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

CUSTOMER : _____

MODULE NO.: WF32-240320CD#000-FC

General Specifications

Item	Dimension	Unit
Size	3.2	inch
Dot Matrix	240x RGBx 320(TFT)	dots
Module dimension	55.04 (W) x 77.6 (H) x 2.55(D)	mm
Active area	48.6 x 64.8	mm
LCD type	TFT, Normally White, Transmissive	
View Direction	6 o'clock	
Gray Scale Inversion Direction	12 o'clock	
Backlight Type	LED,Normally White	
With /Without TP	Without TP	
Surface	Glare	

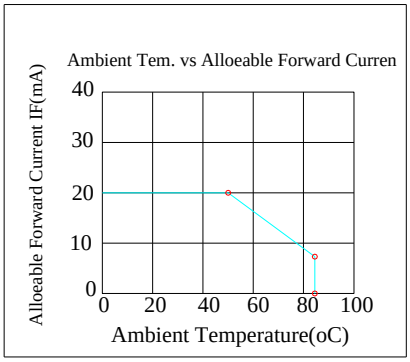
first FC components

Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	TOP	-20	—	+70	℃
Storage Temperature	TST	-30	—	+80	℃

Note: Device is subject to be damaged permanently if stresses beyond those absolute maximum ratings listed above

1. Temp. ≦60℃, 90% RH MAX. Temp.＞60℃, Absolute humidity shall be less than 90% RH at 60℃



Electrical Characteristics

Operating conditions:

Item	Symbol	Condition	Min	Type	Max	Unit
Power supply voltage	V_{DD}		2.5	-	3.3	V
Power supply voltage	IOVCC		1.65		3.3	V
Input high voltage	Vih		0.7IOVCC	-	IOVCC	V
Input low voltage	Vil		GND	-	0.3IOVCC	V
Output high voltage	Voh	Ioh=-1.0mA	0.8 IOVCC	-	IOVCC	V
Output low voltage	Vol	Iol=1.0mA	GND	-	0.2 IOVCC	V
Current consumption	Idd	-	-	9	-	mA

This value is test for VDD=3.3V , Ta=25 ℃only

LED driving conditions

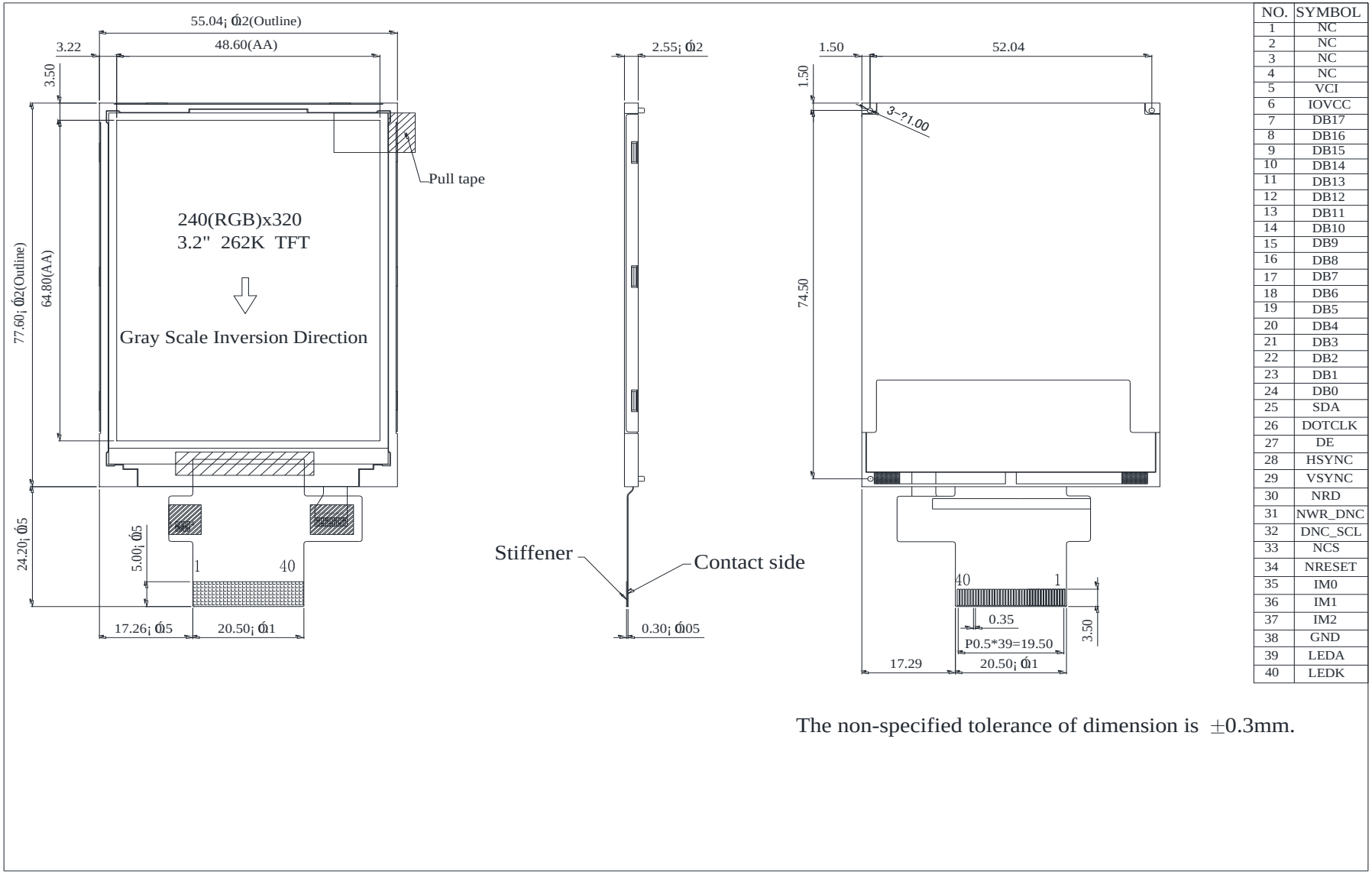
Parameter	Symbol	Min	Typ	Max	Unit	Remark
LED current	—	—	120	150	mA	—
LED voltage	VBL+	2.8	3.2	3.4	V	Note 1
LED Life Time	—	—	20000	—	Hr	Note 2,3

Interface

LCM PIN Definition

<table>
<tr><th>NO</th><th>Symbol</th><th>Function</th><th>I/O</th></tr>
<tr><td>1</td><td>NC</td><td>No connection</td><td>—</td></tr>
<tr><td>2</td><td>NC</td><td>No connection</td><td>—</td></tr>
<tr><td>3</td><td>NC</td><td>No connection</td><td>—</td></tr>
<tr><td>4</td><td>NC</td><td>No connection</td><td>—</td></tr>
<tr><td>5</td><td>VCI</td><td>Power supply(TYP: 2.8V).</td><td>P</td></tr>
<tr><td>6</td><td>IOVCC</td><td>Power supply(TYP:1.8V/2.8V).</td><td>P</td></tr>
<tr><td>7-24</td><td>DB17~DB0</td><td>Data bus</td><td>I/O</td></tr>
<tr><td>25</td><td>SDA</td><td>Serial data input/output</td><td>I/O</td></tr>
<tr><td>26</td><td>DOTCLK</td><td>Data enable signal in RGB interface.</td><td>I</td></tr>
<tr><td>27</td><td>DE</td><td>A data ENABLE signal in RGB I/F mode</td><td>I</td></tr>
<tr><td>28</td><td>HSYNC</td><td>Horizontal synchronizing signal in RGB interface</td><td>I</td></tr>
<tr><td>29</td><td>VSYNC</td><td>Vertical synchronizing signal in RGB interface</td><td>I</td></tr>
<tr><td>30</td><td>NRD</td><td>Read enable pin I80 parallel bus system interface</td><td>I</td></tr>
<tr><td>31</td><td>NWR_DNC</td><td>NWR Write enable pin I80 parallel bus system interface
DNC Command/parameter or display data selection pin in serial bus system interface</td><td>I</td></tr>
<tr><td>32</td><td>DNC_SCL</td><td>DNC Command/parameter or display data selection pin in parallel interface
SCL Serial data clock in serial bus system Interface</td><td>I</td></tr>
<tr><td>33</td><td>NCS</td><td>Chip select signal</td><td>I</td></tr>
<tr><td>34</td><td>NRESET</td><td>System Reset</td><td>I</td></tr>
<tr><td>35
36
37</td><td>IM0
IM1
IM2</td><td>System interface select:
<table>
<tr><th rowspan="2">IM2</th><th rowspan="2">IM1</th><th rowspan="2">IM0</th><th rowspan="2">MCU-Interface Mode</th><th colspan="2">DB Pin in use</th></tr>
<tr><th>Register/Content</th><th>GRAM</th></tr>
<tr><td>0</td><td>0</td><td>0</td><td>80 MCU 8-bit bus interface I</td><td>D[7:0]</td><td>D[7:0]</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>80 MCU 16-bit bus interface I</td><td>D[7:0]</td><td>D[15:0]</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>80 MCU 9-bit bus interface I</td><td>D[7:0]</td><td>D[8:0]</td></tr>
<tr><td>0</td><td>1</td><td>1</td><td>80 MCU 18-bit bus interface I</td><td>D[7:0]</td><td>D[17:0]</td></tr>
<tr><td>1</td><td>0</td><td>1</td><td>3-wire 9-bit data serial interface I</td><td colspan="2">SDA: In/OUT</td></tr>
<tr><td>1</td><td>1</td><td>0</td><td>4-wire 8-bit data serial interface I</td><td colspan="2">SDA: In/OUT</td></tr>
</table></td><td>I</td></tr>
<tr><td>38</td><td>GND</td><td>Ground</td><td>P</td></tr>
<tr><td>39</td><td>LEDA</td><td>Anode of LED backlight.</td><td>P</td></tr>
<tr><td>40</td><td>LEDK</td><td>Cathode of LED backlight.</td><td>P</td></tr>
</table>

Contour Drawing



NO.	SYMBOL
1	NC
2	NC
3	NC
4	NC
5	VCI
6	IOVCC
7	DB17
8	DB16
9	DB15
10	DB14
11	DB13
12	DB12
13	DB11
14	DB10
15	DB9
16	DB8
17	DB7
18	DB6
19	DB5
20	DB4
21	DB3
22	DB2
23	DB1
24	DB0
25	SDA
26	DOTCLK
27	DE
28	HSYNC
29	VSYNC
30	NRD
31	NWR_DNC
32	DNC_SCL
33	NCS
34	NRESET
35	IM0
36	IM1
37	IM2
38	GND
39	LEDA
40	LEDK

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