

## General Information

LCD Type	: TFT/Transflective
Recommended Viewing Direction	: From 5:00 O' Clock to 7:00 O' Clock
Module Area	: 35.37× 42.368 × 2.66mm <sup>3</sup> (Width×Height ×Thick)
Viewing Area	: 32.368×32.368mm <sup>2</sup> (Width×Height)
Active Area	: 31.968×31.968mm <sup>2</sup> (Width×Height)
Number of Dots	: 320RGB×320
Pixel Pitch	: 0.0999×0.0999mm <sup>2</sup> (Width×Height)
Driver IC	: ST7796H
Interface Type	: MIPI
Input Voltage	: IOVCC=1.8V, VCC=2.8V
Module Power Consumption	: 226.04mW
Backlight Type	: LED

**RoHS  
Compliant**

## Absolute Maximum Ratings

Parameter of Absolute Maximum Ratings	Symbol	Min	Max	Unit
Supply voltage	IOVCC/VCC	-0.3	4.6	V
Input voltage	VIN	-0.5	IOVCC+0.5	V
Operating Temperature	Top	-20	70	°C
Storage Temperature	TST	-30	80	°C
Humidity	RH	-	90% (Max60°C)	RH

**Note:** Absolute maximum ratings means the product can withstand short-term, NOT more than 120 hours. If the product is a long time to withstand these conditions, the life time would be shorter.

## Electrical Characteristics

### DC Characteristics

Parameter of DC Characteristics	Symbol	Min	Typ	Max	Unit
Supply voltage for logic	VCC	2.5	2.8	3.3	V
I/O power supply	IOVCC	1.65	1.8	3.3	V
Input Current	I <sub>dd</sub>	-	14.3	21.5	mA
Input voltage 'H' level	V <sub>IH</sub>	0.7IOVCC	-	IOVCC	V
Input voltage 'L' level	V <sub>IL</sub>	GND	-	0.3IOVCC	V
Output voltage 'H' level	V <sub>OH</sub>	0.8IOVCC	-	-	V
Output voltage 'L' level	V <sub>OL</sub>	GND	-	0.2IOVCC	V

### Backlight Characteristics

Item of Backlight Characteristics	Symbol	Min	Typ	Max	Unit	Condition
Forward Voltage	V <sub>f</sub>	2.5	3	3.4	V	I <sub>f</sub> =60mA; T <sub>A</sub> =25°C
Number of LED	-	-	3	-	Piece	-
Connection mode	P/S	-	Parallel	-	-	-

Using condition: constant current driving method I<sub>f</sub>=60mA(+/-10%).

## Electro-Optical Characteristics

Item of Electro-optical Characteristics	Symbol	Condition	Min.	Typ	Max	Unit
Response time	Tr+ Tf	$\theta = 0^\circ$ $\phi = 0^\circ$ $T_a = 25^\circ\text{C}$	-	30	45	ms
Contrast ratio	Cr		41	81	-	-
Luminance uniformity	$\delta$ White		80	-	-	%
Surface Luminance	Lv		190	240	-	cd/m <sup>2</sup>
Viewing Angle Range	$\theta$	$\phi = 90^\circ$	35	45	-	deg
		$\phi = 270^\circ$	70	80	-	deg
		$\phi = 0^\circ$	40	50	-	deg
		$\phi = 180^\circ$	50	60	-	deg
NTSC ratio	-	-	-	35	-	%
CIE (x,y) Chromaticity	Red x	$\theta = 0^\circ$ $\phi = 0^\circ$ $T_a = 25^\circ\text{C}$	0.4821	0.5321	0.5821	-
	Red y		0.2692	0.3192	0.3692	-
	Green x		0.272	0.322	0.372	-
	Green y		0.5036	0.5536	0.6036	-
	Blue x		0.1271	0.1771	0.2271	-
	Blue y		0.1149	0.1649	0.2149	-
	White x		0.2306	0.2906	0.3506	-
	White y		0.2691	0.3291	0.3891	-

## Interface Description

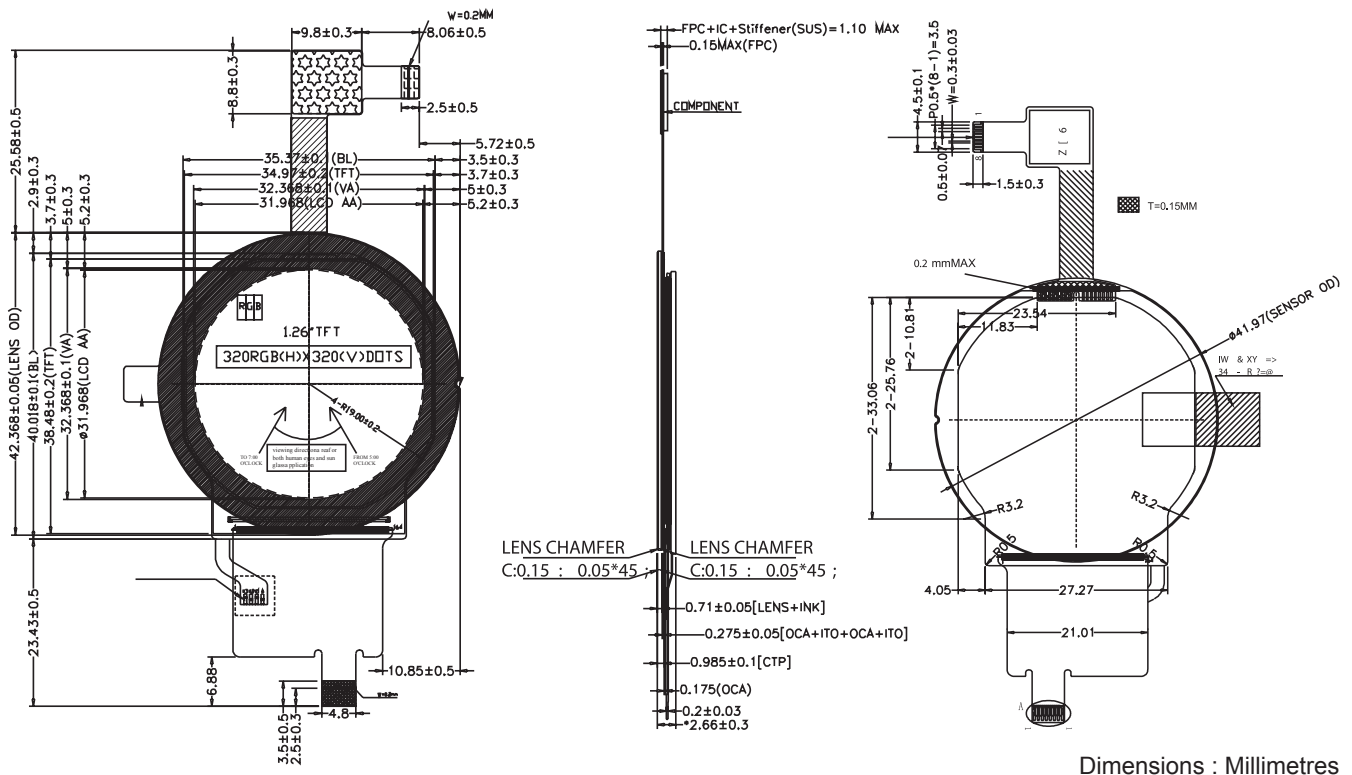
Interface No.	Symbol	I/O or Connect	Description	When not in use
1	GND	Power supply	Ground	-
2	LEDK3	LED driver	LED cathode	-
3	LEDK2	LED driver	LED cathode	-
4	LEDK1	LED driver	LED cathode	-
5	LEDA	LED driver	LED anode	-
6	VCC	Power supply	Power supply for analog and booster circuits.	
7	GND	Power supply	Ground	-
8	CLK-	I Host processor	Negative polarity of low voltage differential clock signal	Open
9	CLK+	I Host processor	Positive polarity of low voltage differential clock signal	Open
10	GND	Power supply	Ground	-
11	D0-	I/O Host processor	Negative polarity of low voltage differential clock signal	Open
12	D0+	I/O Host processor	Positive polarity of low voltage differential data signal	Open
13	GND	Power supply	Ground	-

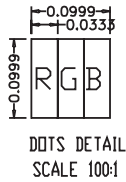
Interface No.	Symbol	I/O or Connect	Description	When not in use
14	RESET	I Host processor	This signal will reset the device and it must be applied to properly initialize the chip. - Signal is active low.	-
15	IOVCC	Power supply	Power supply for I/O system.	-

## CTP Interface Description

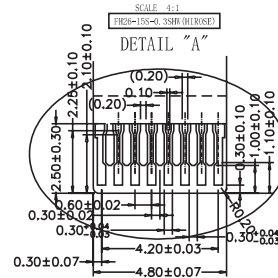
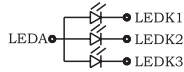
Interface No.	Symbol	I/O or Connect	Description	When not in use
1	RESET(1.8V)	I	Active low external reset.	-
2	INT(1.8V)	I/O	Touch Screen Interrupt. Touch Screen Interrupt line. Interrupt active when the line is low.	-
3	SDA(1.8V)	I/O	I2C Serial Data Input/Output	-
4	SCL(1.8V)	I/O	I2C Serial Clock Input	-
5	IOVDD(1.8V)	P	Digital power supply voltage.	-
6	VDD(2.8V)	P	Analog power supply voltage.	-

## Dimensions





### LED Circuit Diagram



Dimensions : Millimetres

### Part Number Table

Description	Part Number
WARP7 Board LCD	TDO-QVGA0126A62065

**Important Notice :** This data sheet and its contents (the "Information") belong to the members of the Premier Farnell group of companies (the "Group") or are licensed to it. No licence is granted for the use of it other than for information purposes in connection with the products to which it relates. No licence of any intellectual property rights is granted. The Information is subject to change without notice and replaces all data sheets previously supplied. The Information supplied is believed to be accurate but the Group assumes no responsibility for its accuracy or completeness, any error in or omission from it or for any use made of it. Users of this data sheet should check for themselves the Information and the suitability of the products for their purpose and not make any assumptions based on information included or omitted. Liability for loss or damage resulting from any reliance on the Information or use of it (including liability resulting from negligence or where the Group was aware of the possibility of such loss or damage arising) is excluded. This will not operate to limit or restrict the Group's liability for death or personal injury resulting from its negligence. element14 is the registered trademark of the Group. © Premier Farnell Limited 2016.