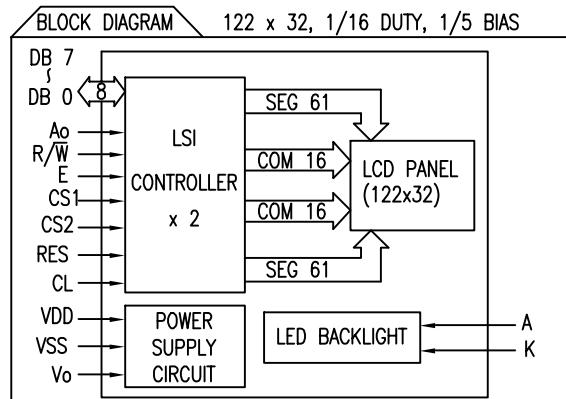
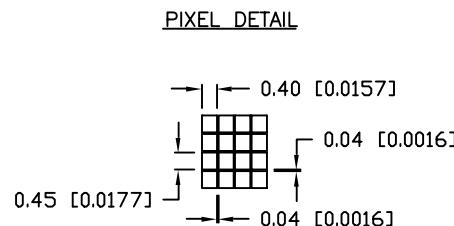


UNCONTROLLED DOCUMENT

A **B**



122 x 32, 1/16 DUTY, 1/5 BIAS



REV.	E.C.N. NUMBER AND REVISION COMMENTS	DATE
A	E.C.N. #10433./	6-8-98
B	E.C.N. #10BRDR. & REDRAWN.	10-2-98

PART NUMBER

REV.

LCM-X12232GXX

B

N. NUMBER AND REVISION COMMENTS	DA
N. #10433./	6-8
N. #10BRDR. & REDRAWN.	10-2

6-8-98

6-8-98

8 8 88

0-2-98

P/N PREFIX/SUFFIX TABLE			
LCM-X		DXX	DESCRIPTION
STANDARD	S	SR	STN, REFLECTIVE
HIGH TEMP.	H	SF	STN, TRANSFLECTIVE(W/ BACKLIGHT)

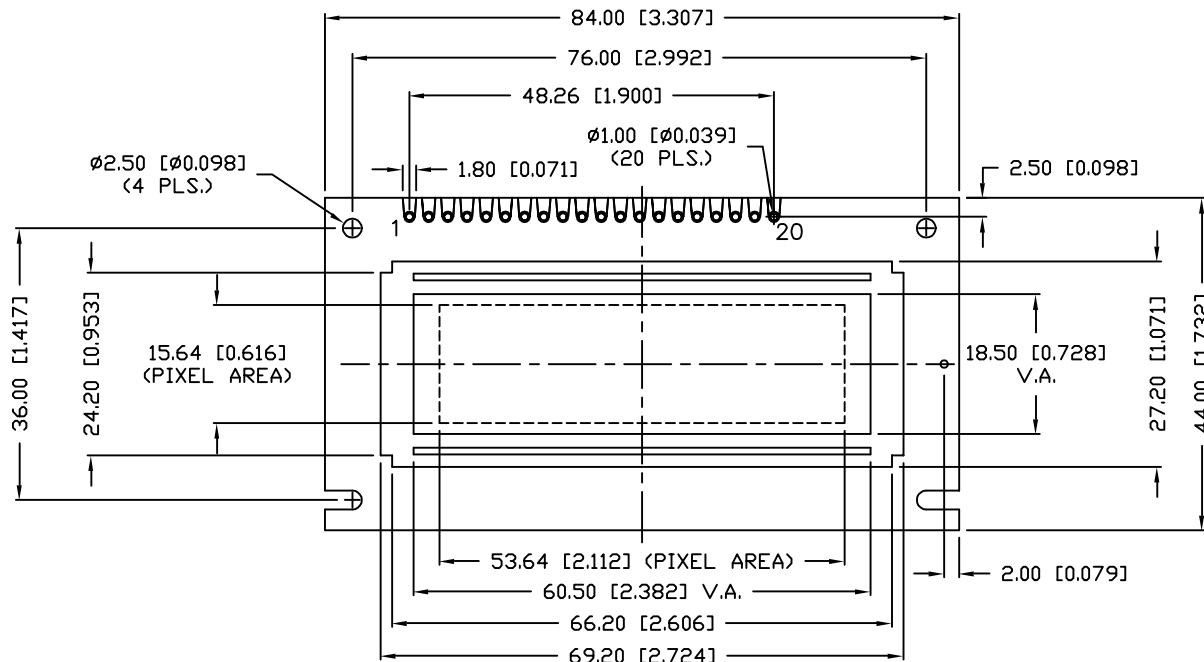
P/N PREFIX/SUFFIX TABLE

LCM-X	DXX	DESCRIPTION
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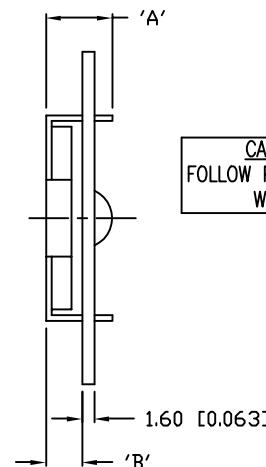
D S SR STN, REFLECTIVE

H SF STN, TRANSLECT

TYPE	DIM.	A	B
WITH BACKLIGHT		12.7	8.7
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. B	PART NUMBER LCM-X12232GXX	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.	 LUMEX INCORPORATED	290 E. HELLEN ROAD PALATINE, ILLINOIS 60067 PHONE: 1-847-359-2790 WEB: HTTP://WWW.LUMEX.COM		
122 x 32 DOT MATRIX GRAPHIC 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.	DRAWN BY: SA/BC	CHECKED BY:	APPROVED BY:	DATE: 4-6-98 PAGE: 1 OF 2 SCALE: N/A

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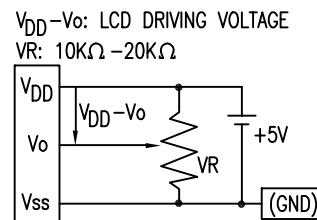
PART NUMBER

REV.

LCM-X12232GXX

B

PIN CONFIGURATION			[A]	
PIN NO.	SYMBOL	LEVEL	FUNCTION	
1	V _{ss}	-	POWER SUPPLY	GND (0V)
2	V _{DD}	-		5V
3	V _o	-		FOR LCD DRIVE
4	A _o	H/L	REGISTER SELECT SIGNAL H: DATA INPUT L: INSTRUCTION INPUT	
5	CS1	H,H->L	CHIP SELECT SIGNAL FOR IC1	
6	CS2	H,H->L	CHIP SELECT SIGNAL FOR IC2	
7	CL	H/L	CLOCK INPUT (2kHz)	
8	E	H/L	ENABLE SIGNAL (NO PULL-UP RESISTOR)	
9	R/W	H/L	H: DATA READ (MODULE-->MPU) L: DATA WRITE (MODULE<--MPU)	
10~17	DB0~DB7	H/L	DATA BIT 0~7	
18	RST	L	RESET SIGNAL	
19	A	-	ANODE	
20	K	-	CATHODE	
			LED BACKLIGHT	



READ/WRITE TIMING FOR 68 PORT MPU

PARAMETER	SIGNAL	SYMBOL	MIN	MAX	UNIT
ADDRESS HOLD TIME	CS	tAH6	10	-	ns
ADDRESS SETUP TIME	R/W	tAS6	20	-	ns
SYSTEM CYCLE TIME	Ao	tCYC6	1000	-	ns
DATA SETUP TIME		tDS6	80	-	ns
DATA HOLD TIME		tDH6	10	-	ns
OUTPUT DISABLE TIME		tOH6	10	60	ns
ACCESS TIME		tACC6	-	90	ns
ENABLE PULSE WIDTH	(READ)	tEW	100	-	ns
	(WRITE)		80	-	ns
	E				

ELECTRICAL CHARACTERISTICS

V_{DD}=4.5V to 5.5V, T_A=25°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	-	-	3.0	mA
INPUT VOLTAGE**	V _{IH}	-	0.2	-	V _{DD}	V
	V _{IL}	-	0	-	0.8	V
OUTPUT VOLTAGE***	V _{OH}	I _{OH} =-3mA	2.4	-	-	V
	V _{OL}	I _{OL} =3mA	-	-	0.4	V
*LED BACKLIGHT	VOLTAGE	V _f	-	-	4.2	V
	CURRENT	I _f	-	-	170	mA
	POWER CONSUMPTION	P _D	-	-	710	mW
	LUMINOUS	L	I _f =170mA	70	-	cd/m ²
	COLOR	-	-	-	-	nm

*ONLY APPLIES TO MODULES WITH BACKLIGHT

**APPLIED TO TERMINALS DB0~DB7

***APPLIED TO TERMINALS E, A_o, DB0~DB7

ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	TEST CONDITION	STANDARD VALUE		UNIT
			MIN	MAX	
SUPPLY VOLTAGE FOR LOGIC	V _{DD} -V _{ss}	T _a =25°C	4.75	5.25	V
SUPPLY VOLTAGE FOR LCD DRIVE	V _{DD} -V _o	-	4.8@50°C	5.2@0°C	V
INPUT VOLTAGE	V _I	T _a =25°C	V _{ss}	V _{DD}	V
OPERATING TEMPERATURE	Topr	LCM-S	0	50	°C
		LCM-H	-20	70	°C
STORAGE TEMPERATURE	Tstg	LCM-S	-20	70	°C
		LCM-H	-30	85	°C

REV.	PART NUMBER		
B	LCM-X12232GXX		
122 x 32 DOT MATRIX GRAPHIC MODULE, 1/16 DUTY, 1/5 BIAS.			

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