



WINSTAR Display Co.,Ltd.
華凌光電股份有限公司



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SPECIFICATION

MODULE NO.: WH4004A1-TFH-JT#

General Specification

Item	Dimension	Unit
Number of Characters	40 characters x 4Lines	-
Module dimension	190.0 x 54.0 x 13.6 (MAX)	mm
View area	147.0 x 29.5	mm
Active area	140.45 x 23.16	mm
Dot size	0.50 x 0.55	mm
Dot pitch	0.57 x 0.62	mm
Character size	2.78 x 4.89	mm
Character pitch	3.53 x 6.09	mm
Duty	1/16	
Backlight Type	LED	
IC	ST7066U	
Interface	68 series	

Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	T _{OP}	-20	—	+70	°C
Storage Temperature	T _{ST}	-30	—	+80	°C
Input Voltage	V _I	V _{ss}	—	V _{DD}	V
Supply Voltage For Logic	V _{DD} -V _{ss}	-0.3	—	7	V
Supply Voltage For LCD	V _{DD} -V _o	-0.3	—	13	V

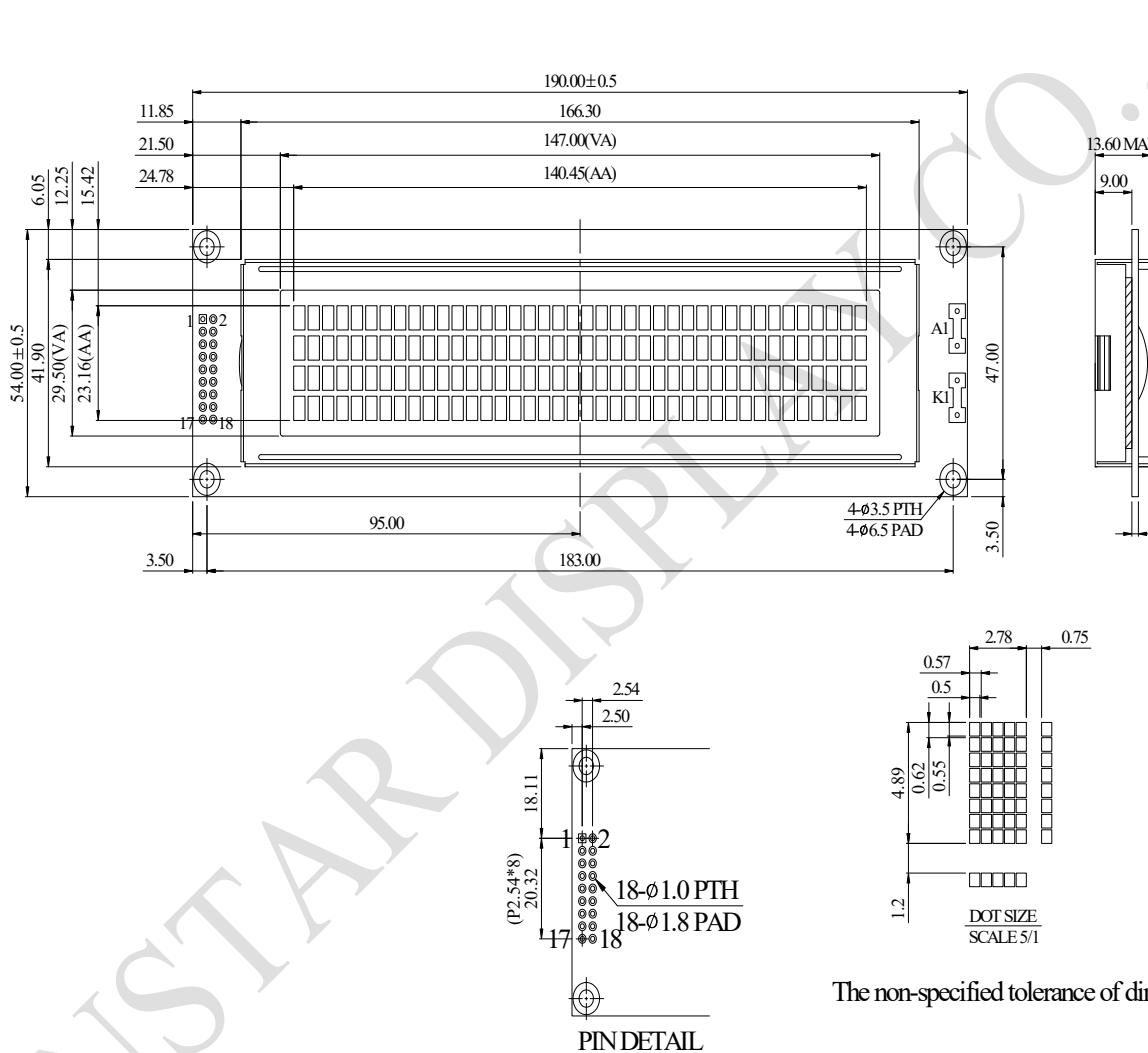
Electrical Characteristics

Item	Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage For Logic	V _{DD} -V _{ss}	—	4.5	5.0	5.5	V
Supply Voltage For LCD *Note	V _{DD} -V _o	T _a =-20°C T _a =25°C T _a =70°C	— 4.2 3.8	— 4.35 —	5.7 4.5 —	V V V
Input High Volt.	V _{IH}	—	0.7 V _{DD}	—	V _{DD}	V
Input Low Volt.	V _{IL}	—	V _{ss}	—	0.6	V
Output High Volt.	V _{OH}	—	3.9	—	V _{DD}	V
Output Low Volt.	V _{OL}	—	0	—	0.4	V
Supply Current	I _{DD}	V _{DD} =5.0V	1.8	3.5	7.0	mA

Interface Pin Function

Pin No.	Symbol	Level	Description
1	DB7	H/L	Data bus line
2	DB6	H/L	Data bus line
3	DB5	H/L	Data bus line
4	DB4	H/L	Data bus line
5	DB3	H/L	Data bus line
6	DB2	H/L	Data bus line
7	DB1	H/L	Data bus line
8	DB0	H/L	Data bus line
9	E1	H,H→L	Chip enable signal
10	R/W	H/L	H: Read(Module→MPU) L: Write(MPU→Module)
11	RS	H/L	H: DATA, L: Instruction code
12	VO	(Variable)	Operating voltage for LCD
13	V _{ss}	0V	Ground
14	V _{DD}	5.0V	Supply Voltage for logic
15	E2	H,H→L	Chip enable signal
16	NC	—	NC
17	A	—	Power Supply for LED+
18	K	—	Power Supply for LED-

Contour Drawing & Block Diagram



PIN NO.	SYMBOL
1	DB7
2	DB6
3	DB5
4	DB4
5	DB3
6	DB2
7	DB1
8	DB0
9	E1
10	R/W
11	RS
12	Vo
13	Vss
14	Vdd
15	E2
16	NC
17	A
18	K

The non-specified tolerance of dimension is ± 0.3 mm.