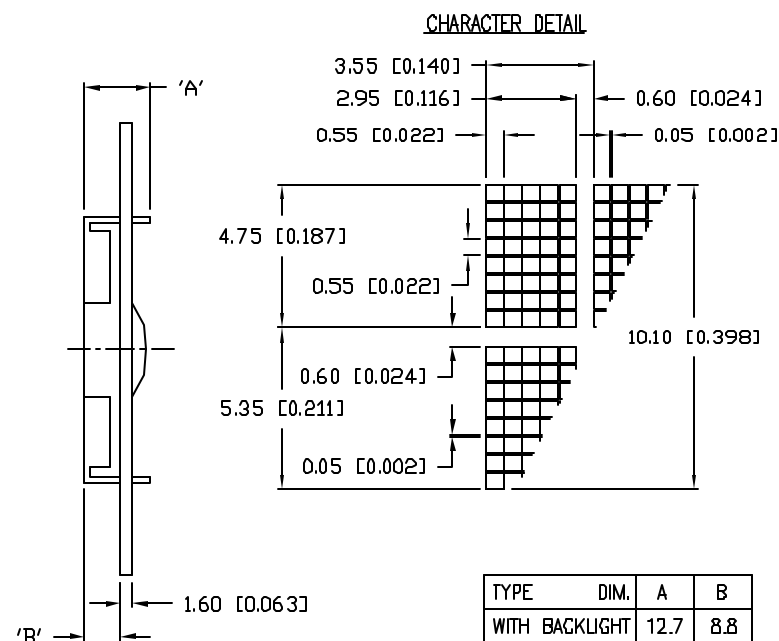
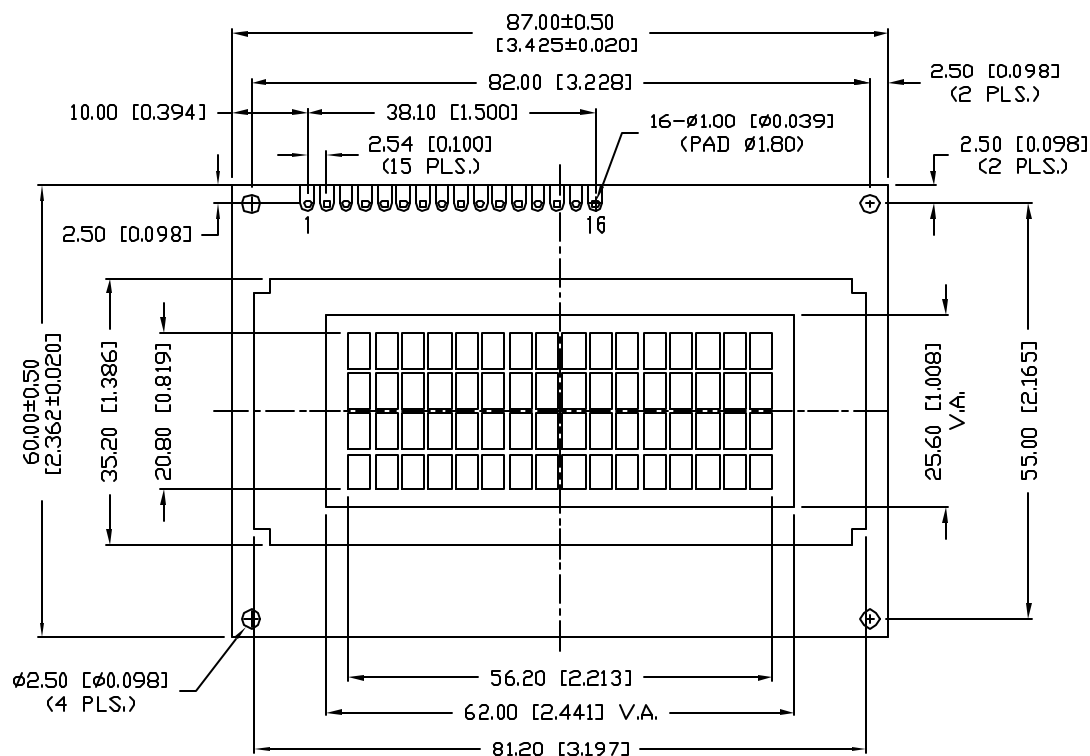


UNCONTROLLED DOCUMENT

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

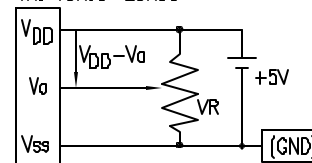
*UNLESS OTHERWISE SPECIFIED TOLERANCE IS ±0.25mm (±0.010")

REV. A	PART NUMBER LCM-X01604DXX	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. 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.	LUMEX INCORPORATED 290 E. HELLEN ROAD PALATINE, ILLINOIS 60067 PHONE: 1-847-359-2790 WEB: HTTP://WWW.LUMEX.COM
4.75mm TALL, 5 x 8 DOT MATRIX, 16 x 4 CHARACTER LCD MODULE, 1/16 DUTY, 1/5 BIAS.		DRAWN BY: SA/BC	CHECKED BY: APPROVED BY: DATE: 8-10-98 PAGE: 1 OF 2 SCALE: N/A

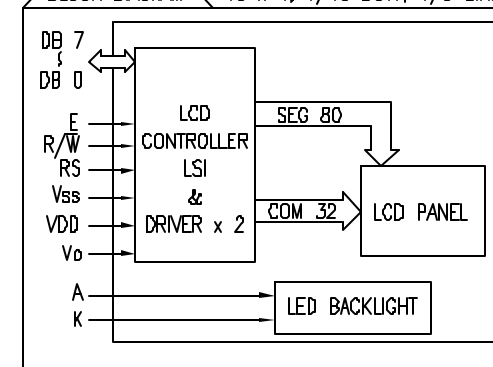
PIN CONFIGURATION

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 Ω - 20K Ω



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	HIGH	V_{IH}	—	2.2	—	4.7	V	
	LOW	V_{IL}	—	0	—	0.6	V	
OUTPUT VOLTAGE	HIGH	V_{OH}	—	2.4	—	—	V	
	LOW	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 ²
	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

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.

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.

LUMEX
INCORPORATED

290 E. HELLEN ROAD
PALATINE, ILLINOIS 60067
PHONE: 1-847-359-2790
WEB: HTTP://WWW.LUMEX.COM

4.75mm TALL, 5 x 8 DOT MATRIX,

16 x 4 CHARACTER LCD MODULE, 1/16 DUTY, 1/5 BIAS.

DRAWN BY:

CHECKED BY:

APPROVED BY:

DATE: 8-10-98

PAGE: 2 OF 2

SCALE: N/A

SA/BC