is 1ms(min)

4.0 INTERFACE CONNECTION

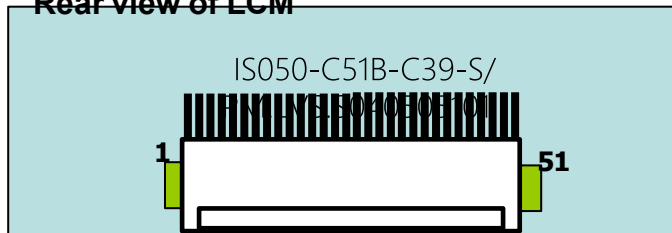
LVDS Connector :IS050-C51B-C39-S or Compatible.

Pin No	Symbol	Description	Pin No	Symbol	Description
1	GND	Ground	16	ORX2-	Odd pixel Negative LVDS differential data input.
2	SCL	I2C Clock	17	ORX2+	Odd pixel Negative LVDS differential data input.
3	SDA	I2C Data	18	GND	Ground
4	NC	No Connection	19	OCLK-	Odd pixel Negative LVDS differential clock input.
5	NC	No Connection	20	OCLK+	Odd pixel Negative LVDS differential clock input.
6	NC	No Connection	21	GND	Ground
7	SELLVDS	LVDS data format selection : L or NC : VESA	22	ORX3-	Odd pixel Negative LVDS differential data input.
8	NC	No Connection	23		
9	NC	No Connection	24	ORX3+	Odd pixel Negative LVDS differential data input.
10	NC	No Connection	25	NC	No Connection
11	GND	Ground	26	NC	No Connection
12	ORX0-	Odd pixel Negative LVDS differential data input.	27	NC	No Connection
13	ORX0+	Odd pixel Negative LVDS differential data input.	28	ERX0-	Even pixel Negative LVDS differential data input.
14	ORX1-	Odd pixel Negative LVDS differential data input.	29	ERX0+	Even pixel Negative LVDS differential data input.
15	ORX1+	Odd pixel Negative LVDS differential data input.	30	ERX1-	Even pixel Negative LVDS differential data input.

Pin No	Symbol	Description	Pin No	Symbol	Description
31	ERX1+	Even pixel Negative LVDS differential data input.	42	NC	No Connection
32	ERX2-	Even pixel Negative LVDS differential data input.	43	NC	No Connection
33	ERX2+	Even pixel Negative LVDS differential data input.	44	GND	Ground
34	GND	Ground	45	GND	Ground
35	ECLK-	Even pixel Negative LVDS differential clock input.	46	GND	Ground
36	ECLK+	Even pixel Negative LVDS differential clock input.	47	NC	No Connection
37	GND	Ground	48	VCC	+12V
38	ERX3-	Even pixel Negative LVDS differential data input.	49	VCC	+12V
39	ERX3+	Even pixel Negative LVDS differential data input.	50	VCC	+12V
40	NC	No Connection	51	VCC	+12V
41	NC	No Connection			

Notes : 1. NC(Not Connected) : This pins are only used for internal operations.
2. Input Level of LVDS signal is based on the EIA-644 Standard.

Rear view of LCM



BIST Pattern

PT1:Black	PT2:White	PT3:Red	PT4:Gree	PT5:Blue
	(2sec)	(2sec)	n(2sec)	(2sec)

5.0 OPTICAL SPECIFICATIONS

[VDD = 12.0V, Frame rate = 60Hz, Ta = 25±2 °C]

Parameter		Symbol	Condition	Min	Typ	Max	Unit	
Viewing Angle	Horizontal	Θ ₃	CR > 10	-	89	-	Deg.	
		Θ ₉		-	89	-	Deg.	
	Vertical	Θ ₁₂		-	89	-	Deg.	
		Θ ₆		-	89	-	Deg.	
Uniformity	9 Points	ΔY ₉	Θ = 0°	75%				
Contrast ratio		CR	Θ = 0°	700:1	1000:1	-		
Reproduction of color	White	W _x	Θ = 0° (Center) Normal Viewing Angle	TYP. - 0.03	0.291	TYP. + 0.03		
		W _y			0.321			
	Red	R _x			0.644			
		R _y			0.342			
	Green	G _x			0.306			
		G _y			0.623			
	Blue	B _x			0.150			
		B _y			0.062			
	Color Gamut							72
	Response Time	G to G		T _g		-	14	-
Gamma Scale				2.0	2.2	2.4		
Brightness		L _v			500		nit	

6.0 BACKLIGHT INPUT PIN ASSIGNMENTS

Pin No.	Symbol	Feature	Wire Color
1	CH1+	VLED OUT CH1	Red
2	CH1-	I Return CH1	Blcak
	NC	NC	NC
	NC	NC	NC
3	CH2+	VLED OUT CH2	Red
4	CH2-	I Return CH2	Black

LED VOLTAGE

Parameter		Min.	Typ.	Max.	Unit
LED Forward Voltage	VF	70	80	88	V
LED Forward Current	IF		300	360	mA
LED Power Consumption	PLED		24		W
LED Life-Time	N/A		30000		Hour

7.0 MECHANICAL CHARACTERISTICS.

Dimensional Requirements
shows mechanical outlines for the model. Other parameters are shown in the Table.

Parameter	Specification	Unit
Dimensional outline	1238(H) × 145(V) × 16.8(D)	mm
Weight	5.5 ± 0.5	Kg
Active area	1209.6(H) × 116.6(V)	mm
Pixel pitch	210(H) × 630(V)	µm
Number of pixels	1920(H) × 185(V)(1 pixel = R + G + B dots)	pixels

8.0 RELIABILITY TEST

The Reliability test items and its conditions are shown below.

No	Test Items	Conditions
1	High temperature storage test	Ta = 80 °C, 240 hrs
2	Low temperature storage test	Ta = -30 °C, 240 hrs
3	High temperature & high humidity operation test	Ta = 50 °C, 80%RH, 240hrs
4	High temperature operation test	Ta = 70 °C, 240hrs
5	Low temperature operation test	Ta = -20 °C, 240hrs
6	Thermal shock	Ta = -20 °C 60 °C (0.5 hr), 100 cycle
7	Electro-static discharge test	Air : 150 pF, 330Ω, 15 KV Contact : 150 pF, 330Ω, 8 KV
8	Altitude test	40000ft, -10°C / 24 hr, 25°C / 24 hr, -10°C / 24hr, Storage

