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Approval Sheet

Preliminary specification

Final specification

Customer Name	xxx
Product Description	3.5inch 1440RGB*1600 TFT-LCD Module
Version	Pre.0
Supplier	BOE
Module Code	BOL035VRM90

Customer Approval		BOE Approval	
SIGNATURE/TITLE	DATE	SIGNATURE/TITLE	DATE
PREPARED BY		PREPARED BY	
_____ / _____		_____ / _____	
REVIEWED BY		REVIEWED BY	
_____ / _____		_____ / _____	
APPROVED BY (R&D)		APPROVED BY (R&D)	
_____ / _____		_____ / _____	
APPROVED BY (QA)		APPROVED BY (QA)	
_____ / _____		_____ / _____	



PRODUCT GROUP

REV

ISSUE DATE

TFT LCD PRODUCT

P0

2017.03.20

Product Specification

Product Name : 3.5" TFT-LCD Module

Model Name : BOL035VRM90

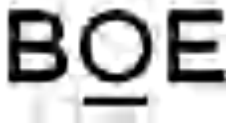
Description : 3.5" 1440RGB×1600 16.7M Color

PREPARED BY	CHECKED BY	APPROVALED BY

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Revision History

REV.	ECN NO.	DESCRIPTION OF CHANGES	DATE	PREPARED
P0	-	Initial Release	2017.03.20	GONG LEI

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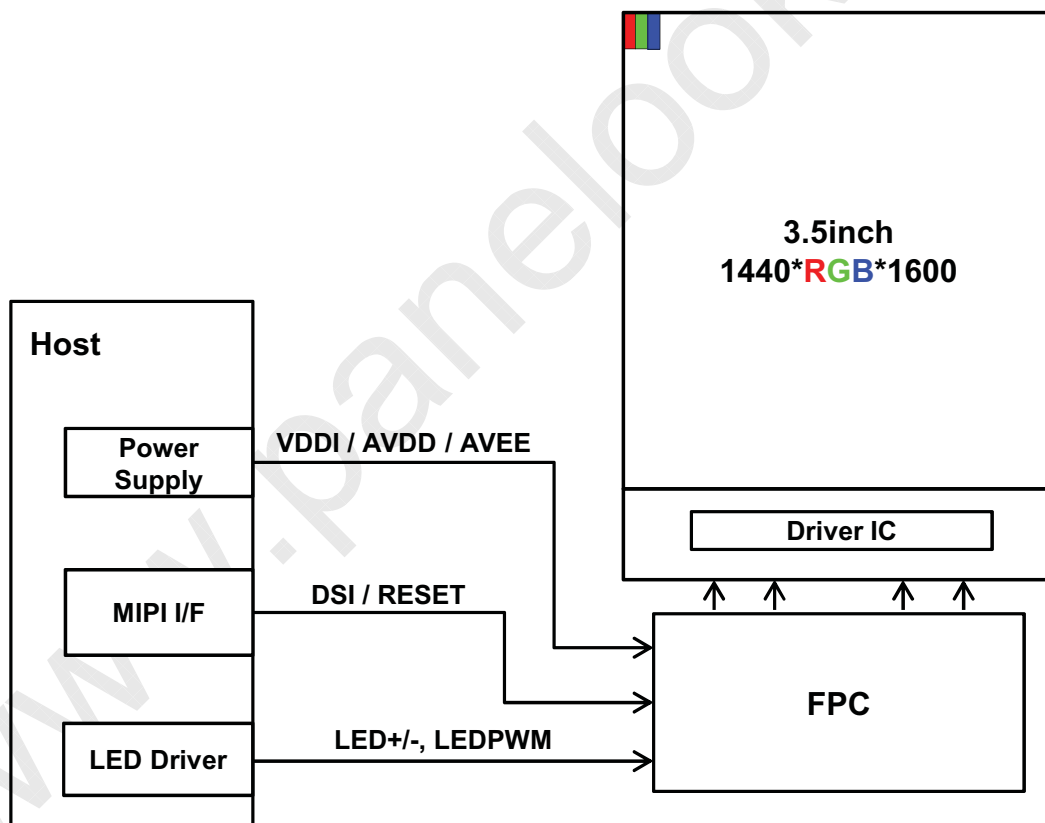
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1.0 GENERAL DESCRIPTION

1.1 Introduction

The 3.5inch TFT-LCD Module is a Color Active Matrix TFT LCD panel using LTPS (Low Temperature Poly-silicon) TFT's (Thin Film Transistors) as an active switching devices. This module has a 3.5 inch diagonally measured active area with 1440*1600 resolutions (1440 horizontal by 1600 vertical pixel array). Each pixel is divided into RED, GREEN, BLUE dots which are arranged in vertical stripe and this module can display 16.7M colors. The TFT-LCD panel used for this module is adapted for a low reflection and higher color type.





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1.2 Features

- High PPI
- Fast response time
- High frame ratio
- High luminance, low reflection and wide viewing angle
- RoHS、Halogen Free Compliant

1.3 Application

- Virtual Reality Device
- Augmented Reality Device

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1.4 General Specification

< Table 1. General Specifications >

Parameter	Specification	Unit	Remark
Display method	Active matrix TFT		
Display mode	Transmission mode, Normally black		
Screen size	3.5 (88.79mm)	inch	diagonally
Number of pixels	1440(H) × 1600(V)	pixels	615 ppi
Active area	59.4(H) × 66.0(V)	mm	
Pixel pitch	13.75(H) × 41.25(V)	um	
Pixel arrangement	RGB stripe		
Display colors	16.7M	colors	8bit
NTSC Ratio	85%		
LCM Outline Dimension	62.2(H) × 73.6(V) × 1.7 (T)	mm	Note 1)
LCM Weight	17.0 ±2.0	gram	
Driver IC	NT57860		
Interface	MIPI DSI (Video Mode)		
Surface Treatment	HC, ≥3H		

Note:

1) Protection film is not included.

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2.0 ABSOLUTE MAXIMUM RATINGS

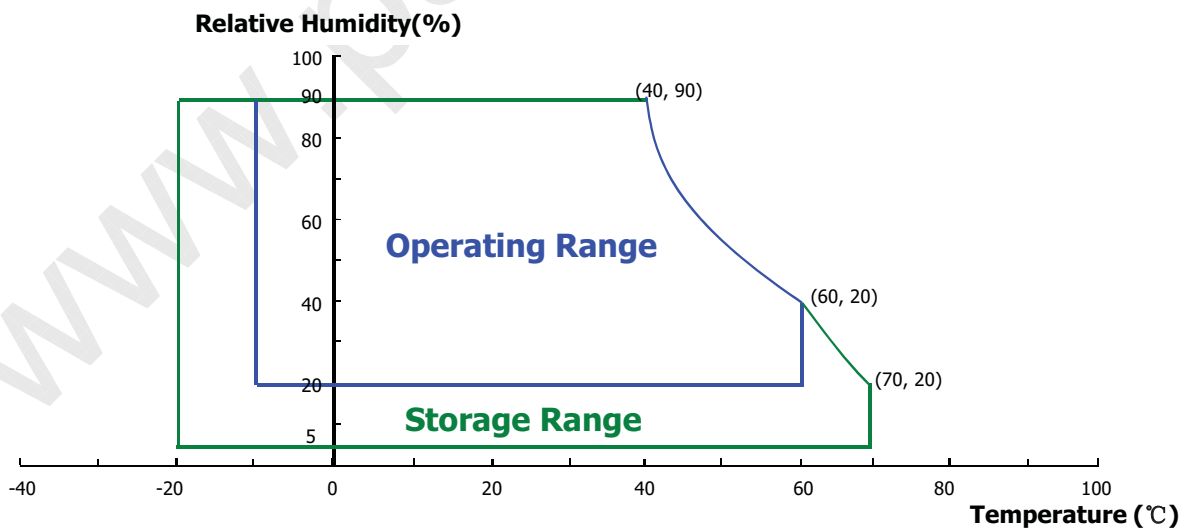
< Table 2. Absolute Maximum Ratings >

[Ta =25±2 °C]

Items	Symbol	Rating	Unit	Remark
Logic voltage	VDDI	-0.3 to +1.8	V	
Positive Analog Power Supply Voltage	AVDD	-0.3 to +5.7	V	
Negative Analog Power Supply Voltage	AVEE	-5.7 to +0.3	V	
LED forward current	I _{LED}	74	mA	each LED 10% on duty
Storage temperature	T _{STG}	-40 to +70	°C	
Operation temperature	T _{OPR}	-10 to +55	°C	
Humidity (ambient temperature=Ta)	Ta≤60°C, 90% RH Max.			

Note 1: If the module exceeds the absolute maximum ratings, it may be damaged permanently. Also, if the module operated with the absolute maximum ratings for a long time, its reliability may drop. It is not allowed for any of these ratings to be exceeded. Make sure all the design characteristics are adequate before the panel is initiated.

Note 2: Temperature and relative humidity range are shown in the figure below.
Wet bulb temperature should be 39 °C max. and no condensation of water.





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3.0 ELECTRICAL SPECIFICATIONS

3.1 TFT LCD Panel

< Table 3. LCD Panel Electrical Specifications >

[Ta =25±2 °C]

Items		Symbol	Min.	Typ.	Max.	Unit	Remark
Logic voltage		VDDI	1.7	1.8	1.9	V	Note 1
Positive Analog Power Supply Voltage		AVDD	5.4	5.7	6.0	V	
Negative Analog Power Supply Voltage		AVEE	-6.0	-5.7	-5.4	V	
Frame Ratio		FPS	-	90		Hz	
Input signal voltage	High level	V _{IH}	0.7×VDDI	-	VDDI	V	
	Low level	V _{IL}	VSSI	-	0.3×VDDI	V	
Output signal voltage	High level	V _{OH}	0.8×VDDI	-	VDDI		
	Low level	V _{OL}	VSSI	-	0.2×VDDI		
Current consumption		I _{VDDI}	-	TBD	-	mA	Note 2
		I _{AVDD}	-	TBD	-	mA	
		I _{AVEE}	-	TBD	-	mA	
Driver IC ESD		HBM	- 2	-	+2	kV	
		MM	-200	-	+200	V	

Note 1:

The value can be adjusted by software to optimize display quality.

The operation is guaranteed under the recommended operating conditions only. The operation is not guaranteed if a quick voltage change occurs during operation. To prevent noise, a bypass capacitor must be inserted into the line close to power pin. Please make sure all the design settings are used within this range before the panel is initialed.

Note 2:

Test pattern: All White Display

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