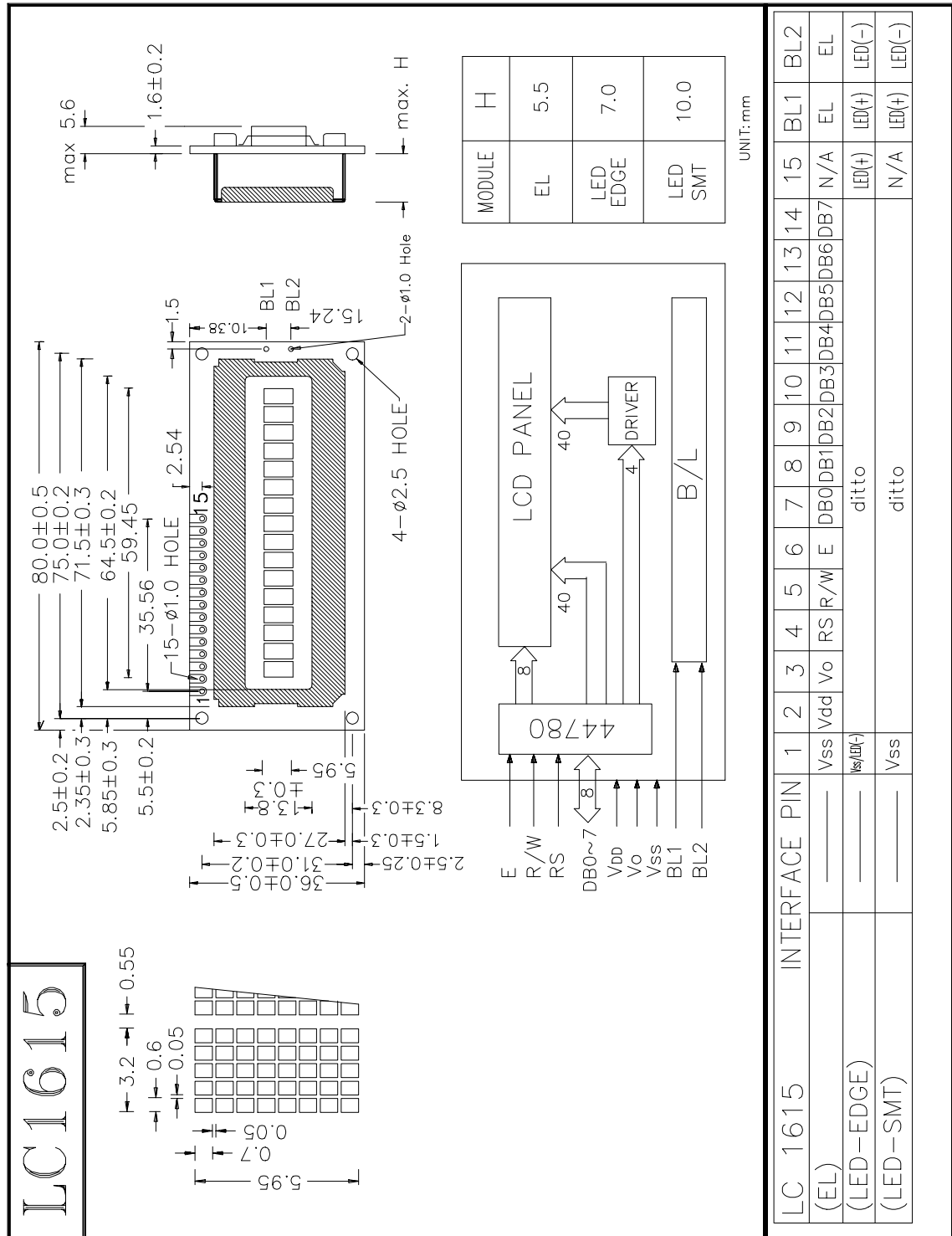


1. LCM Drawing



2. Electrical spec

LC1615

16 Characters X 1 Lines
1/8 DUTY 5x8 Font

ELECTRICAL CHARACTERISTICS

T_a = 25°C V_{DD} = 5.0 ± 0.25 v

Input "High" Voltage (V_{IH}) 2.2 V min

Input "Low " Voltage (V_{IL}) 0.6 V max

**APPLICABLE FOR -LOP
-LNA (STN,WIDE TEMP)**

	<u>TN</u>		<u>STN</u>	
	<u>TEMPERATURE</u>		<u>TEMPERATURE</u>	
	<u>NORMAL</u>	<u>WIDE</u>	<u>NORMAL</u>	<u>WIDE</u>
Supply Current, (I _{DD}) Typ., mA	1	1	1	1
Recommend LCD drive Voltage: (V _{DD} -V _O) at T _a = -20°C, Volts	N/A	9.0	N/A	6.5
T _a = 0°C	4.3	8.5	4.3	6.3
T _a = 25°C	3.9	8.0	4.0	6.0
T _a = 50°C	3.6	7.6	3.7	5.8
T _a = 70°C	N/A	7.2	N/A	5.6

ABSOLUTE MAXIMUM RATINGS

	<u>NORMAL</u>		<u>WIDE</u>	
	<u>TEMPERATURE</u>		<u>TEMPERATURE</u>	
	<u>MIN</u>	<u>MAX</u>	<u>MIN</u>	<u>MAX</u>
Input Voltage (V _I) V	0	V _{DD}	0	V _{DD}
Supply for Logic (V _{DD} -V _{SS}) V	0	7	0	7
Supply for LCD (V _{DD} -V _O) V	0	10	0	10
Operating Temperature T _{OP} , °C	0	+50	-20	+70
Storage Temperature T _{ST} , °C	-20	+70	-30	+80

OPTION

BACKLIGHT

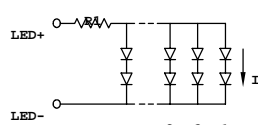
- BEXX -- EL
- BLEXX -- LED EDGE
- BLEWH -- LED EDGE (WHITE)
- BLSXX -- LED SMT

INPUT VOLTAGE & CURRENT

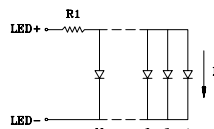
- 100 V_{RMS} (400-800) Hz; 1.5mA
- + 5V DC; 30 mA R1= 27 Ohm 1/4 W
- + 5V DC; 20 mA R1= 82 Ohm 1/4 W
- + 5V DC; 80 mA R1= 13 Ohm 1/8 W

*R1: Built-in BL current limit resistor On LCDM

EDGE

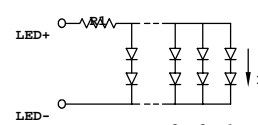


N= 2 , I= 15 mA



N= 1 , I= 20 mA

SMT LED



N= 12 , I= 6.7 mA

----- Single +5V for wide temperature operation -----

SINGLE +5V OPERATION only

-- not available --

TEMPERATURE COMPENSATION

-- not available --

LC1615

16 Characters X 1 Lines
1/8 DUTY 5x8 Font

ELECTRICAL CHARACTERISTICS

$T_a = 25^{\circ}\text{C}$ $V_{DD} = 5.0 \pm 0.25 \text{ V}$

Input "High" Voltage (V_{IH}) 2.2 V min

Input "Low" Voltage (V_{IL}) 0.6 V max

APPLICABLE FOR -LNY

	<u>TN</u>		<u>STN</u>	
	<u>TEMPERATURE</u>		<u>TEMPERATURE</u>	
	<u>NORMAL</u>	<u>WIDE</u>	<u>NORMAL</u>	<u>WIDE</u>
Supply Current, (I_{DD}) Typ., mA	N/A	N/A	1	1
Recommend LCD drive Voltage: ($V_{DD} - V_O$) at $T_a = -20^{\circ}\text{C}$, Volts	N/A	N/A	N/A	6.0
$T_a = 0^{\circ}\text{C}$	N/A	N/A	4.8	5.8
$T_a = 25^{\circ}\text{C}$	N/A	N/A	4.5	5.6
$T_a = 50^{\circ}\text{C}$	N/A	N/A	4.0	5.5
$T_a = 70^{\circ}\text{C}$	N/A	N/A	N/A	5.4

ABSOLUTE MAXIMUM RATINGS

	<u>NORMAL</u>		<u>WIDE</u>	
	<u>TEMPERATURE</u>		<u>TEMPERATURE</u>	
	<u>MIN</u>	<u>MAX</u>	<u>MIN</u>	<u>MAX</u>
Input Voltage (V_I) V	0	V_{DD}	0	V_{DD}
Supply for Logic ($V_{DD} - V_{SS}$) V	0	7	0	7
Supply for LCD ($V_{DD} - V_O$) V	0	10	0	10
Operating Temperature T_{OP} , $^{\circ}\text{C}$	0	+50	-20	+70
Storage Temperature T_{ST} , $^{\circ}\text{C}$	-20	+70	-30	+80

OPTION

BACKLIGHT

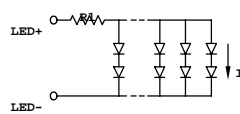
- BEXX -- EL
- BLEXX -- LED EDGE
- BLEWH -- LED EDGE (WHITE)
- BLSXX -- LED SMT

INPUT VOLTAGE & CURRENT

- 100 V_{RMS} (400-800) Hz; 1.5mA
- + 5V DC; 30 mA $R_1 = 27 \text{ Ohm } 1/4 \text{ W}$
- + 5V DC; 20 mA $R_1 = 82 \text{ Ohm } 1/4 \text{ W}$
- + 5V DC; 80 mA $R_1 = 13 \text{ Ohm } 1/8 \text{ W}$

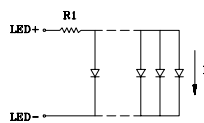
* R_1 : Built-in BL current limit resistor On LCDM

EDGE

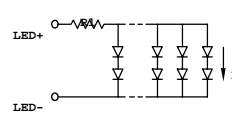


$N = 2, I = 15 \text{ mA}$

SMT LED



$N = 1, I = 20 \text{ mA}$



$N = 12, I = 6.7 \text{ mA}$

----- Single +5V for wide temperature operation -----

INGLE +5V OPERATION only

-- not available --

TEMPERATURE COMPENSATION

-- not available --