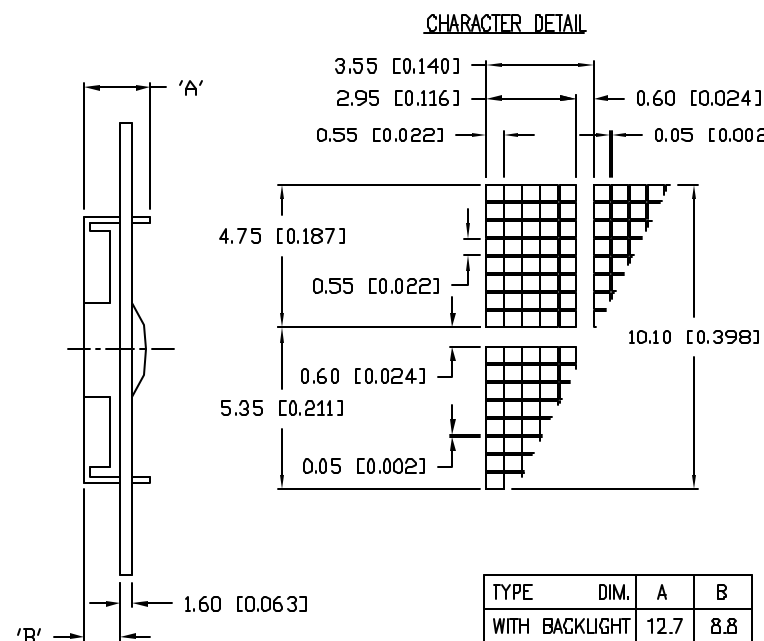
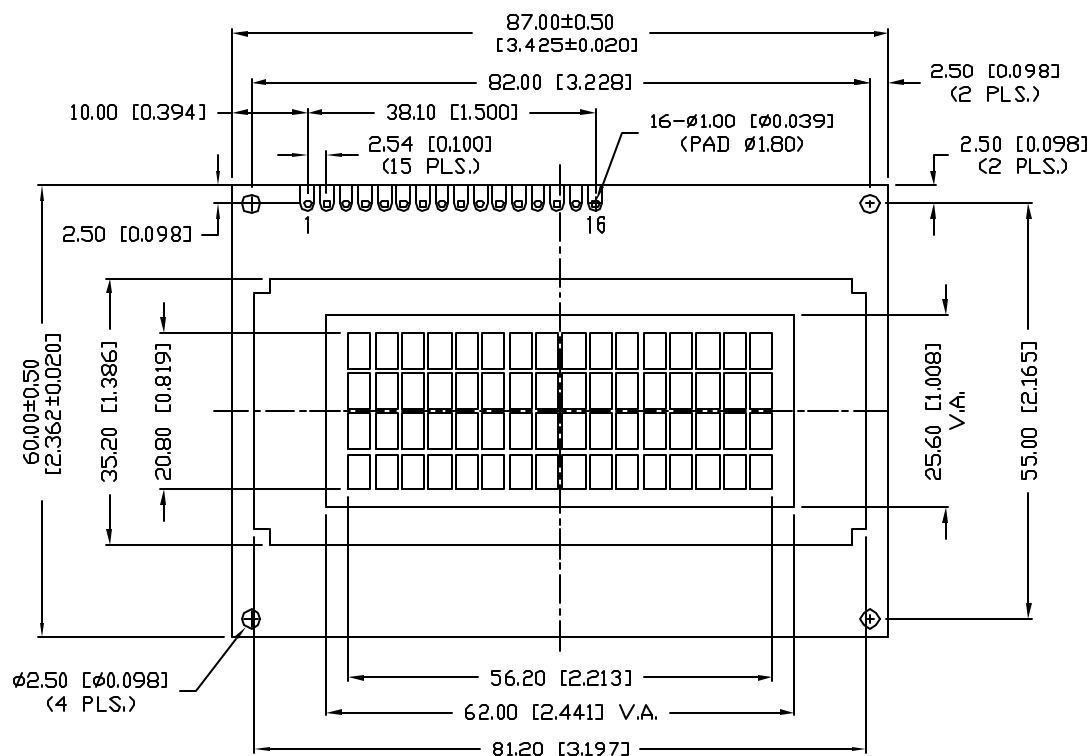


UNCONTROLLED DOCUMENT

P/N PREFIX/SUFFIX TABLE		
LCM-X	DX	DESCRIPTION
STANDARD	SR	STN, REFLECTIVE
	SF	STN, TRANSFLECTIVE(W/ BACKLIGHT)
HIGH TEMP.	TR	TN, REFLECTIVE
	TF	TN, TRANSFLECTIVE(W/ BACKLIGHT)

PART NUMBER		REV.
LCM-X01604DXX		A
REV.	E.C.N. NUMBER AND REVISION COMMENTS	DATE
A	E.C.N. #10464./	10-9-98



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

UNCONTROLLED DOCUMENT

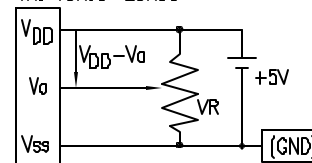
\*UNLESS OTHERWISE SPECIFIED TOLERANCE IS  $\pm 0.25\text{mm}$  ( $\pm 0.010"$ )

REV.	PART NUMBER	CONFIDENTIAL INFORMATION		290 E. HELLEN ROAD	
A	LCM-X01604DXX	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.		PALATINE, ILLINOIS 60067	
4.75mm TALL, 5 x 8 DOT MATRIX, 16 x 4 CHARACTER LCD MODULE, 1/16 DUTY, 1/5 BIAS.		RELIABILITY NOTE OUR MANY YEARS OF EXPERIENCE DATA ACCUMULATION INDICATE THAT SOLDER HEAT IS A MAJOR CAUSE OF EARLY AND FUTURE FAILURE. PLEASE PAY ATTENTION TO YOUR SOLDERING PROCESS.		PHONE: 1-847-359-2790	
		DRAWN BY: SA/BC		WEB: HTTP://WWW.LUMEX.COM	
		CHECKED BY:		APPROVED BY:	
				DATE: 8-10-98	
				PAGE: 1 OF 2	
				SCALE: N/A	

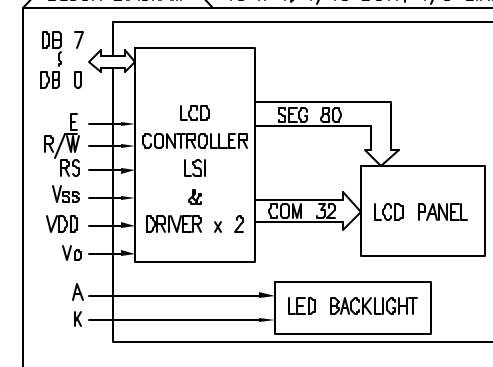
## PIN CONFIGURATION

PIN NO.	SYMBOL	LEVEL	FUNCTION	
1	$V_{SS}$	-	POWER SUPPLY	GND (0V)
2	$V_{DD}$	-		5V
3	$V_o$	-		FOR LCD DRIVE
4	RS	H/L	REGISTER SELECT SIGNAL H: DATA INPUT L: INSTRUCTION INPUT	
5	R/W	H/L	H: DATA READ (MODULE $\rightarrow$ MPU) L: DATA WRITE (MODULE $\leftarrow$ MPU)	
6	E	H,H $\rightarrow$ L	ENABLE	
7~14	DB0~DB7	H/L	DATA BUS—SOFTWARE SELECTABLE 4 OR 8 BIT MODE.	
15	A	-	ANODE	LED BACKLIGHT
16	K	-	CATHODE	LED BACKLIGHT

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



## BLOCK DIAGRAM 16 x 4, 1/16 DUTY, 1/5 BIAS



## ELECTRICAL CHARACTERISTICS

$V_{DD}=4.7V$  to  $5.3V$ ,  $T_A=25^\circ C$

ITEM	SYMBOL	CONDITION	STANDARD VALUE			UNIT
			MIN.	TYP.	MAX.	
SUPPLY VOLTAGE FOR LOGIC	$V_{DD}-V_{SS}$	-	-	5.0	-	V
SUPPLY CURRENT FOR LOGIC	$I_{DD}$	$V_{DD}=5V$	-	2.0	3.0	mA
INPUT VOLTAGE	$V_{IH}$	-	2.2	-	4.7	V
	$V_{IL}$	-	0	-	0.6	V
OUTPUT VOLTAGE	$V_{OH}$	-	2.4	-	-	V
	$V_{OL}$	-	-	-	0.4	V
*LED BACKLIGHT	VOLTAGE	$V_f$	$I_f=260mA$	4.2	4.5	V
	CURRENT	$I_f$	-	260	400	mA
	POWER CONSUMPTION	PD	-	1092	-	mW
	LUMINOUS	L	$I_f=260mA$	70	-	cd/m <sup>2</sup>
	COLOR	-	-	-	-	nm

\*ONLY APPLIES TO MODULES WITH BACKLIGHT

## ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	TEST CONDITION	STANDARD VALUE		UNIT
			MIN	MAX	
SUPPLY VOLTAGE FOR LOGIC	$V_{DD}-V_{SS}$	$T_a=25^\circ C$	4.7	5.3	V
SUPPLY VOLTAGE FOR LCD DRIVE	$V_{DD}-V_o$	-	4.2@50°C	4.8@0°C	V
INPUT VOLTAGE	$V_i$	$T_a=25^\circ C$	$V_{SS}$	$V_{DD}$	V
OPERATING TEMPERATURE	$T_{opr}$	LCM-S	0	50	°C
		LCM-H	-20	70	°C
STORAGE TEMPERATURE	$T_{stg}$	LCM-S	-20	70	°C
		LCM-H	-30	85	°C

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## RELIABILITY NOTE

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**LUMEX**  
INCORPORATED

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