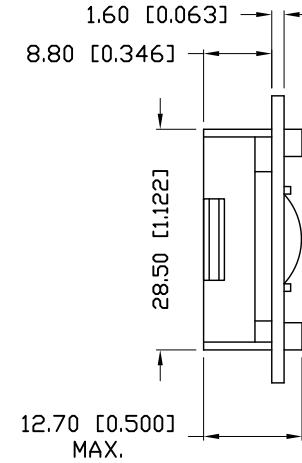
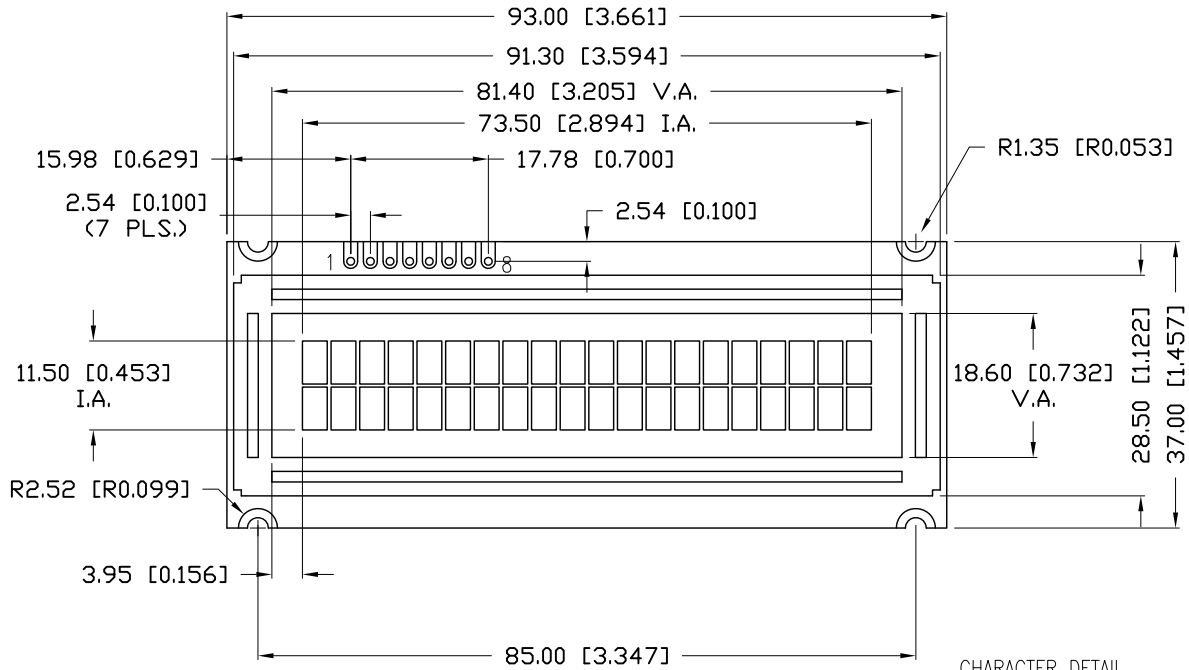
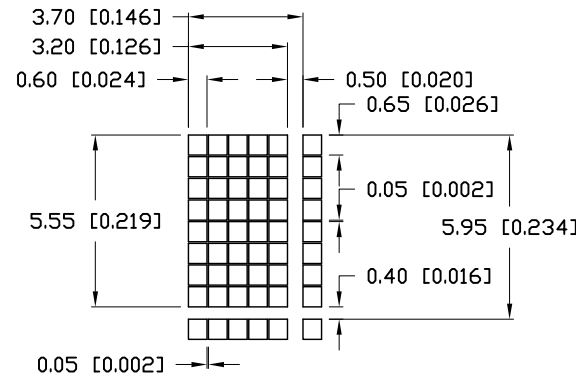


PART NUMBER	LCM-E02002DWF/1	REV.	A
DATE	E.C.N. NUMBER AND REVISION COMMENTS		REV.
05.07.13	E.C.N. #10BRDR. & REDRAWN.		A



CHARACTER DETAIL



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= <sup>+DECIMAL PRECISION</sup> MAX.= <sup>+0.00</sup> <sub>-0.00</sub> DECIMAL PRECISION UNCONTROLLED DOCUMENT

**LUMEX**  
Creating LED and LCD Solutions Together™

425 N. GARY AVE.  
CAROL STREAM, IL 60188-4900  
PHONE: +1.800.278.5666  
FAX: +1.630.315.2152  
WEB: WWW.LUMEX.COM  
MEMBER OF ITW PHOTONICS GROUP

20x2 CHAR LCD MODULE,FSTN,TRANS,SERIAL INPUT,EDGELIT GREEN LED BACKLIGHT,1/17 DUTY,1/5 BIAS,VLCD=4.5V.

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

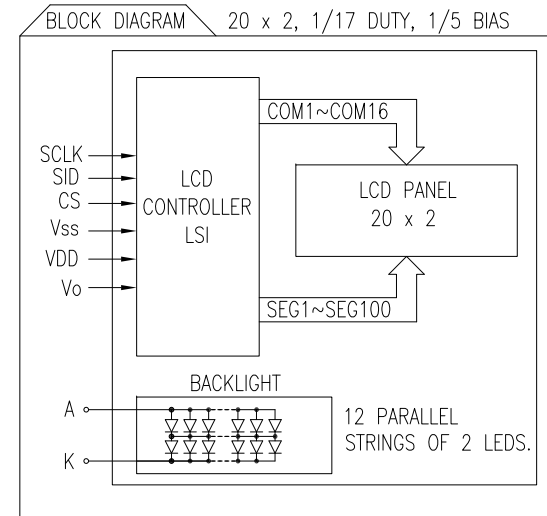
CONFIDENTIAL INFORMATION  
THE INFORMATION CONTAINED IN THIS DOCUMENT IS THE PROPERTY OF LUMEX INC. EXCEPT AS SPECIFICALLY AUTHORIZED IN WRITING BY LUMEX INC., THE HOLDER OF THIS DOCUMENT SHALL KEEP ALL INFORMATION CONTAINED HEREIN CONFIDENTIAL AND SHALL PROTECT SAME IN WHOLE OR IN PART FROM DISCLOSURE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

DATE:	05.07.13	DRAWN BY:	MA
PAGE:	1 OF 3	CHKD BY:	SS
SCALE:	NTS	APRVD BY:	SS
UNIT:	mm [INCH]		(Pb)

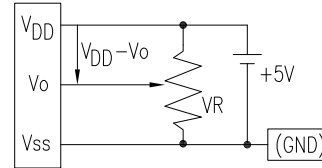
PART NUMBER	LCM-E02002DWF/1	REV.	A
DATE	E.C.N. NUMBER AND REVISION COMMENTS		REV.
05.07.13	E.C.N. #10BRDR. & REDRAWN.		A

A

ELECTRICAL CHARACTERISTICS		$V_{DD}=2.7V \sim 5.5V, T_A=0^{\circ}C \sim +50^{\circ}C$				
ITEM	SYMBOL	CONDITION	STANDARD VALUE			UNIT
			MIN.	TYP.	MAX.	
SUPPLY VOLTAGE FOR LOGIC	$V_{DD}-V_{SS}$	-	-	5.0	-	V
SUPPLY CURRENT FOR LOGIC	$I_{DD}$	$V_{DD}=3V$	-	2.0	3.0	mA
INPUT VOLTAGE	HIGH	$V_{IH}$	-	$0.7V_{DD}$	-	$V_{DD}$
	LOW	$V_{IL}$	-	-0.3	-	0.6
OUTPUT VOLTAGE	HIGH	$V_{OH}$	$I_{OH}=-0.205mA$	$0.75V_{DD}$	-	V
	LOW	$V_{OL}$	$I_{OL}=1.6ma$	-	-	$0.2V_{DD}$
LED BACKLIGHT	VOLTAGE	$V_f$	$I_f=240mA$	-	4.2	-
	CURRENT	$I_f$	-	-	240	-
	POWER CONSUMPTION	PD	-	-	1000	mW
	LUMINOUS INTENSITY	L	$I_f=240mA$	60	-	-
	COLOR: GREEN	$\lambda_p$	-	-	565	-



$V_{DD}-V_o$ : LCD DRIVING VOLTAGE  
 $V_R$ : 10K $\Omega$  - 20K $\Omega$



PIN CONFIGURATION				
PIN NO.	SYMBOL	LEVEL	FUNCTION	
1	$V_{DD}$	-	POWER SUPPLY	5V
2	$V_{SS}$	-		GROUND
3	$V_o$	-		FOR LCD DRIVE
4	$\overline{CS}$	H/L	CHIP SELECT SIGNAL H: CHIP DISABLED L: CHIP ENABLED	
5	SID	H/L	SERIAL INPUT DATA LINE	
6	SCLK	-	SERIAL CLOCK INPUT	
7	K	-	CATHODE	LED BACKLIGHT
8	A	-	ANODE	LED BACKLIGHT

ABSOLUTE MAXIMUM RATINGS				
ITEM	SYMBOL	STANDARD VALUE		UNIT
		MIN	MAX	
POWER SUPPLY VOLTAGE	VDD	-0.3	7.0	V
POWER SUPPLY VOLTAGE	$V_o$	-15.0	+0.3	V
INPUT VOLTAGE	$V_{in}$	-0.3	3.0	V
OPERATING TEMPERATURE	$T_{opr}$	0	50	$^{\circ}C$
STORAGE TEMPERATURE	$T_{stg}$	-20	70	$^{\circ}C$

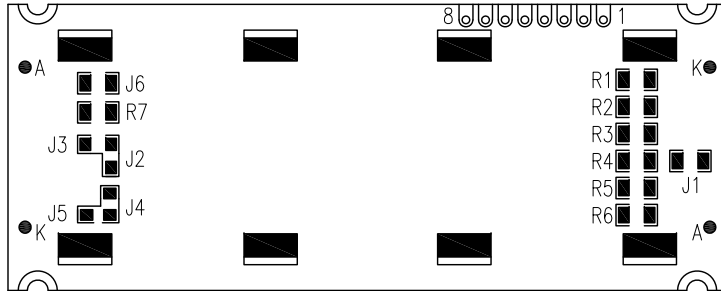
\*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X= $\pm 1$  ( $\pm 0.039$ ), X.X= $\pm 0.5$  ( $\pm 0.020$ ), X.XX= $\pm 0.25$  ( $\pm 0.010$ ), X.XXX= $\pm 0.127$  ( $\pm 0.005$ ). LEAD SIZE= $\pm 0.05$  ( $\pm 0.002$ ), LEAD LENGTH= $\pm 0.75$  ( $\pm 0.030$ ). MIN= $\pm$ DECIMAL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

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

PART NUMBER	LCM-E02002DWF/1	REV.	A
DATE	E.C.N. NUMBER AND REVISION COMMENTS		REV.
05.07.13	E.C.N. #10BRDR. & REDRAWN.		A

A

BACK VIEW FROM RIGHT SIDE PROJECTION



COMBINATIONS:

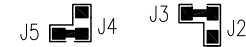
THE LED RESISTOR SHOULD BE BRIDGED AS FOLLOWING



THE 7TH PIN IS THE ANODE AND THE 8TH PIN IS THE CATHODE AS FOLLOWING



THE 7TH PIN IS THE CATHODE AND THE 8TH PIN IS THE ANODE AS FOLLOWING



THE METAL BEZEL IS ON GROUND AS FOLLOWING



LED POLARITY					
SYMBOL	STATE	J3, J5	J2, J4	LED POLARITY	
				7 PIN	8 PIN
J2, J4	SOLDER BRIDGE	OPEN	-	ANODE	CATHODE
J3, J5	SOLDER BRIDGE	-	OPEN	CATHODE	ANODE

\*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= <sup>+DECIMAL PRECISION</sup> MAX.= <sup>+0.00</sup> <sub>-0.00</sub> <sup>-DECIMAL PRECISION</sup> UNCONTROLLED DOCUMENT

425 N. GARY AVE.  
CAROL STREAM, IL 60188-4900  
PHONE: +1.800.278.5666  
FAX: +1.630.315.2152  
WEB: WWW.LUMEX.COM  
MEMBER OF ITW PHOTONICS GROUP

20x2 CHAR LCD MODULE,FSTN,TRANS,SERIAL INPUT,EDGE LIT GREEN LED BACKLIGHT,1/17 DUTY,1/5 BIAS,VLCD=4.5V.

\*\*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.

DATE:	05.07.13	DRAWN BY:	MA
PAGE:	3 OF 3	CHKD BY:	SS
SCALE:	NTS	APRVD BY:	SS
UNIT:	mm [INCH]		(Pb)