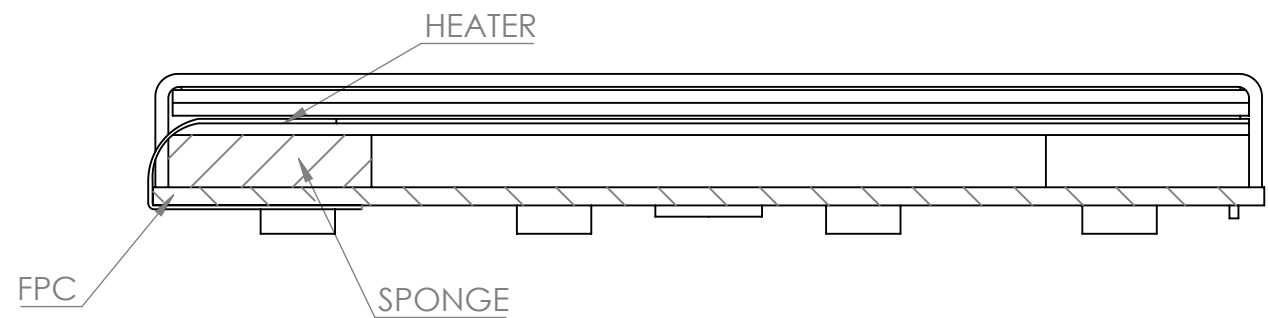
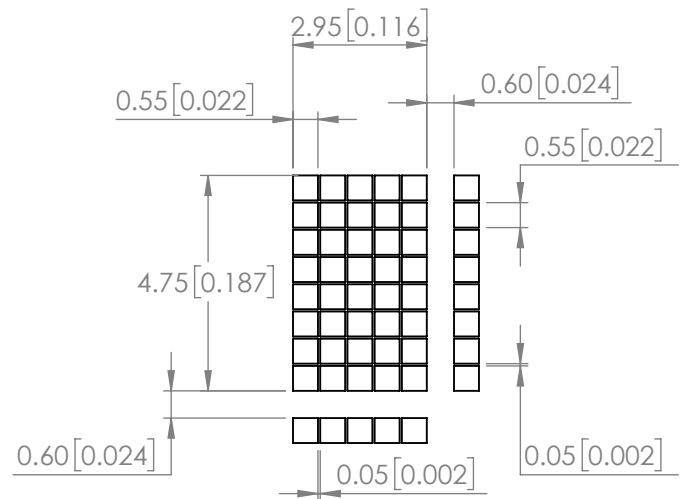
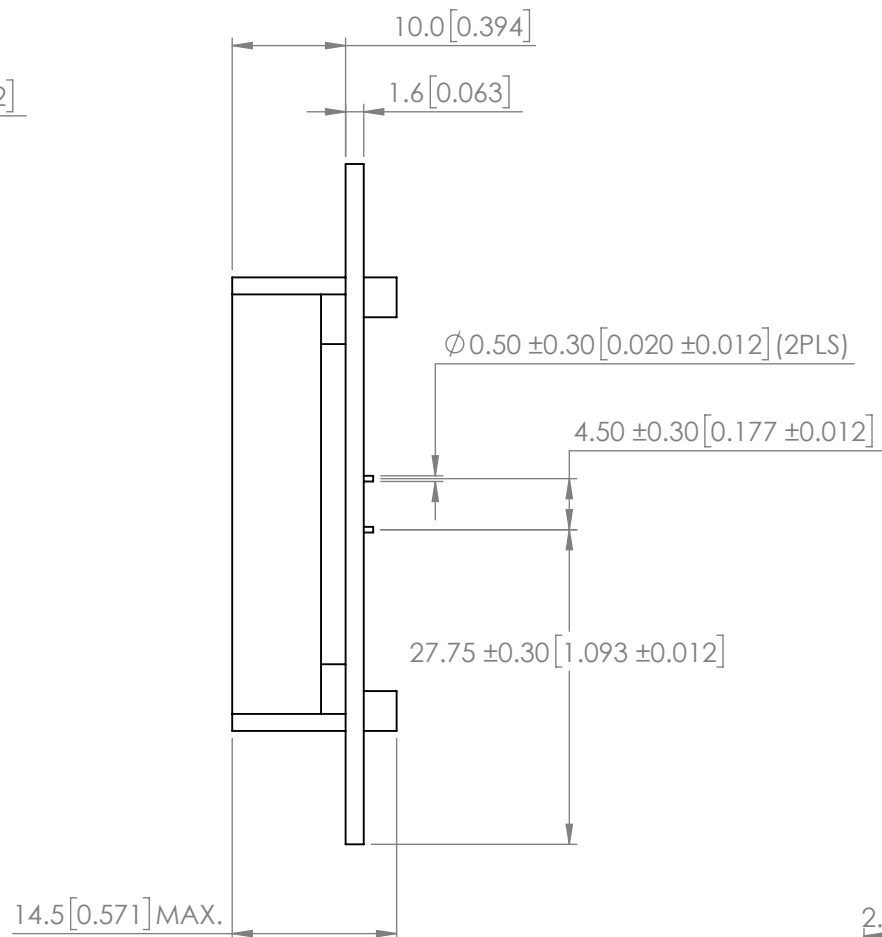
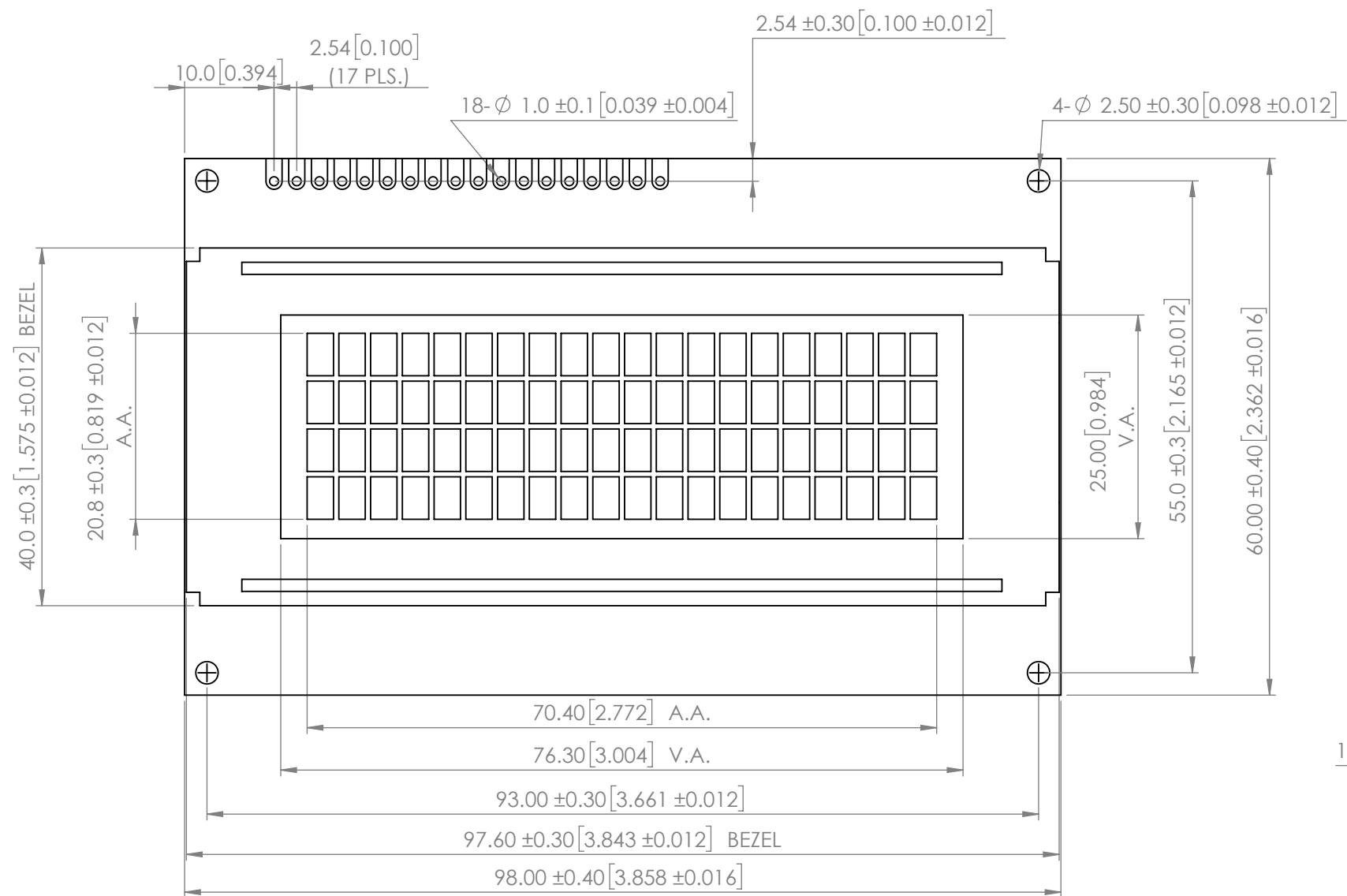


PART NUMBER	LCR-U02004DSF-WH	REV	B
DATE	05.20.10	E.C.N. NUMBER AND REVISION COMMENTS	REV
04.27.18	ECN-Lumex201800063	A	B



CAUTION: STATIC SENSITIVE DEVICE
FOLLOW PROPER E.S.D. HANDLING PROCEDURES
WHEN WORKING WITH THIS PART.

*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.039), X.X=±0.5 (±0.020), X.XX=±0.25 (±0.010), X.XXX=±0.127 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN= +DECIMAL PRECISION -0.00 MAX.= +0.00 -DECIMAL PRECISION



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20 x 4 CHARACTER LCD MODULE, STN GRAY, W/ HEATER, TRANSFLECTIVE, WHITE LED BACKLIGHT, 6:00 VIEW.
THE SPECIFICATIONS MAY CHANGE AT ANY TIME WITHOUT NOTICE DUE TO NEW MATERIALS OR PRODUCT IMPROVEMENT.
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DATE : 2018.04.27	DRAWN BY : K.Y.
PAGE : 1 OF 3	CHKD BY : E.C.
SCALE : NTF	APRVD BY : G.Y.
UNIT : mm [INCH]	Ⓢ

GENERAL SPECIFICATION

ITEM	DESCRIPTION
LCD TYPE	STN GREY, POSITIVE
REAR POLARIZER	TRANSFLECTIVE
BACKLIGHT TYPE	LED
BACKLIGHT COLOR	WHITE
TEMPERATURE RANGE	ULTRA HIGH TEMP.,5V
VIEWING DIRECTION	6 O'CLOCK
VIEWING AREA	76.3 (W)mm x 25 (H)mm
MODULE SIZE	98.0(L)mm x60.0 (W)mm x 14.5 MAX(T)mm
PIXELS SIZE	0.55(W)mm x 0.55(H)mm
PIXELS PITCH	0.60(W)mm x 0.60(H)mm
DISPLAY FORMAT	20 x 4
DUTY RATIO	1 / 16 DUTY,1/5 BIAS

ABSOLUTE MAXIMUM RATING

(1) Electrical Absolute Ratings

ITEM	SYMBOL	MIN.	MAX.	UNIT
POWER SUPPLY FOR LOGIC	VDD-VSS	-0.3	6.0	VOLT
POWER SUPPLY FOR LCD	Vo	VDD-10.0	VDD+0.3	VOLT
INPUT VOLTAGE	VI	-0.3	VDD+0.3	VOLT

(2) Environmental Absolute Maximum Ratings

ITEM	WIDE TEMPERATURE			
	OPERATING		STORAGE	
	MIN.	MAX.	MIN.	MAX.
AMBIENT TEMPERATURE	-40℃	+85℃	-40℃	+85℃

Note:
The performance(Both response time & contrast level) under two extreme temperatures is not equivalent to the one at room temperature.

*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.039), X.X=±0.5 (±0.020), X.XX=±0.25 (±0.010), X.XXX=±0.127 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN= ^{+DECIMAL PRECISION}_{-0.00} MAX.= ^{+0.00}_{-DECIMAL PRECISION}

ELECTRICAL CHARACTERISTICS

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
POWER SUPPLY FOR LOGIC	VDD	-	4.5	5.0	5.5	VOLT
POWER SUPPLY FOR LCD	VLCD	VDD-V5	4.2	4.5	4.8	VOLT
BACKLIGHT FORWARD VOLTAGE	Vf	If=30mA	-	3.3	-	V
BACKLIGHT FORWARD CURRENT	If	-		30	40	mA
BACKLIGHT POWER DISSIPATION	PD	-	-	99	-	mW
BACKLIGHT COLOR COORDINATE	X	-	0.24	-	0.33	--
	Y	-	0.24	-	0.33	--
HEATER FORWARD VOLTAGE	VfH	-	-	12	20	V
HEATER FORWARD RESISTANCE	-	-	70	120	170	ohm
HEATER FORWARD CURRENT	IH	-	100	150	200	mA
HEATER FORWARD POWER	PH	-	0.5	1.0	1.5	W

ELECTRICAL CHARACTERISTICS

PIN NO.	PIN OUT	FUNCTION DESCRIPTION
1	Vss	Ground
2	VDD	Power Supply Voltage
3	V0	Power Supply for LCD
4	RS	Select Display Data or Instructions
5	R/W	Read or Write Select Signal
6	E	Read / Write Enable Signal
7	DB0	Display Data Signal
8	DB1	
9	DB2	
10	DB3	
11	DB4	
12	DB5	
13	DB6	
14	DB7	
15	LED+(A)	Anode of Backlight
16	LED-(K)	Cathode of Backlight
17	VHTR+	Power Supply(+) for a Heater
18	VHTR-	Power Supply(-) for a Heater

BLOCK DIAGRAM

