



**WINSTAR Display Co.,Ltd.**  
**華凌光電股份有限公司**

## SPECIFICATION

**MODULE NO.: WO12864L-TFH#**

### General Specification

Item	Dimension	Unit
Number of dots	128 x 64	—
Module dimension	60.10 x 44.50 x 5.01(Max)	mm
View area	54.6 x 32.0	mm
Active area	49.89 x 27.49	mm
Dot size	0.36 x 0.40	mm
Dot pitch	0.39 x 0.43	mm
Drive Method	1/65 DUTY, 1/9BIAS	
Backlight Type	LED	
IC	ST7567A (SPI & I2C)	

## 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	$V_I$	-0.3	—	$V_{DD}+0.3$	V
Digital Power Supply Voltage	$V_{DD}-V_{SS}$	-0.3	—	4.0	V
LCD Power supply voltage	V0-XV0	-0.3	—	18.0	V

## Electrical Characteristics

Item	Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage For Logic	$V_{DD}-V_{SS}$	—	2.9	3.0	3.1	V
Supply Voltage For LCD *Note	$V_{OP}$	$T_a=-20^{\circ}C$	—	—	—	V
		$T_a=25^{\circ}C$	9.3	9.5	9.7	V
		$T_a=70^{\circ}C$	—	—	—	V
Input High Volt.	$V_{IH}$	—	$0.7V_{DD}$	—	$V_{DD}$	V
Input Low Volt.	$V_{IL}$	—	$V_{SS}$	—	$0.3V_{DD}$	V
Supply Current	$I_{DD}$	—			2.0	mA

# Interface Pin Function

Pin No.	Symbol	Description						
1	ESD	ESD						
2	SI2	SI2 selects the interface type: I2C serial interface or not						
		<table border="1"> <thead> <tr> <th>SI2</th> <th>Selected Interface</th> </tr> </thead> <tbody> <tr> <td>"L"</td> <td>Serial 4-Line SPI Interface</td> </tr> <tr> <td>"H"</td> <td>I2C Serial Interface</td> </tr> </tbody> </table>	SI2	Selected Interface	"L"	Serial 4-Line SPI Interface	"H"	I2C Serial Interface
		SI2	Selected Interface					
"L"	Serial 4-Line SPI Interface							
"H"	I2C Serial Interface							
3	VG	VG is the LCD driving voltage for segment circuits						
4	XV0	XV0 is the LCD driving voltage for common circuits at positive frame.						
5	V0	V0 is the LCD driving voltage for common circuits at negative frame.						
6	VSS	Ground						
7	VDD	Power						
8	SDA	D[1:3] must be connected together as SDA.						
9	SCL	D[4:7]=(1,1,1,1): ID Pin. D[4:7] should fix to "H" or "L" by VDDH or VSSL.						
10	A0	It determines whether the access is related to data or command.						
		A0="H" : Indicates that signals on D[7:0] are display data. A0="L" : Indicates that signals on D[7:0] are command.						
11	RSTB	Hardware reset input pin. When RSTB is "L", internal initialization is executed and the internal registers will be initialized.						
12	CSB	Chip select input pin. Interface access is enabled when CSB is "L". When CSB is non-active (CSB="H"), D[7:0] pins are high impedance.						
13	ESD	ESD						

# Contour Drawing

