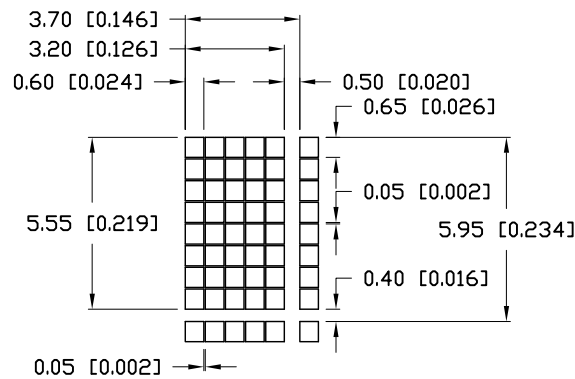
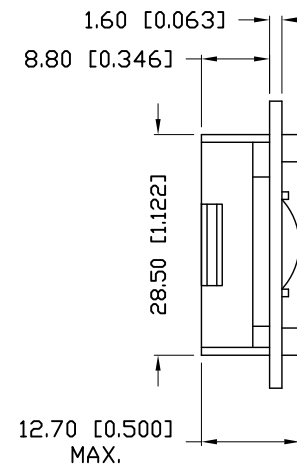
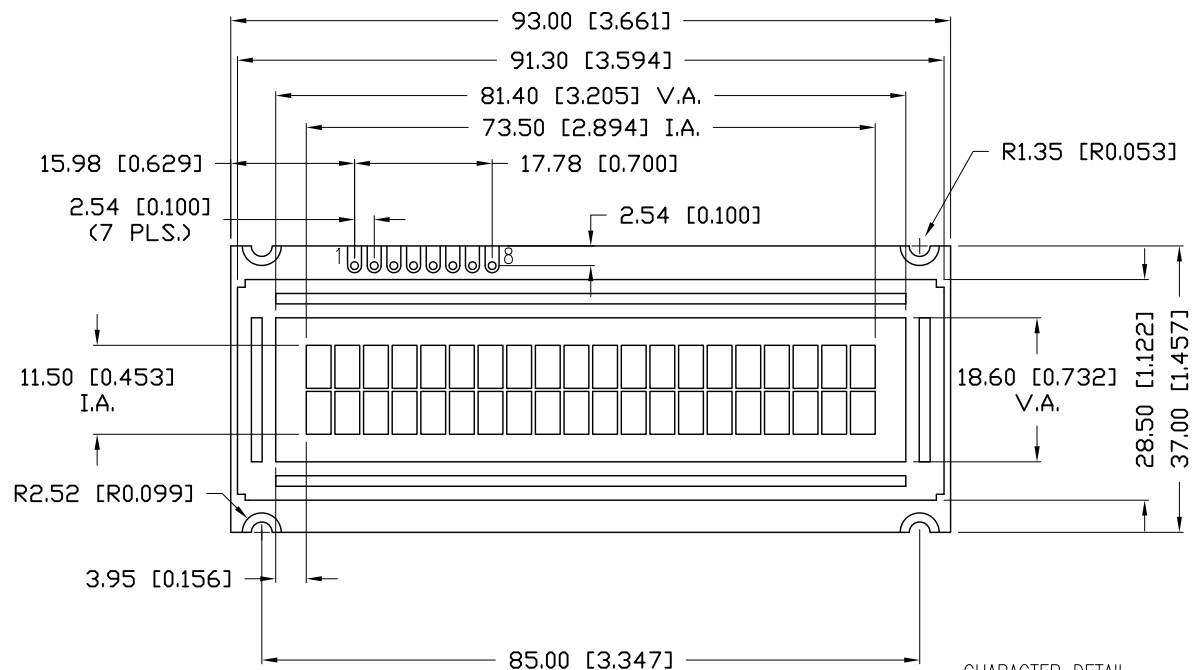


PART NUMBER	LCM-E02002DTF-U	REV.	B
DATE	E.C.N. NUMBER AND REVISION COMMENTS		
02.13.07	E.C.N. #11148.		
05.07.13	E.C.N. #10BRDR. & REDRAWN.		
		REV.	
		A	
		B	



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 MAX.= +0.00 -DECIMAL PRECISION

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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,TN,TRANS,SERIAL INPUT,EDGE LIT BLUE 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.

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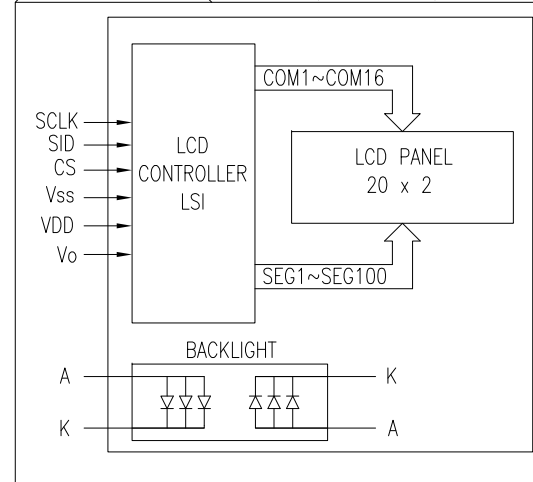
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PAGE:	1 OF 3	CHKD BY:	SS
SCALE:	NTS	APRVD BY:	SS
UNIT:	mm [INCH]		(Pb)

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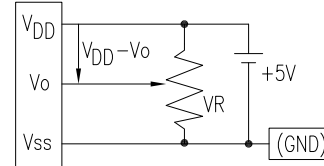
A

ELECTRICAL CHARACTERISTICS		$V_{DD}=2.7V \sim 5.5V$, $T_A=-30^{\circ}C \sim +85^{\circ}C$					
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}	V
	LOW	V_{IL}	—	-0.3	-0.6	V	
OUTPUT VOLTAGE	HIGH	V_{OH}	$I_{OH}=-0.205mA$	$0.75V_{DD}$	—	V	
	LOW	V_{OL}	$I_{OL}=1.6mA$	—	$0.2V_{DD}$	V	
LED BACKLIGHT	VOLTAGE	V_f	$I_f=120mA$	3.0	—	3.6	V
	CURRENT	I_f	—	—	120	—	mA
	POWER CONSUMPTION	PD	—	—	648	mW	
	LUMINOUS INTENSITY	L	$I_f=120mA$	TBA	—	—	cd/m ²
	COLOR	—	—	—	470	—	nm

BLOCK DIAGRAM 20 x 2, 1/17 DUTY, 1/5 BIAS



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



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	Vo	-15.0	+0.3	V
INPUT VOLTAGE	Vin	-0.3	3.0	V
OPERATING TEMPERATURE	Topr	0	50	°C
STORAGE TEMPERATURE	Tstg	-20	70	°C

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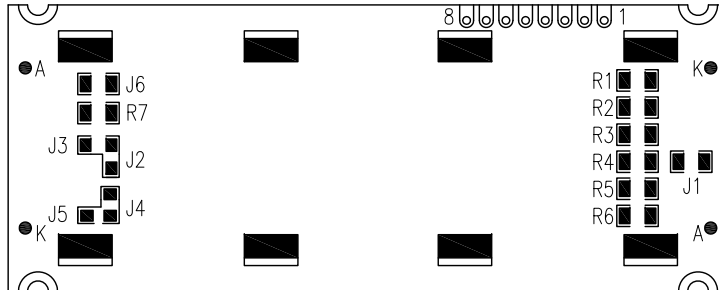
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		A	
		B	

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

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