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**REVISION HISTORY**

<b>Version</b>	<b>Date</b>	<b>Page (New)</b>	<b>Section</b>	<b>Description</b>
Ver 0.0	June.22,'01	All	All	Tentative Specification was first issued.

## 1. GENERAL DESCRIPTION

### 1.1 OVERVIEW

M180E2 - 01 is an 18.0" TFT Liquid Crystal Display module with 4 CCFL Backlight unit and 2ch-LVDS interface. This module supports 1280 x 1024 SXGA mode and can display 16M colors. The inverter module for Backlight is not built in.

### 1.2 FEATURES

- Wide viewing angle
- High contrast ratio
- Fast response time
- High color saturation
- SXGA (1280 x 1024 pixels) resolution
- DE (Data Enable) only mode
- LVDS (Low Voltage Differential Signaling) interface

### 1.3 APPLICATION

- TFT LCD Monitor

### 1.4 GENERAL SPECIFICATIONS

Item	Specification	Unit	Note
Active Area	357.12 (H) x 285.696 (V) (18.0" diagonal)	mm	(1)
Bezel Opening Area	361.1 (H) x 289.7 (V)	mm	
Driver Element	a-si TFT active matrix	-	-
Pixel Number	1280 x R.G.B. x 1024	pixel	-
Pixel Pitch	0.279 (H) x 0.279 (V)	mm	-
Pixel Arrangement	RGB vertical stripe	-	-
Display Colors	16M	color	-
Display Operation Mode	Transmissive mode / Normally black	-	-
Surface Treatment	Hard coating (3H), Anti-glare (Haze 25)	-	-

### 1.5 MECHANICAL SPECIFICATIONS

Item	Min.	Typ.	Max.	Unit	Note	
Module Size	Horizontal(H)	410.2	410.7	411.2	mm	(1), (2)
	Vertical(V)	320.7	321.2	321.7	mm	
	Depth(D)	-	20.2	21.2	mm	
Weight	-	2500		g	-	

Note (1) Please refer to the attached drawings for more information of front and back outline dimensions.

Note (2) Module Depth does not include connectors.

## 2. ABSOLUTE MAXIMUM RATINGS

### 2.1 ABSOLUTE RATINGS OF ENVIRONMENT

Item	Symbol	Value		Unit	Note
		Min.	Max.		
Storage Temperature	T <sub>ST</sub>	-20	+60	°C	(1)
Operating Ambient Temperature	T <sub>OP</sub>	0	+50	°C	(1), (2)
Shock (Non-Operating)	S <sub>NOP</sub>	-	120	G	(3), (5)
Vibration (Non-Operating)	V <sub>NOP</sub>	-	2.0	G	(4), (5)

Note (1) Temperature and relative humidity range is shown in the figure below.

(a) 90 %RH Max. ( $T_a \leq 40$  °C).

(b) Wet-bulb temperature should be 39 °C Max. ( $T_a > 40$  °C).

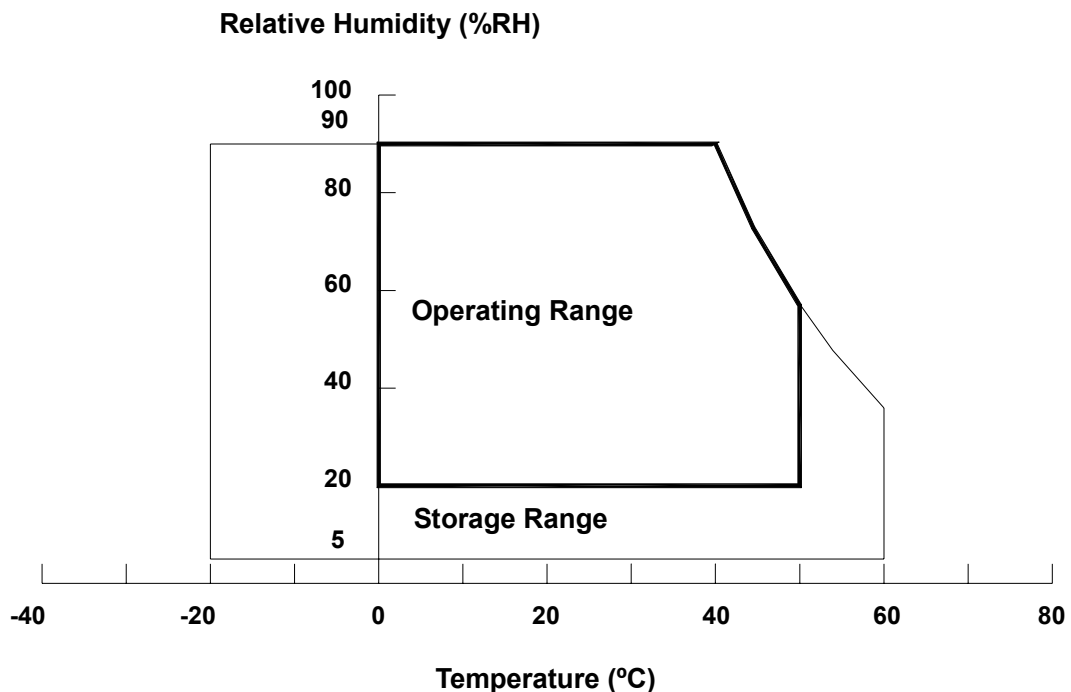
(c) No condensation.

Note (2) The temperature of panel surface should be 0 °C Min. and 60 °C Max.

Note (3) 2ms, half sine wave, 1 time for  $\pm X$ ,  $\pm Y$ ,  $\pm Z$ .

Note (4) 10 ~ 500 Hz, 0.5 Hr, 4 times each X, Y, Z.

Note (5) At testing Vibration and Shock, the fixture in holding the module has to be hard and rigid enough so that the module would not be twisted or bent by the fixture.



## 2.2 ELECTRICAL ABSOLUTE RATINGS

### 2.2.1 TFT LCD MODULE

Item	Symbol	Value		Unit	Note
		Min.	Max.		
Power Supply Voltage	V <sub>CC</sub>	-0.3	+13.2	V	(1)
Logic Input Voltage	V <sub>IN</sub>	-0.3	4.3	V	

### 2.2.2 BACKLIGHT UNIT

Item	Symbol	Value		Unit	Note
		Min.	Max.		
Lamp Voltage	V <sub>L</sub>	-	2.5K	V <sub>RMS</sub>	(1), (2), I <sub>L</sub> = 8.0 mA
Lamp Current	I <sub>L</sub>	-	9.0	mA <sub>RMS</sub>	(1), (2)
Lamp Frequency	F <sub>L</sub>	-	80	KHz	

Note (1) Permanent damage to the device may occur if maximum values are exceeded. Function operation should be restricted to the conditions described under Normal Operating Conditions.

Note (2) Specified values are for lamp (Refer to 3.2 for further information).

### 3. ELECTRICAL CHARACTERISTICS

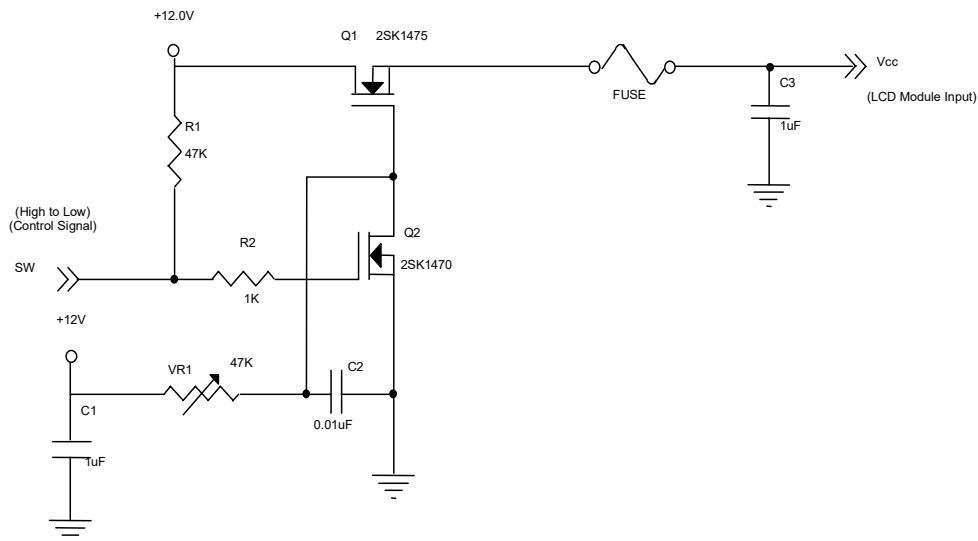
#### 3.1 TFT LCD MODULE

Ta = 25 ± 2 °C

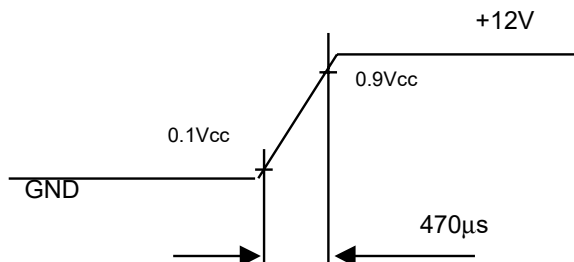
Parameter	Symbol	Value			Unit	Note
		Min.	Typ.	Max.		
Power Supply Voltage	V <sub>CC</sub>	TBD	12.0	TBD	V	-
Ripple Voltage	V <sub>RP</sub>	-	TBD	TBD	mV	-
Rush Current	I <sub>RUSH</sub>	-	TBD	TBD	A	(2)
Power Supply Current	White	-	TBD	TBD	mA	(3)a
	Black	-	TBD	TBD	mA	(3)b
	Vertical Stripe	-	TBD	TBD	mA	(3)c
LVDS differential input voltage	V <sub>id</sub>	100	-	600	mV	
LVDS common input voltage	V <sub>ic</sub>	TBD	1.2	TBD	V	
Logic "L" input voltage	V <sub>il</sub>	V <sub>SS</sub>	-	0.8	V	

Note (1) The module should be always operated within above ranges.

Note (2) Measurement Conditions:



**Vcc rising time is 470μs**



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