Winstar Display Co., LTD
華凌光電股份有限公司
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SPECIFICATION

CUSTOMER : _____

MODULE NO.: WG12864BP1-TMI-V#N

General Specification

Item	Dimension	Unit
Number of dots	128 x 64	—
Module dimension	75.0 x 52.7 x 8.9 (MAX)	mm
View area	58.8 x 31.4	mm
Active area	55.01 x 27.49	mm
Dot size	0.40 x 0.40	mm
Dot pitch	0.43 x 0.43	mm
LCD type	STN Negative, Blue Transmissive (In LCD production, It will occur slightly color difference. We can only guarantee the same color in the same batch.)	
Duty	1/64	
View direction	6 o'clock	
Backlight Type	LED, White	
IC	NT7107, NT7108	

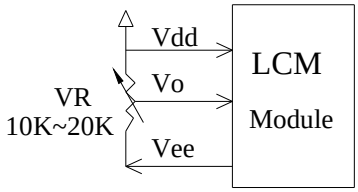
Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	T_{OP}	-20	—	+70	℃
Storage Temperature	T_{ST}	-30	—	+80	℃
Supply Voltage For Logic	V_{DD}-V_{SS}	-0.3	—	7.0	V
Driver Supply Voltage	V_{LCD}	V_{EE}-0.3	—	V_{DD}+0.3	V

Electrical Characteristics

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Voltage For Logic	V_{DD}-V_{SS}	—	3.0	3.3	3.6	V
Supply Voltage For LCD	V_{DD}-V_O	Ta=-20℃	—	—	8.7	V
		Ta=25℃	7.8	8.0	8.2	V
*Note		Ta=70℃	7.6	—	—	V
Input High Volt.	V_{IH}	—	0.7 V_{DD}	—	V_{DD}	V
Input Low Volt.	V_{IL}	—	0	—	0.8	V
Output High Volt.	V_{OH}	—	2.4	—	—	V
Output Low Volt.	V_{OL}	—	—	—	0.4	V
Supply Current	I_{DD}	V_{DD}=3.3V	6.9	7.0	7.1	mA

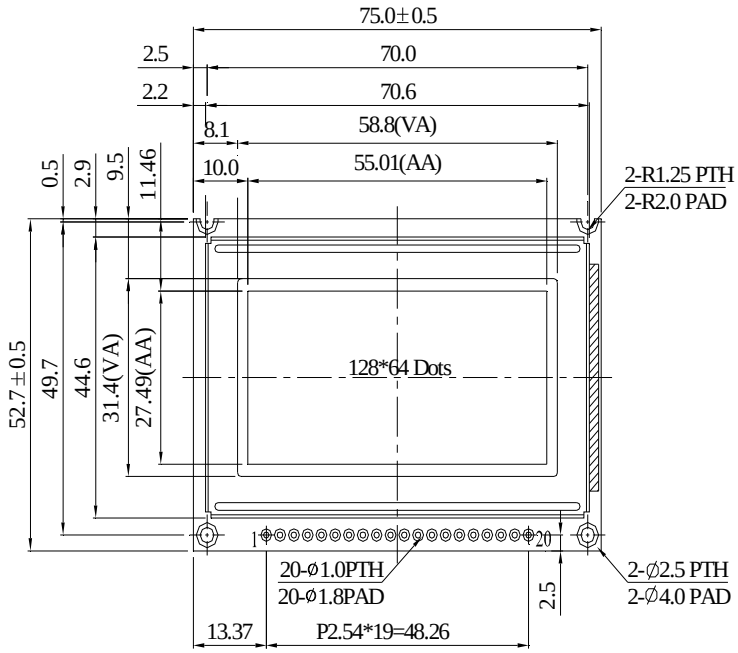
* Note: Please design the VOP adjustment circuit on customer's main board

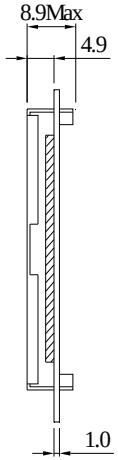


Interface Pin Function

Pin No.	Symbol	Level	Description
1	V_{DD}	3.3V	Supply voltage for logic
2	V_{SS}	0V	Ground
3	V_o	(Variable)	Contrast Adjustment
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	H/L	Data bus line
11	DB7	H/L	Data bus line
12	CS1	L	Select Column 1~ Column 64
13	CS2	L	Select Column 65~ Column 128
14	/RST	L	Reset signal
15	R/₩	H/L	H: Read (MPU←Module) , L: Write (MPU→Module)
16	D/I	H/L	H: Data , L : Instruction
17	E	H	Enable signal
18	Vee	—	Negative Voltage output
19	A	—	Power Supply for LED backlight (+)
20	K	—	Power Supply for LED backlight (-)

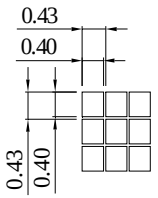
Contour Drawing &Block Diagram





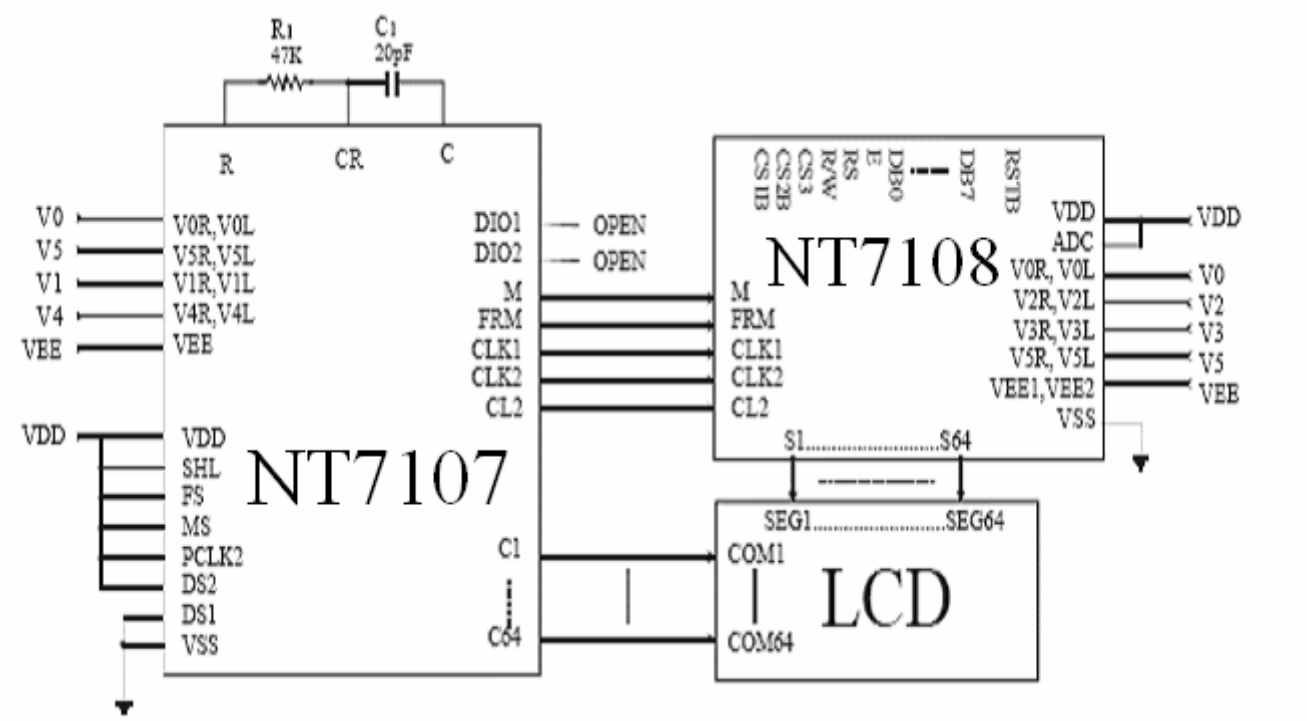
LED B/L

PIN NO.	SYMBOL
1	Vdd
2	Vss
3	Vo
4	DB0
5	DB1
6	DB2
7	DB3
8	DB4
9	DB5
10	DB6
11	DB7
12	CS1
13	CS2
14	$\overline{RST}$
15	R/$\overline{W}$
16	D/$\bar{I}$
17	E
18	Vee
19	A
20	K



DOT SIZE
SCALE 10/1

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


R1
47K
C1
20pF
R
CR
C
V0
V5
V1
V4
VEE
V0R,V0L
V5R,V5L
V1R,V1L
V4R,V4L
VEE
VDD
VDD
SHL
FS
MS
PCLK2
DS2
DS1
VSS
NT7107
DIO1
DIO2
M
FRM
CLK1
CLK2
CL2
C1
C64
OPEN
OPEN
CS1B
CS2B
CS3
R/W
RS
E
DB0
DB7
RSTB
NT7108
M
FRM
CLK1
CLK2
CL2
VDD
ADC
V0R, V0L
V2R,V2L
V3R,V3L
V5R, V5L
VEE1,VEE2
VSS
VDD
V0
V2
V3
V5
VEE
S1.....S64
SEG1.....SEG64
COM1
COM64
LCD