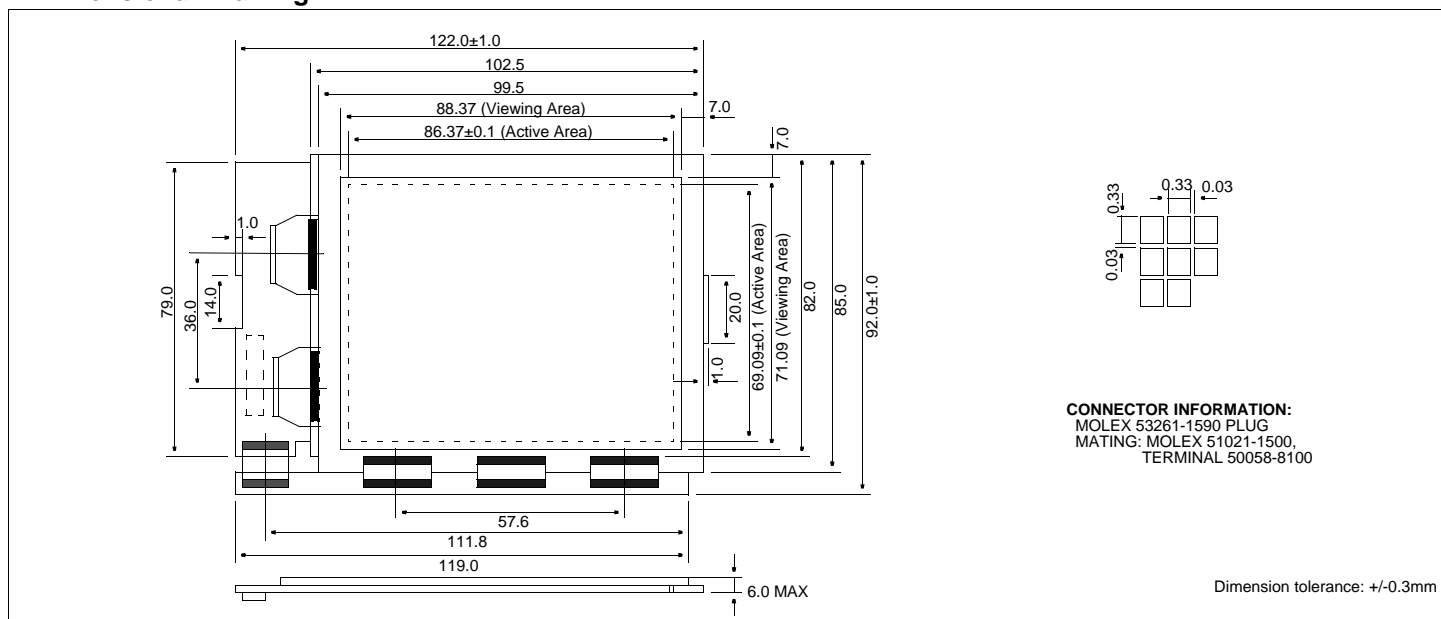


HDM 240192

Dimensional Drawing

240 X 192 Dots Graphic, Very Thin



Features

- Backlight.....None
- Options.....Gray STN / Yellow STN / FSTN
 Normal/Extended Temperature
 Bottom / Top Viewing
- Built-in Controller.....None

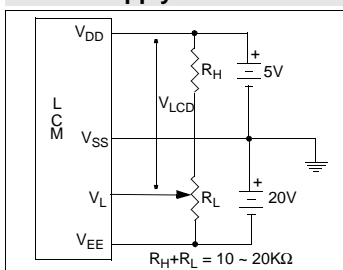
Physical Data

- Module Size.....122.0W x 92.0H x 6.0T mm
- Viewing Area Size.....88.37W x 71.09H mm
- Dot Pitch.....0.36W x 0.36H mm
- Dot Size.....0.33W x 0.33H mm
- Weight.....42g

Absolute Maximum Ratings

PARAMETER	SYMBOL	MIN	MAX	UNIT
SUPPLY VOLTAGE	$V_{DD}-V_{SS}$	-0.3	6.0	V
INPUT VOLTAGE	$V_{DD}-V_6$	0	30.0	V
OPERATING TEMPERATURE	T_{OP}	0	50	°C
STORAGE TEMPERATURE	T_{STG}	-20	70	°C

Power Supply



Electrical Characteristics (VDD=5.0±0.25V 25°C)

PARAMETER	SYM	CONDITION	MIN	TYP	MAX	UNIT
OPERATING VOLTAGE	V_{DD}	-	4.75	5.0	5.25	V
LCD VOLTAGE	V_{EE}	-	-	-15	-	V
POWER SUPPLY FOR LCD	$V_{DD}-V_L$	-	19.2	20.2	20.7	V
INPUT HIGH VOLTAGE	V_{IH}	-	$V_{DD}-2.2$	-	V_{DD}	V
INPUT LOW VOLTAGE	V_{IL}	-	0	-	0.8	V
OUTPUT HIGH VOLTAGE	V_{OH}	$I_{OH}=0.2mA$	$V_{DD}-0.4$	-	V_{DD}	V
OUTPUT LOW VOLTAGE	V_{OL}	$I_{OL}=1.2mA$	0	-	0.4	V
POWER SUPPLY CURRENT	I_{DD}	$V_{DD}=5.0V$	-	3.5	-	mA
LCD CURRENT	I_{LCD}	$V_L=-12.7V$	-	2.0	-	mA
DRIVE METHOD	1/192 Duty					

Pin Connections

PIN NO.	SYMBOL	FUNCTION	
1	FLM	H	First line marker
2	CL1	H,H→L	Display data latch clock
3	CL2	H,H→L	Display data shift clock
4	DOFF	L	Display off
5	V_{DD}	5V	Power supply for logic
6	V_{SS}	0V	Ground
7	V_L	-12.7v	LCD Voltage
8	DB0	H/L	Data bus
9	DB1	H/L	
10	DB2	H/L	
11	DB3	H/L	
12	V_{EE}	-20V	Power Supply for LCD
13	M	H/L	AC driving control signal
14	N/C	No Connection	
15	N/C	No Connection	