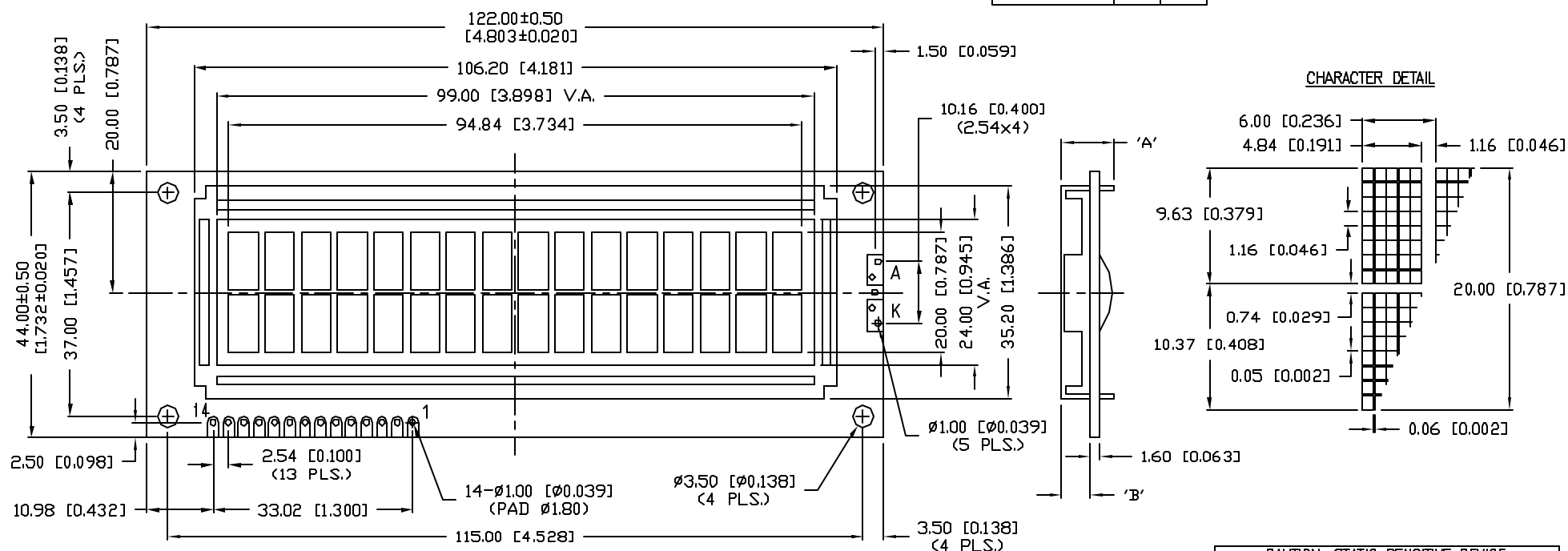


UNCONTROLLED DOCUMENT

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

PART NUMBER		REV.
LCM-X01602DXX/D		A
REV.	E.C.N. NUMBER AND REVISION COMMENTS	DATE
A	E.C.N. #10464./	10-9-98

TYPE	DIM.	A	B
WITH BACKLIGHT	13.0	9.0	
NO BACKLIGHT	8.8	4.8	



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

UNCONTROLLED DOCUMENT

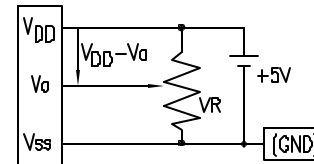
*UNLESS OTHERWISE SPECIFIED TOLERANCE IS $\pm 0.25\text{mm}$ ($\pm 0.010"$)

REV. A	PART NUMBER LCM-X01602DXX/D	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
9.63mm CHARACTER HEIGHT, 16 x 2 CHARACTERS, 5 x 8 DOT MATRIX LCD MODULE, 1/16 DUTY, 1/5 BIAS.		DRAWN BY: SA/BC	CHECKED BY: APPROVED BY: DATE: 8-14-98 PAGE: 1 OF 2 SCALE: N/A

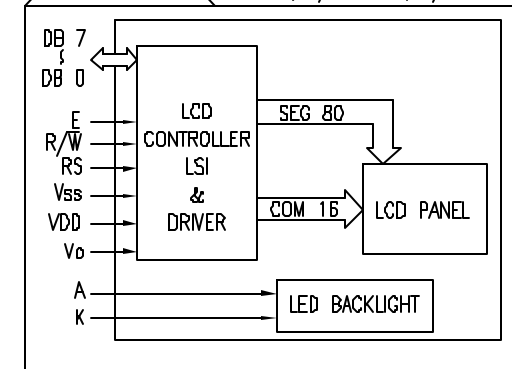
PIN CONFIGURATION

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-->MPU) L: DATA WRITE (MODULE<--MPU)	
6	E	H,H->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
VR: 10K Ω -20K Ω



BLOCK DIAGRAM 16 x 2, 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 =220mA	-	4.2	4.6	V
	CURRENT	I _f	-	-	220	480	mA
	POWER CONSUMPTION	P _D	-	-	924	-	mW
	LUMINOUS	L	I _f =220mA	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°C	4.7	5.3	V
SUPPLY VOLTAGE FOR LCD DRIVE	V _{DD} -V _O	-	4.2V@50°C	4.8V@0°C	V
INPUT VOLTAGE	V _I	T _a =25°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

9.63mm CHARACTER HEIGHT, 16 x 2 CHARACTERS,
5 x 8 DOT MATRIX LCD MODULE,
1/16 DUTY, 1/5 BIAS.

DRAWN BY:

CHECKED BY:

APPROVED BY:

DATE: 8-14-98

PAGE: 2 OF 2

SCALE: N/A

SA/BC