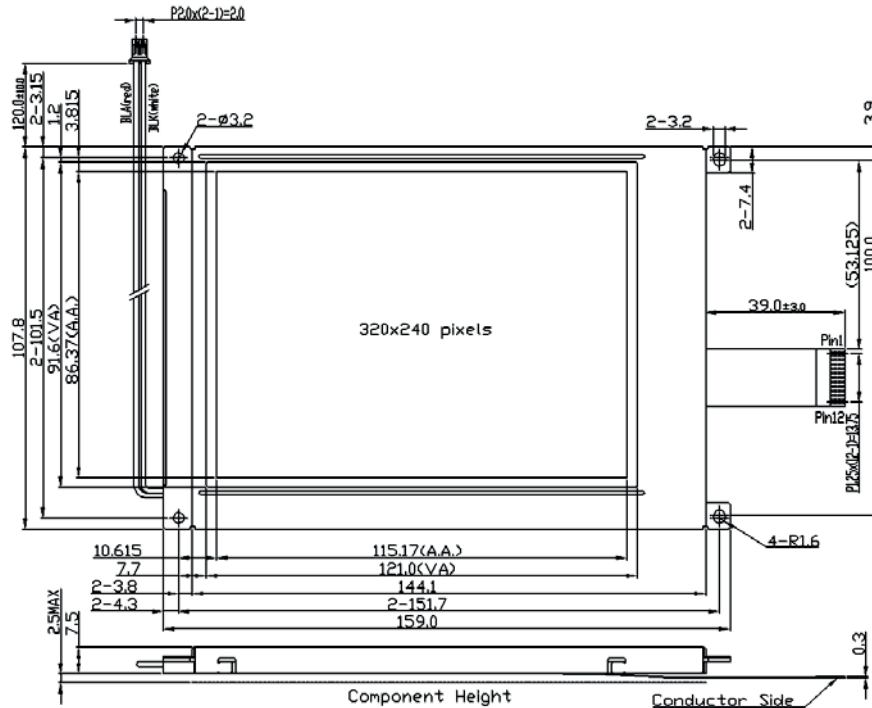


OUTLINE DRAWING



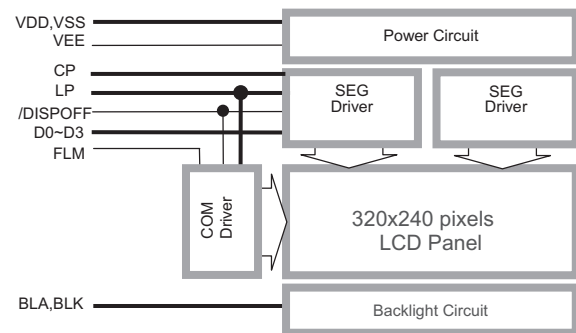
TERMINAL FUNCTIONS

Pin	Name	Descriptions		
		80 mode	68 mode	Serial mode
1	FLM	First Line Marker Input		
2	LP	Line Pulse Signal Input		
3	CP	Clock Pulse Signal Input		
4	NC	No Connection(leave open)		
5	/DISPOFF	Display ON/OFF Control Signal Input		
6	D0	4-bit Display Data Input		
:	:			
9	D3			
10	VDD	Positive Power Supply		
11	VSS	0V Power Supply,Ground		
12	VEE	Positive LCD Supply		

ELECTRICAL CHARACTERISTICS\*

Item	Symbol	Min	Typ	Max
Operating Voltage (V)	V <sub>DD</sub>	3.0	5.0	5.3
LCD Driving Voltage (V)	V <sub>EE</sub>	-	21.9	-
Input High Voltage (V)	V <sub>IN</sub>	0.8 V <sub>DD</sub>	-	V <sub>DD</sub>
Input Low Voltage (V)	V <sub>IN</sub>	0	-	0.2V <sub>DD</sub>
Operating Current (mA)	I <sub>DD</sub>	-	0.1	0.5
LCD Driving Current (mA)	I <sub>EE</sub>	-	2.0	10.5

BLOCK DIAGRAM



DISPLAY CHARACTERISTICS

Item	Value
LCD Display Mode	STN, Negative, Transmissive
Driving Method	1/240 duty
Backlight <sup>#</sup>	White LED Backlight

MECHANICAL DATA

Item	Value
Outline (mm)	159.0 x 107.8 x 10.0 MAX.
Viewing Area (mm)	121.0 x 91.6
Active Area (mm)	115.17 x 86.37
Dot Pitch (mm)	0.36 x 0.36
Dot Size (mm)	0.33 x 0.33

ABSOLUTE MAXIMUM

Item	Symbol	Min	Max
Operating Voltage (V)	V <sub>DD</sub>	-0.3	+6.0
Operating Temperature (°C)	T <sub>OP</sub>	-20	+70
Storage Temperature (°C)	T <sub>ST</sub>	-30	+80

BACKLIGHT CHARACTERISTICS

Item	Symbol	Min	Typ	Max
Forward Voltage (V)	V <sub>fBLA</sub>	-	5.0	-
Forward Current (mA)	I <sub>fBLA</sub>	-	221	290

LM32019T series

	Highlight	
	LCD Mode	# Backlight
LM32019TCW	FSTN-POS	White LED
LM32019TFW*	STN-Blue	White LED
LM32019TGW	FSTN-Neg	White LED

For similar product or (semi) custom made LCD module, please visit our web site or contact us.

\* The above product information is based on this model.