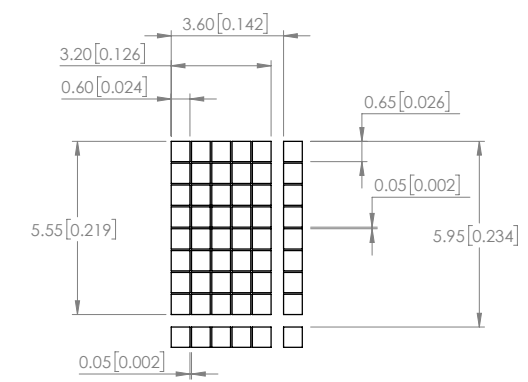
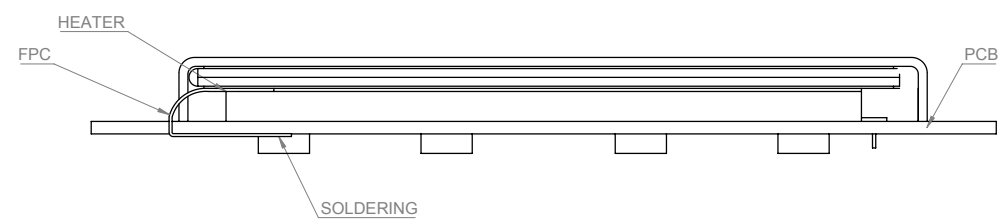
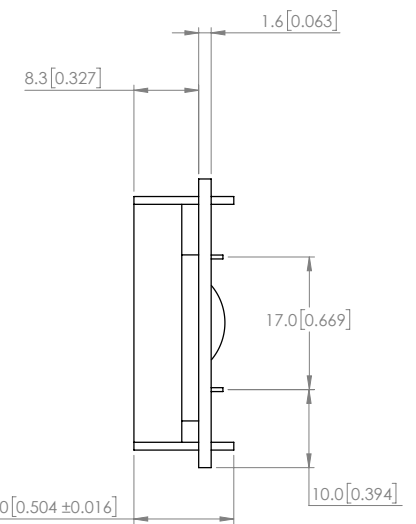
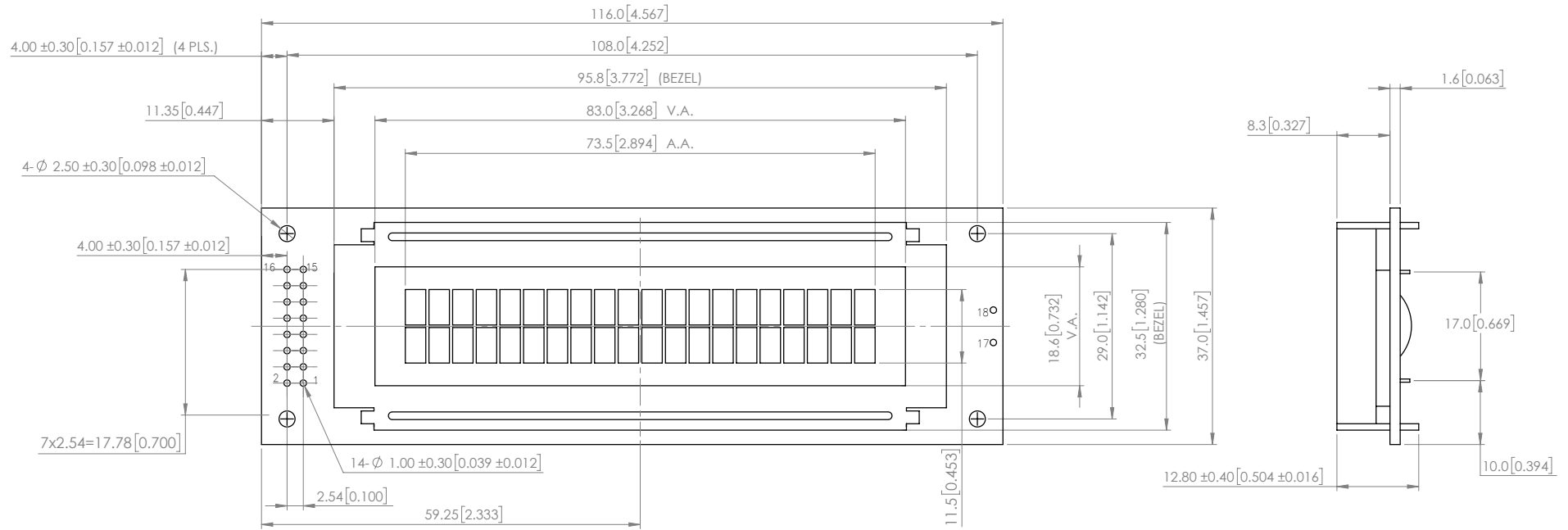


PART NUMBER	LCR-U02002DSF-WH	REV	B
DATE	E.C.N. NUMBER AND REVISION COMMENTS	REV	
05.20.10	E.C.N. #11642	A	
04.30.18	ECN-Lumex201800065	B	



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

	425 N. GARY AVE. CAROL STREAM, IL 60188 PHONE : 800-278-5666 FAX : 630-315-2150 WEB : WWW.LUMEX.COM	20 x 2 CHARACTER LCD MODULE, STN GRAY, W/ HEATER, TRANSFLECTIVE, WHITE LED BACKLIGHT, 6:00 VIEW.	DATE : 2018.04.30 DRAWN BY : K.Y.
	**THE SPECIFICATIONS MAY CHANGE AT ANY TIME WITHOUT NOTICE DUE TO NEW MATERIALS OR PRODUCT IMPROVEMENT.**		PAGE : 1 OF 3 CHKD BY : E.C.
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			APRVD BY : G.Y.

**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	83 (W)mm x 18.6 (H)mm
MODULE SIZE	116.0(L)mm x37.0 (W)mm x 12.8 (T)mm
CHARACTER SIZE	3.20(W)mm x 5.55(H)mm
CHARACTER PITCH	3.60(W)mm x 5.95(H)mm
DISPLAY FORMAT	20 x 2
DUTY RATIO	1 / 16 DUTY, 1/5 BIAS

**ABSOLUTE MAXIMUM RATING**

(1) Electrical Absolute Ratings

ITEM	SYMBOL	MIN.	MAX.	UNIT
POWER SUPPLY FOR LOGIC	V <sub>DD</sub> -V <sub>SS</sub>	-0.3	6	VOLT
POWER SUPPLY FOR LCD	V <sub>o</sub>	V <sub>DD</sub> -10.0	V <sub>DD</sub> +0.3	VOLT
INPUT VOLTAGE	V <sub>i</sub>	-0.3	V <sub>DD</sub> +0.3	VOLT

(2) Environmental Absolute Maximum Ratings

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

Note:

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

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20 x 2 CHARACTER LCD MODULE, STN GRAY, W/ HEATER, TRANSFLECTIVE, WHITE LED BACKLIGHT, 6:00 VIEW.

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DATE : 2018.04.30	DRAWN BY : K.Y.
PAGE : 2 OF 3	CHKD BY : E.C.
SCALE : NTF	APRVD BY : G.Y.
UNIT : mm [INCH]	Ⓢ

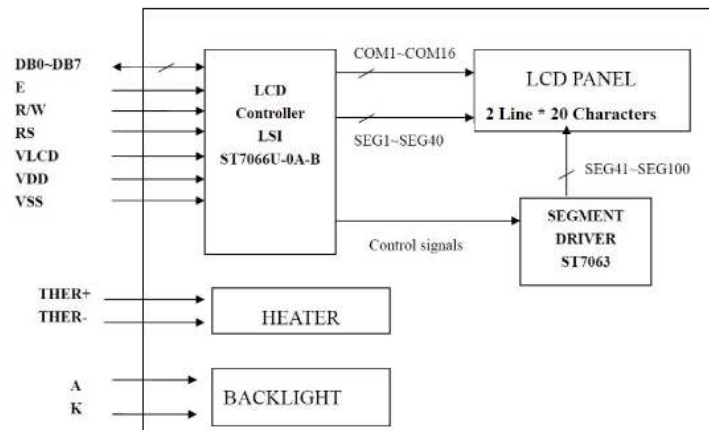
**ELECTRICAL CHARACTERISTICS**

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
POWER SUPPLY FOR LOGIC	V <sub>DD</sub>	-	4.5	5	5.5	VOLT
POWER SUPPLY FOR LCD	V <sub>LCd</sub>	-	4.2	4.5	4.8	VOLT
BACKLIGHT FORWARD VOLTAGE	V <sub>f</sub>	I <sub>f</sub> =15mA	-	6.6	7.2	V
BACKLIGHT POWER DISSIPATION	PD	-	-	99	-	mW
BACKLIGHT COLOR COORDINATE	X	-	0.24	-	0.33	--
	Y	-	0.24	-	0.33	--
HEATER FORWARD VOLTAGE	V <sub>fH</sub>	-	-	12	20	V
HEATER FORWARD RESISTANCE	-	-	50	100.	150	ohm
HEATER FORWARD CURRENT	I <sub>H</sub>	-	100	150	200	mA
HEATER FORWARD POWER	P <sub>H</sub>	-	1.0	1.5	2.0	W


**PIN ASSIGNMENT**

PIN NO.	PIN OUT	FUNCTION DESCRIPTION
1	V <sub>SS</sub>	Ground
2	V <sub>DD</sub>	Power Supply Voltage
3	V <sub>0</sub>	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**



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			UNIT : mm [INCH]	