

***Phoenix Display International, Inc.***

# PRODUCT PREVIEW

## 160 x 240 Monochrome

**TN/STN**

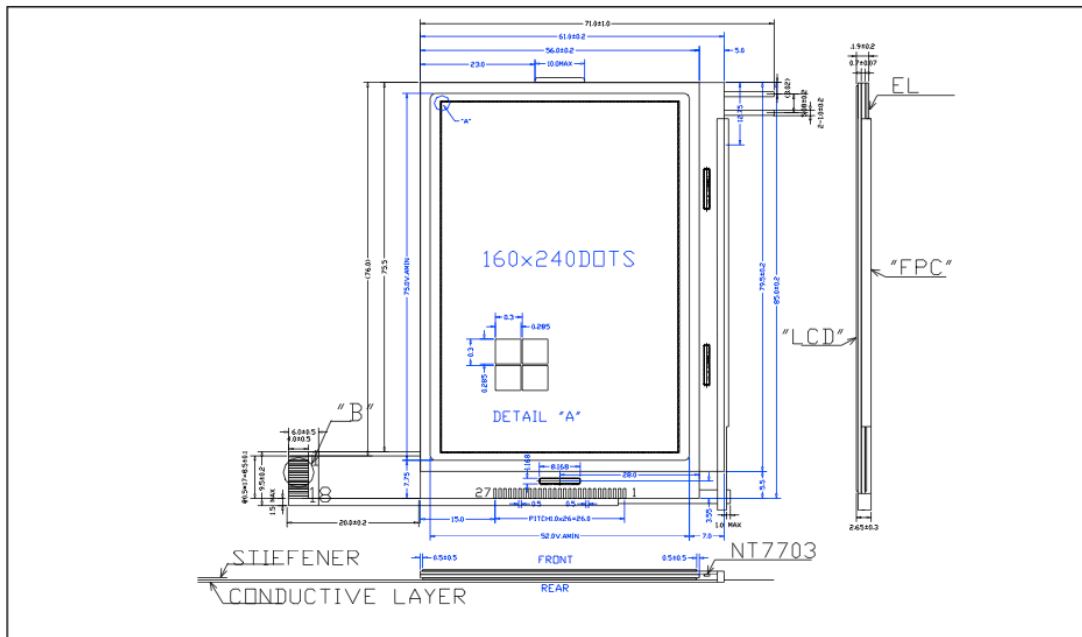
Graphics  
Liquid Crystal Display

### SPECIFICATIONS

#### MODULE

Part Number	G-16024001G-VA
Format	160 Columns by 240 Rows
Controller	HM11S210
Overall Dimensions	85.0mm x 61.0mm x 2.7mm
Active Area	47.9mm x 71.9mm
Pixel Pitch	300um x 300um
Pixel Size	285um x 285um
Backlight System	EL
Driver Attach	Chip on Glass (COG)
Glass Type	STN, FSTN
Display Type	R,TF,TM
Duty	1/240

#### 1.0 DIMENSIONAL DRAWING



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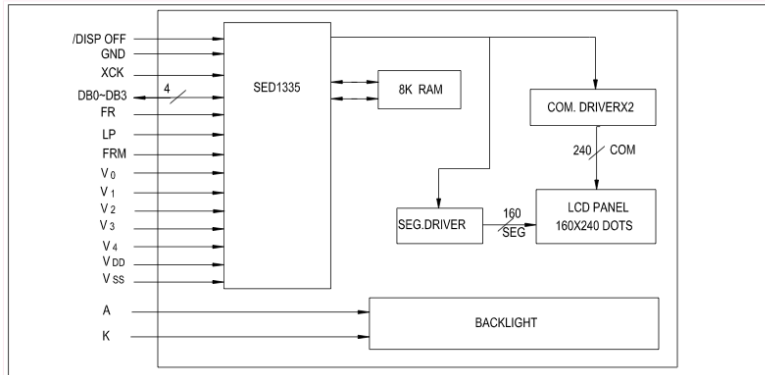


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### 2.0 BLOCK DIAGRAM



### 4.0 ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Test Condition	Standard Value		
			Min.	Max.	Unit
Supply Voltage (Logic)	$V_{DD}-V_{SS}$	25°C	-0.3	7	V
Supply Voltage (LCD)	$V_F-V_{SS}$		-0.3	32.0	V
Input Voltage	$V_{IN}$		-0.3	$V_{DD}+0.3$	V
Operating Temp.	$T_{OPR}$		-10	60	°C
Storage Temp.	$T_{STG}$		-20	70	°C

### 3.0 ELECTRICAL CHARACTERISTICS $T_a=25^\circ\text{C}$ $V_{DD}=3.0V\pm 0.25V$

Item	Symbol	Test Condition	Standard Value			
			Min.	Typ.	Max.	
Power Supply Voltage	$V_{DD}-V_{SS}$	25°C	2.5	3.0	5.5	V
LCD Operation Voltage	$V_{OP}$		24			V
LCM Current Consumption	$I_{DD}$		TBD			mA
Backlight Forward Voltage	$V_F$		100	150		Vrms
Backlight Current Consumption	$I_F$					mA

### 5.0 PIN ASSIGNMENT

PIN No.	Symbol	Description
1	$V_0$	Power supply for LCD
2	$V_1$	Bias Voltage for(Common drive)
3	$V_2$	Bias Voltage for(Common drive)
4	$V_3$	Bias Voltage for(Common drive)
5	$V_4$	Bias Voltage for(Common drive)
6	$V_{SS}$	Ground (0V), these two pads must be connected to each other
7	GND	Ground
8	NC	—
9	$V_{DD}$	Power supply for LCD
10	/DISP OFF	Control input for deselect output level
11	XCK	Display data shift clock input for segment mode
12	FRM	Input / output for chip select or data of shift register
13	LP	Latch pulse input / shift clock input for the shift register
14	FR	AC-converting signal input for LCD driver waveform
15~18	$D_3-D_0$	Input data signal

**Remark**

- LCD option: STN, FSTN .
- Customized module.
- Backlight option: LED,EL backlight feature, other specs not available on catalog is under request.

