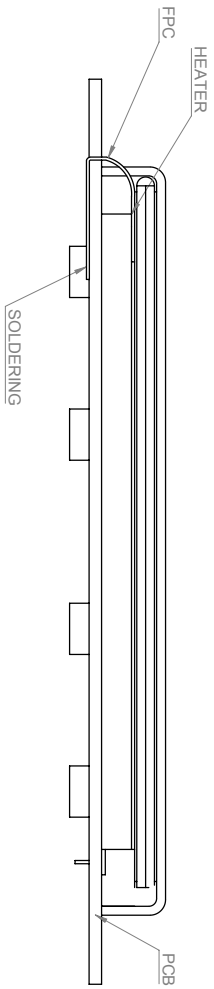
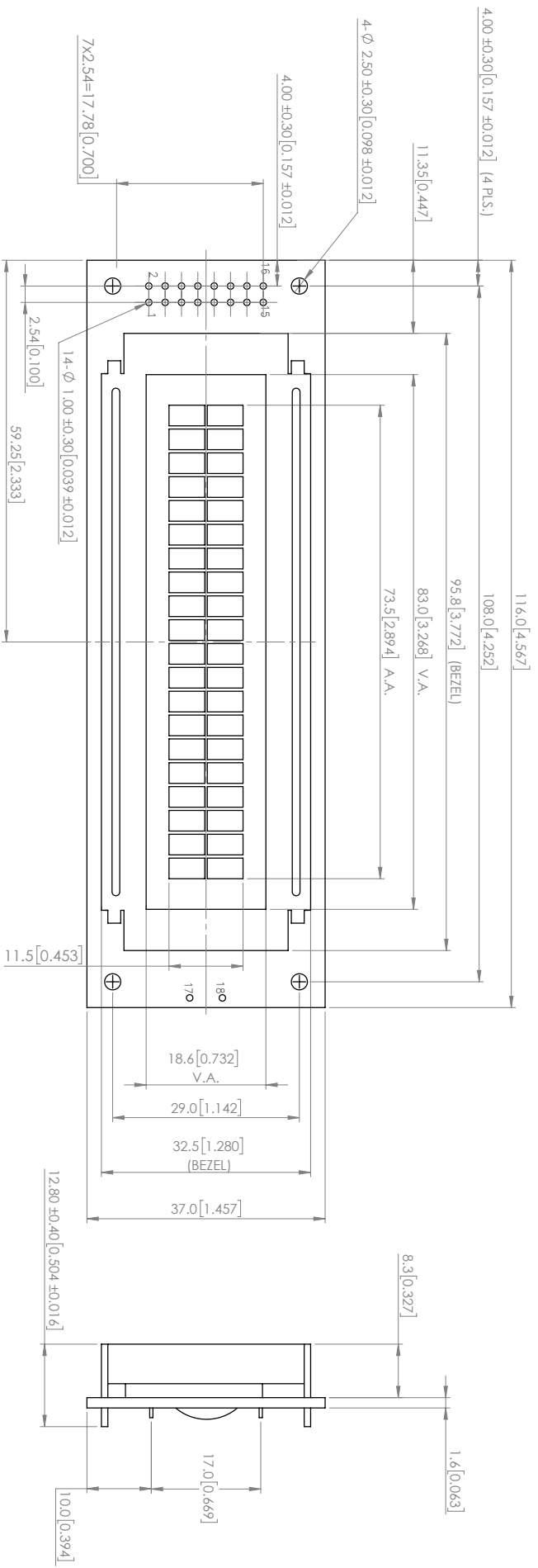
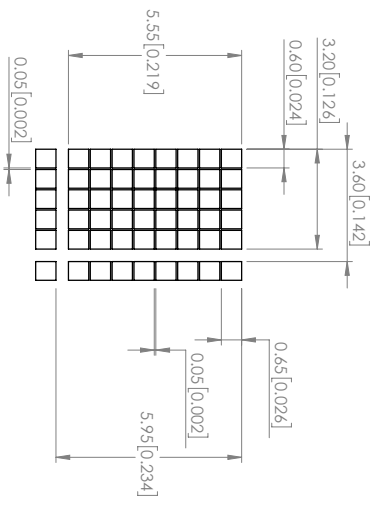


PART NUMBER	LCR-U02002DSF-WH	REV	B
DATE	E.C.N. NUMBER AND REVISION COMMENTS	REV	A
05.20.10	E.C.N. #11642	REV	B
04.30.18	ECN-Lumex201800065		



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 (40.039), X.X=±0.5 (40.020), X.XX=±0.25 (40.010), X.XXX=±0.127 (40.009), LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030), MIN=-0.00, MAX=+0.00, *DECIMAL PRECISION

LUMEX
 Creating LED and LCD Solutions Together™
 425 N. GARY AVE.
 CAHOL STREAM, IL 60788
 PHONE : 800-278-5668
 FAX : 630-315-2150
 WEB : WWW.LUMEX.COM

20 X 2 CHARACTER LCD MODULE, STN GRAY, W/ HEATER, TRANSPARENT, WHITE LED BACKLIGHT, 6:00 VIEW.
 **THE CHARACTER LCD MODULE, STN GRAY, W/ HEATER, TRANSPARENT, WHITE LED BACKLIGHT, 6:00 VIEW.
 CONFIDENTIAL INFORMATION
 THE INFORMATION CONTAINED IN THIS DOCUMENT IS THE PROPERTY OF LUMEX INC. EXCEPT AS SPECIFICALLY AUTHORIZED IN WRITING BY LUMEX INC. THE HOLDER OF THIS DOCUMENT SHALL KEEP ALL INFORMATION CONTAINED HEREIN CONFIDENTIAL AND SHALL PROTECT SAME IN WHOLE OR IN PART FROM DISCLOSURE AND DISSEMINATION TO ALL THIRD PARTIES.

DATE : 2018.04.30 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	83 (W)mm x 18.6 (H)mm
MODULE SIZE	116.0(L)mm x 37.0 (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 _{DD-VSS}	-0.3	6	VOLT
POWER SUPPLY FOR LCD	V _O	V _{DD} -10.0	V _{DD} +0.3	VOLT
INPUT VOLTAGE	V _I	-0.3	V _{DD} +0.3	VOLT

(2) Environmental Absolute Maximum Ratings

ITEM	WIDE TEMPERATURE		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 the one at room temperature.

*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=.1 (40.039), X.X=.0.5 (40.020), X.XX=.0.25 (40.010), X.XXX=.0.127 (40.009), LEAD SIZE=.05 (40.002), LEAD LENGTH=.40.75 (40.030), MIN=-.000, MAX=.+0.00, DECIMAL PRECISION

20 x 2 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.

CONFIDENTIAL INFORMATION
 THE INFORMATION CONTAINED IN THIS DOCUMENT IS THE PROPERTY OF LUMEX INC. EXCEPT AS SPECIFICALLY AUTHORIZED IN WRITING BY LUMEX INC. THE HOLDER OF THIS DOCUMENT SHALL KEEP ALL INFORMATION CONTAINED HEREIN CONFIDENTIAL AND SHALL PROTECT SAME IN WHOLE OR IN PART FROM DISCLOSURE AND DISSEMINATION TO ALL THIRD PARTIES.



425 N. GARY AVE.
 CAROL STREAM, IL 60718
 PHONE : 800-278-5668
 FAX : 630-315-2150
 WEB : WWW.LUMEX.COM

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]

⑩

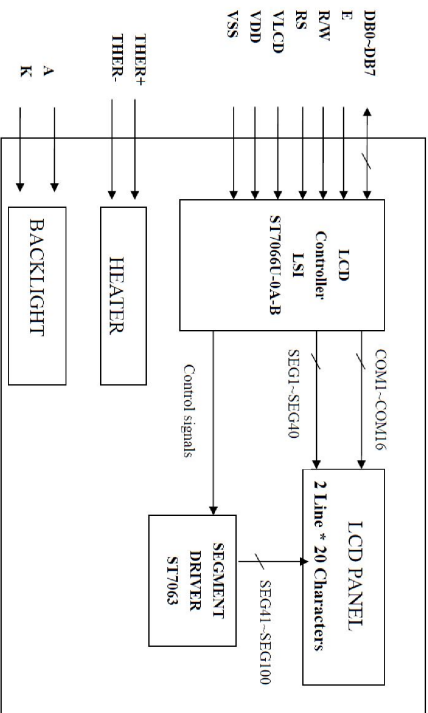
ELECTRICAL CHARACTERISTICS

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
POWER SUPPLY FOR LOGIC	VDD	-	4.5	5	5.5	VOLT
POWER SUPPLY FOR LCD	V _{LCD}	-	4.2	4.5	4.8	VOLT
BACKLIGHT FORWARD VOLTAGE	V _f	If=15mA	-	6.6	7.2	V
BACKLIGHT POWER DISSIPATION	PD	-	-	99	-	mW
BACKLIGHT COLOR COORDINATE	X	-	0.24	-	0.33	--
HEATER FORWARD VOLTAGE	V _H	-	-	12	20	V
HEATER FORWARD RESISTANCE	-	-	50	100.	150	ohm
HEATER FORWARD CURRENT	I _H	-	100	150	200	mA
HEATER FORWARD POWER	P _H	-	1.0	1.5	2.0	W

PIN ASSIGNMENT

PIN NO.	PIN OUT	FUNCTION DESCRIPTION	
1	VSS	Ground	
2	VDD	Power Supply Voltage	
3	V ₀	Power Supply for LCD	
4	RS	Select Display Data or Instructions	
5	RW	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



*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (40.039), X.X=±0.5 (40.020), X.XX=±0.25 (40.010), X.XXX=±0.127 (40.008), LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030), MIN=-0.00, MAX = +0.00, *DECIMAL PRECISION

20 X 2 CHARACTER LCD MODULE, STN GRAY, W/ HEATER, TRANSPARENT, WHITE LED BACKLIGHT, 6.00 VIEW.

THE SPECIFICATIONS MAY CHANGE AT ANY TIME WITHOUT NOTICE DUE TO NEW MATERIALS OR PRODUCT IMPROVEMENT.

CONFIDENTIAL INFORMATION
 THE INFORMATION CONTAINED IN THIS DOCUMENT IS THE PROPERTY OF LUMEX INC. EXCEPT AS SPECIFICALLY AUTHORIZED IN WRITING BY LUMEX INC. THE HOLDER OF THIS DOCUMENT SHALL KEEP ALL INFORMATION CONTAINED HEREIN CONFIDENTIAL AND SHALL PROTECT SAME IN WHOLE OR IN PART FROM DISCLOSURE AND DISSEMINATION TO ALL THIRD PARTIES.



425 N. GARY AVE.
 CAROL STREAM, IL 60188
 PHONE : 800-278-5668
 FAX : 630-315-2150
 WEB : WWW.LUMEX.COM

DATE : 2018.04.30

DRAWN BY : K.Y.

PAGE : 3 OF 3

CHKD BY : E.C.

SCALE : NTF

APRVD BY : G.Y.

UNIT : mm [INCH]

