Winstar Display Co., LTD
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SPECIFICATION

CUSTOMER ： _____

MODULE NO.: WO2002AT-05HA#FC

Item	Dimension	Unit
Number of Characters	20 characters x 2 Lines	—
Module dimension	66.0x 23.0 x 2.8(MAX)	mm
View area	61.0 x 15.1	mm
Active area	58.5 x 9.8	mm
Dot size	0.45 x 0.54	mm
Dot pitch	0.50x 0.59	mm
Character size	2.45 x 4.67	mm
Character pitch	2.95 x 5.17	mm
LCD type	FSTN Positive Transflective (In LCD production, It will occur slightly color difference. We can only guarantee the same color in the same batch.)	
Duty	1/16 , 1/5 Bias	
View direction	6 o'clock	
Backlight Type	Without backlight	

first FC components
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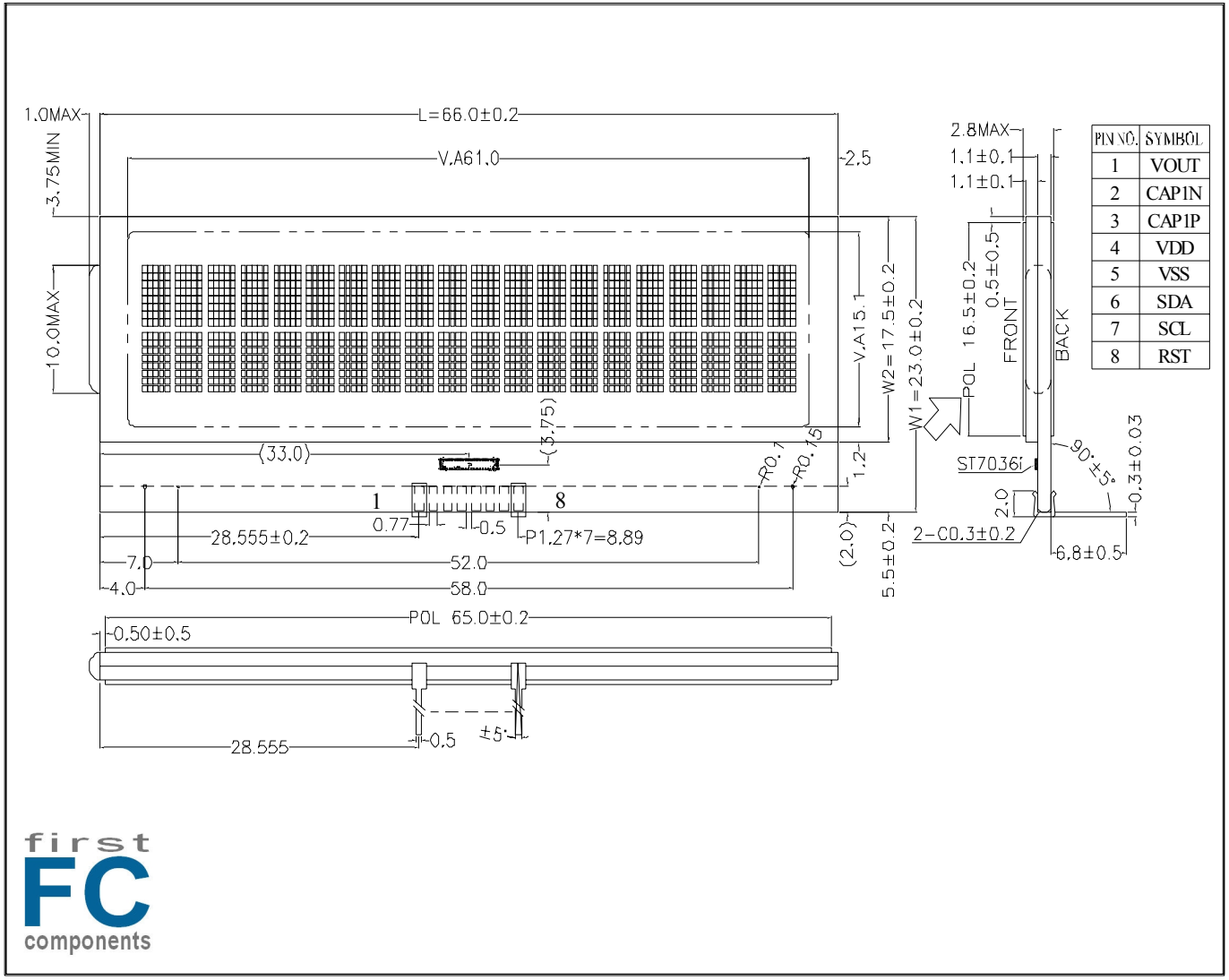
Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	T_{OP}	-20	—	+70	℃
Storage Temperature	T_{ST}	-30	—	+80	℃
Supply voltage for Logic	V_{DD}	-0.3	—	6.0	V
LCD Driver Voltage	V_{LCD}	7.0- V_{SS}		-0.3+ V_{SS}	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_{LCD}	Ta=-20℃ Ta=25℃ Ta=70℃	— — —	— 4.5 —	— — —	V V 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(No include LED Backlight)	I_{DD}	—	—	0.2	—	mA

Contour Drawing



PIN NO.	SYMBOL
1	VOUT
2	CAP1N
3	CAP1P
4	VDD
5	VSS
6	SDA
7	SCL
8	RST