



WINSTAR Display Co.,Ltd.
華凌光電股份有限公司



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SPECIFICATION

MODULE NO.:

WO1602F

General Specification

Item	Dimension	Unit
Number of Characters	16 characters x 2Lines	—
Module dimension	72.1 x 29.6 x 9.4	mm
View area	61.0 x 15.1	mm
Active area	56.2 x 11.5	mm
Dot size	0.55 x 0.65	mm
Dot pitch	0.60 x 0.70	mm
Character size	2.95 x 5.55	mm
Character pitch	3.55 x 5.95	mm
Duty	1/16 , 1/5 Bias	
Backlight Type	LED	
IC	ST7032i	
Interface	68/ 4-Line SPI /IIC	

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_{IN}	-0.3	—	$V_{DD}+0.3$	V
Power Supply Voltage	$V_{DD}-V_{SS}$	-0.3	—	+6.0	V
LCD Driver Voltage	V_{LCD}	2.7	—	7.0	V

Electrical Characteristics

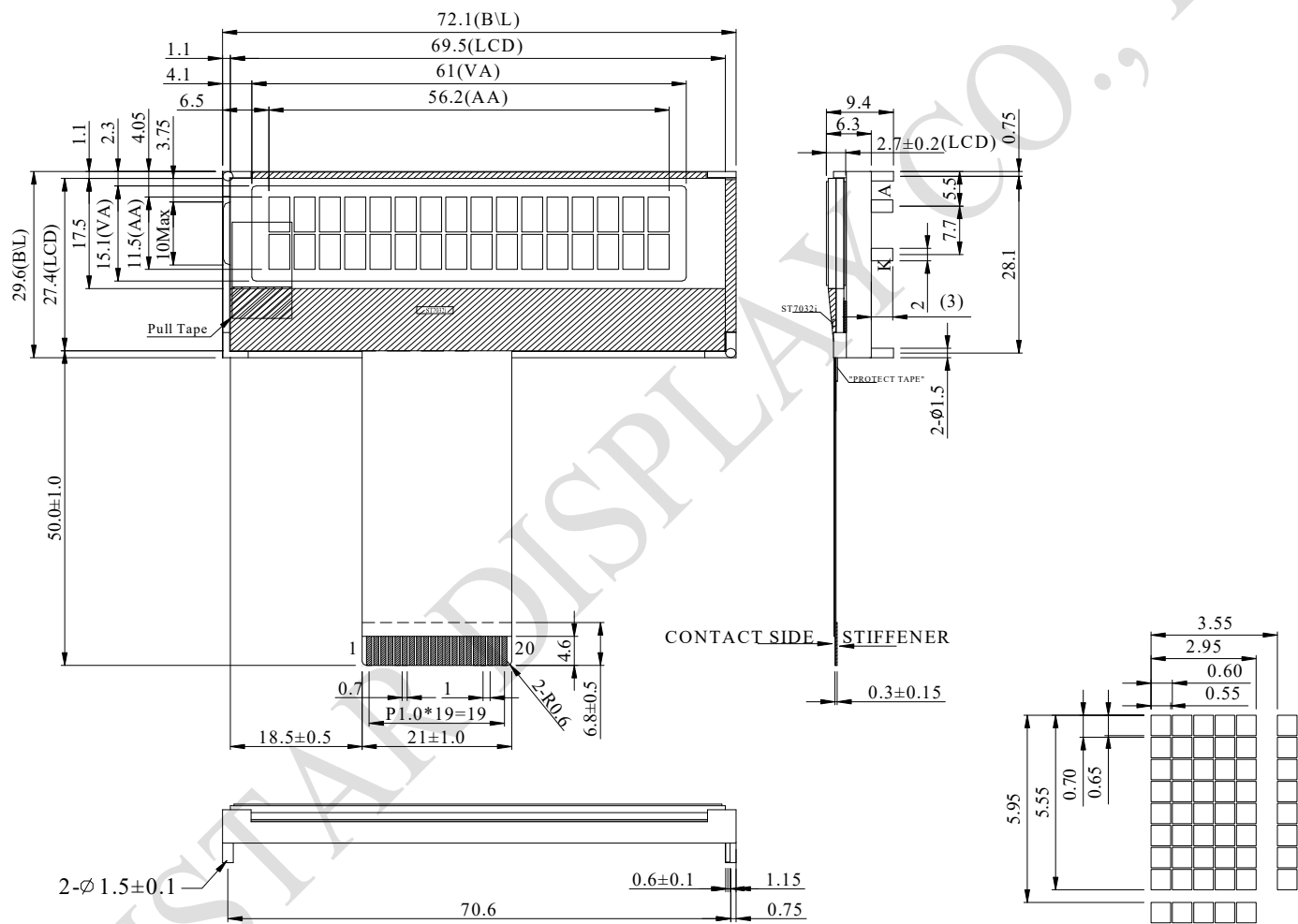
Item	Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage For Logic	$V_{DD}-V_{SS}$	—	3	3.3	5 (bon=1 max=3.5V)	V
Supply Voltage For LCD	$V_{out}-V_{SS}$	$T_a=-20^{\circ}\text{C}$	—	—	—	V
		$T_a=25^{\circ}\text{C}$	4.3	4.5	4.7	V
		$T_a=70^{\circ}\text{C}$	—	—	—	V
Input High Volt.	V_{IH}	—	$0.7 V_{DD}$	—	V_{DD}	V
Input Low Volt.	V_{IL}	—	—	—	$0.2 V_{DD}$	V
Output High Volt.	V_{OH}	—	$0.8 V_{DD}$	—	V_{DD}	V
Output Low Volt.	V_{OL}	—	—	—	$0.2V_{DD}$	V
Supply Current	I_{DD}	—	—	—	2.0	mA

Interface Pin Function

Pin No.	Symbol	Level	Description
1	RS	H/L	Select registers. 0: Instruction register (for write) Busy flag & address counter (for read) 1: Data register (for write and read)
2	R/W	H/L	Select read or write (In parallel mode). 0: Write 1: Read
3	E	H,H→L	Starts data read/write. ("E" must connect to "VDD" when serial interface is selected.)
4	DB0	H/L	Data bus line
5	DB1	H/L	Data bus line
6	DB2	H/L	Data bus line
7	DB3	H/L	Data bus line
8	DB4	H/L	Data bus line
9	DB5	H/L	Data bus line
10	DB6/SCL	H/L	Data bus line (In I2C interface DB6 (SCL) is clock input. SDA and SCL must connect to I2C bus (I2C bus is to connect a resister between SDA/SCL and the power of I2C bus).
11	DB7/SDA	H/L	Data bus line (In I2C interface DB7 (SDA) is input data. SDA and SCL must connect to I2C bus (I2C bus is to connect a resister between SDA/SCL and the power of I2C bus).
12	V _{SS}	0V	Ground

13	V _{DD}	3.3/5.0V (bon=1 Max=3.5 V	Supply Voltage for logic															
14	Vout	(Variable)	Operating voltage for LCD															
15	PSB		Interface selection 0:serial mode (“E” must connect to “VDD” when serial mode is selected.) 1:parallel mode(4/8 bit) In I2C interface PSB must connect to VDD															
16	PSI2B		<table><tr><td>PSB</td><td>PSI2B</td><td>Interface</td></tr><tr><td>0</td><td>0</td><td>No use</td></tr><tr><td>0</td><td>1</td><td>SI4</td></tr><tr><td>1</td><td>0</td><td>SI2 (I²C)</td></tr><tr><td>1</td><td>1</td><td>Parallel 68</td></tr></table>	PSB	PSI2B	Interface	0	0	No use	0	1	SI4	1	0	SI2 (I ² C)	1	1	Parallel 68
PSB	PSI2B	Interface																
0	0	No use																
0	1	SI4																
1	0	SI2 (I ² C)																
1	1	Parallel 68																
17	CAP1P		For voltage booster circuit(VDD-VSS)															
18	CAP1N		External capacitor about 0.1u~4.7uf															
19	NC		No connection															
20	NC		No connection															

Contour Drawing



PIN NO	SYMBOL
1	RS
2	RW
3	E
4	DB0
5	DB1
6	DB2
7	DB3
8	DB4
9	DB5
10	DB6
11	DB7
12	VSS
13	VDD
14	VOUT
15	PSB
16	PSI2B
17	CAP1P
18	CAP1N
19	NC
20	NC

DOT SIZE
SCALE 5/1

The non-specified tolerance of dimension is ±0.2mm.

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