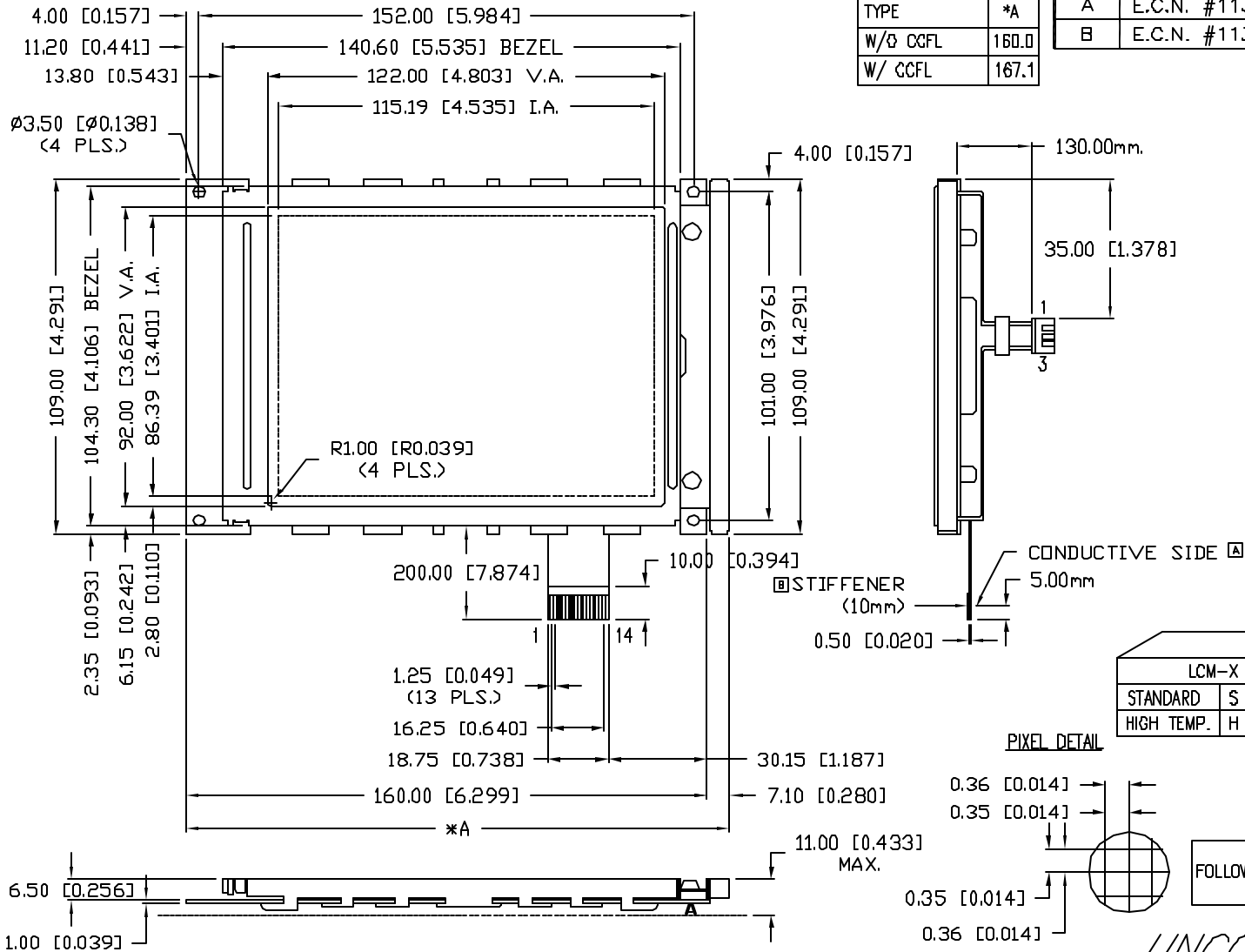


UNCONTROLLED DOCUMENT

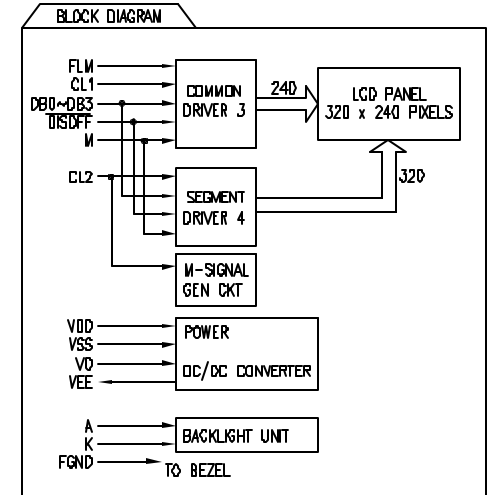
PART NUMBER  
LCM-X320240GXX/B

REV.  
B

REV.	E.C.N. NUMBER AND REVISION COMMENTS	DATE
A	E.C.N. #11370	11.21.06
B	E.C.N. #11385	01.10.07

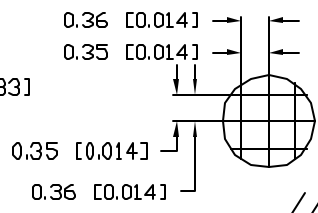


TYPE	*A
W/Ø CCFL	160.0
W/ CCFL	167.1



P/N PREFIX/SUFFIX TABLE		
LCM-X	GXX/B	DESCRIPTION
STANDARD	S	SR/B STN, REFLECTIVE
HIGH TEMP.	H	WF/B-C FSTN, TRANSELECTIVE(W/CCFL BACKLIGHT)

PIXEL DETAIL



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

UNCONTROLLED DOCUMENT

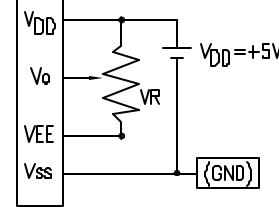
\*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.038), XX=±0.5 (±0.020), XXX=±0.25 (±0.010), XXXX=±0.127 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN= +DECIMAL PRECISION MAX= +0.00 -DECIMAL PRECISION

REV. B	PART NUMBER LCM-X320240GXX/B	<p>CONFIDENTIAL INFORMATION</p> <p>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.</p> <p>RELIABILITY NOTE</p> <p>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.</p>	<p>290 E. HELEN ROAD PALATINE, IL 60067-6976 PHONE: +1.847.359.2790 US WEB: www.lumex.com TW WEB: www.lumex.com.tw</p>
320 x 240 DOT MATRIX, 1/4 VGA GRAPHIC MODULE, DC-DC, 1/240 DUTY.		<p>DRAWN BY: JC</p> <p>CHECKED BY:</p> <p>APPROVED BY:</p>	<p>DATE: 11.21.06</p> <p>PAGE: 1 OF 3</p> <p>SCALE: N/A</p>

PIN CONFIGURATION

PIN NO.	SYMBOL	LEVEL	FUNCTION
1~4	DO~D3	H/L	DATA BUS
5	DISP.OFF	H/L	H: ON, L: OFF
6	FLM	H	THE FLM SIGNAL INDICATES THE BEGINNING OF EACH DISPLAY CYCLE.
7	NC	-	-
8	CL1	H->L	DATA LATCH PULSE
9	CL2	H->L	DATA SHIFT CLOCK PULSE
10	V <sub>DD</sub>	-	POWER SUPPLY FOR LOGIC CIRCUIT
11	V <sub>SS</sub>	-	GND
12	V <sub>EE</sub>	-	POWER SUPPLY FOR LCD DRIVING CIRCUIT
13	V <sub>o</sub>	-	LCD CONTRAST VOLTAGE
14	FGND	-	FLM GND

V<sub>DD</sub>-V<sub>o</sub>: LCD DRIVING VOLTAGE  
VR: 10KΩ - 20KΩ



ELECTRICAL CHARACTERISTICS

ITEM	SYMBOL	CONDITION	STANDARD VALUE			UNIT	
			MIN.	TYP.	MAX.		
SUPPLY VOLTAGE FOR LOGIC	V <sub>DD</sub> -V <sub>SS</sub>	-	4.75	5.0	5.5	V	
SUPPLY CURRENT FOR LOGIC	I <sub>DD</sub>	NOTE 1	-	16.0	25	mA	
SUPPLY VOLTAGE FOR LCD DRIVER	V <sub>EE</sub> -V <sub>SS</sub>	-	22.4	23.5	24.3	V	
SUPPLY CURRENT FOR LCD	I <sub>EE</sub>	NOTE 1	-	5.0	-	mA	
INPUT VOLTAGE*	HIGH LOW	V <sub>IH</sub>	-	2.2	-	V <sub>DD</sub>	V
		V <sub>IL</sub>	-	-	-	0.6	V
CCFL DRIVING VOLTAGE	V <sub>CCFL</sub>	T <sub>a</sub> =25°C	-	300	-	V <sub>rms</sub>	
CCFL FREQUENCY	f <sub>CCFL</sub>	-	-	70	85	KHz	
CCFL CURRENT	I <sub>CCFL</sub>	T <sub>a</sub> =25°C	4	5	6	mA	
CCFL STARTING DISCHARGE VOLTS	-	T <sub>a</sub> =5°C	1000	-	-	V	
BRIGHTNESS	-	SURFACE AREA	-	80	-	cd/m <sup>2</sup>	
CCFL OPERATING LIFETIME	-	T <sub>a</sub> =25°C	-	10K	-	HOURS	

NOTE 1: V<sub>DD</sub>-V<sub>SS</sub>=5.0V  
V<sub>DD</sub>-V<sub>o</sub>=23.5V

\*APPLIED TO TERMINALS FLM, CL1, CL2, DO~D3, DISPOFF.

ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	TEST CONDITION	STANDARD VALUE		UNIT
			MIN	MAX	
SUPPLY VOLTAGE FOR LOGIC	V <sub>DD</sub> -V <sub>SS</sub>	T <sub>a</sub> =25°C	-	7.0	V
SUPPLY VOLTAGE FOR LCD DRIVE	V <sub>DD</sub> -V <sub>o</sub>	T <sub>a</sub> =25°C	-	30	V
INPUT VOLTAGE	V <sub>I</sub>	T <sub>a</sub> =25°C	V <sub>SS</sub>	V <sub>DD</sub>	V
OPERATING TEMPERATURE	T <sub>opr</sub>	LCM-S	0	50	°C
		LCM-H	-20	70	°C
STORAGE TEMPERATURE	T <sub>stg</sub>	LCM-S	-20	70	°C
		LCM-H	-30	85	°C

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REV.  
B

PART NUMBER  
LCM-X320240GXX/B

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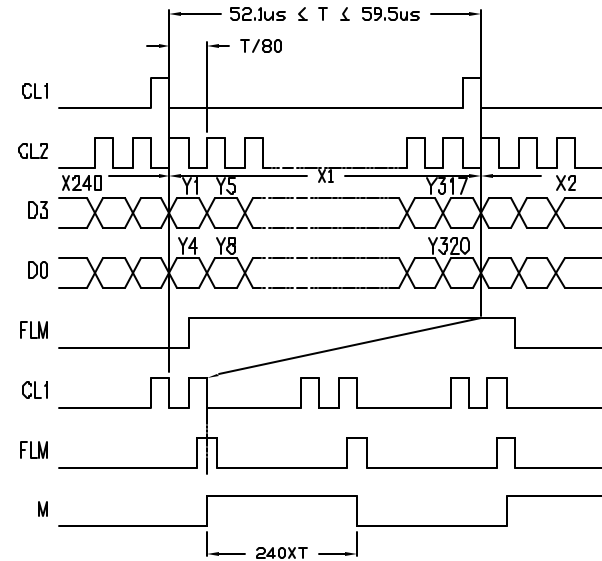
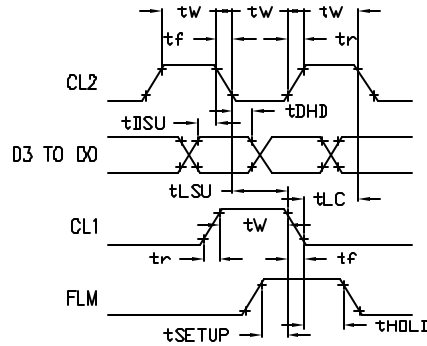
320 x 240 DOT MATRIX, 1/4 VGA GRAPHIC MODULE,  
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DRAWN BY: JC	CHECKED BY:	APPROVED BY:	DATE: 7.10.03
			PAGE: 2 OF 3
			SCALE: N/A

TIMING SPECIFICATIONS

PARAMETER	SYMBOL	MIN	MAX	UNIT
CLOCK FREQUENCY	f <sub>CP</sub>	-	8	MHz
CLOCK PULSE WIDTH	t <sub>w</sub>	45	-	ns
RISE, FALL TIME	t <sub>r</sub> , t <sub>f</sub>	-	15	ns
DATA SET-UP TIME	t <sub>DSU</sub>	20	-	ns
DATA HOLD TIME	t <sub>DHD</sub>	20	-	ns
CL1 SET-UP TIME	t <sub>LSU</sub>	80	-	ns
CL1 -> CL2 TIME	t <sub>LC</sub>	80	-	ns
FLM SET-UP TIME	t <sub>setup</sub>	100	-	ns
FLM HOLD TIME	t <sub>hold</sub>	100	-	ns
M DELAY TIME	t <sub>DF</sub>	-	300	ns



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