UNCONTROLLED DOCUMENT COMPANY CONFIDENTIAL

PART NUMBER	REV.
LCM-X240128GXX(-X)	C

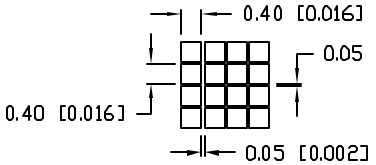
REV.	E.C.N. NUMBER AND REVISION COMMENTS	DATE
A	E.C.N. #10BRDR. & REDRAWN.	9.10.98
B	E.C.N. #10516.	5.10.99
C	E.C.N. #10BRDR. & #10969.	3.14.03

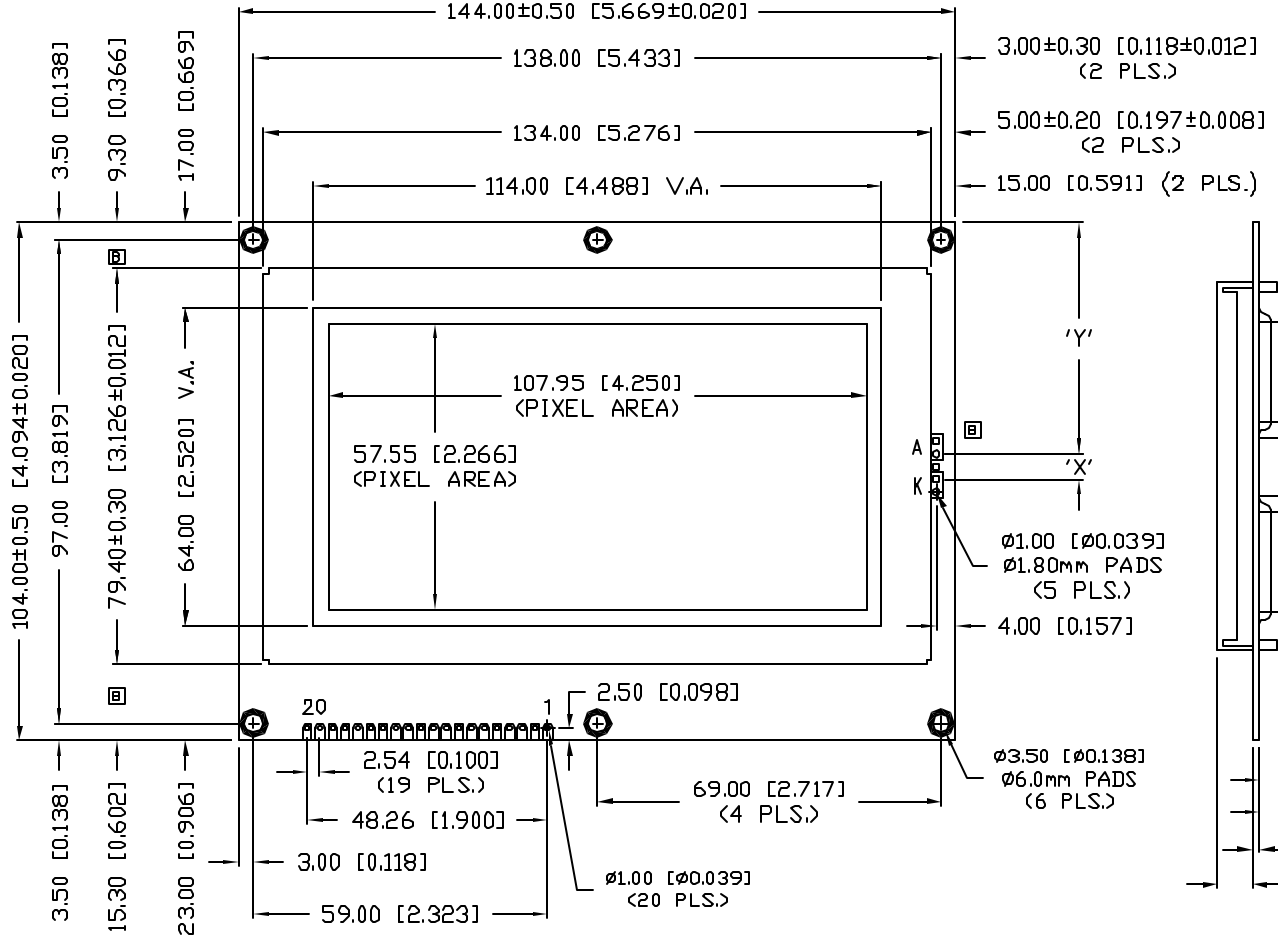
P/N PREFIX/SUFFIX TABLE

LCM-X		GXX	DESCRIPTION
STANDARD	S	SR	STN, REFLECTIVE
		SF	STN, TRANSFLECTIVE W/LED BACKLIGHT
HIGH TEMP.	H	WF-C	FSTN, TRANSFLECTIVE W/CCFL BACKLIGHT
		WF-L	FSTN, TRANSFLECTIVE W/WHITE EL BACKLIGHT

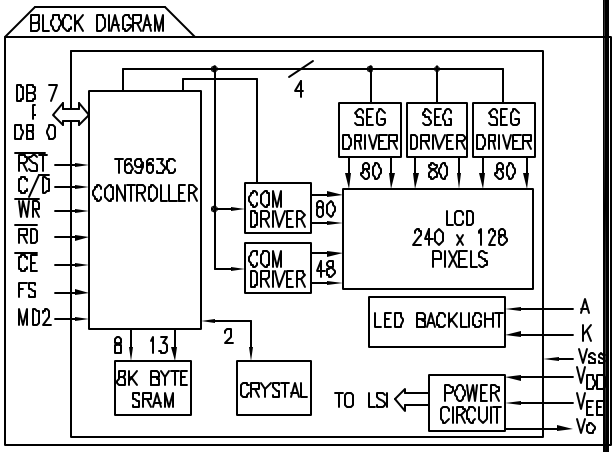
FACTORY PART#

PIXEL DETAIL





BLOCK DIAGRAM



TYPE DIM.	A	B*	B**	X	Y
REFLECTIVE OR EL	5.2	3.5	8.4	15.24	41.38
LED	10	3.5	8.4	5.08	46.46
CCFL	10	3.5	8.4	–	–

B*: WITHOUT NV+TC.
B**: WITH NV+TC.
NV-NEGATIVE VOLTAGE SUPPLY
TC-TEMPERATURE COMPENSATION

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

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*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.039), X.X=±0.5 (±0.020), X.XX=±0.25 (±0.010), X.XXX=±0.127 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN.= +DECIMAL PRECISION -0.00 MAX.= +0.00 -DECIMAL PRECISION

REV.	PART NUMBER	CONFIDENTIAL INFORMATION	LUMEX	290 E. HELEN ROAD PALATINE, IL 60067-6976 PHONE: +1.847.359.2790 US WEB: www.lumex.com TW WEB: www.lumex.com.tw
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240 x 128 DOT MATRIX GRAPHIC MODULE,
1/128 DUTY.

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:	CHECKED BY:	APPROVED BY:	DATE: 7.7.98 PAGE: 1 OF 2 SCALE: N/A
CT			

FACTORY PART#

PART NUMBER: LCM-X240128GXX(-X)

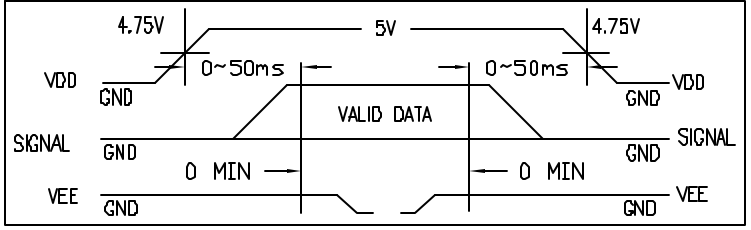
REV.: C

REV.	E.C.N. NUMBER AND REVISION COMMENTS	DATE
	SEE PAGE 1.	

ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	MIN.	MAX.	UNIT
POWER SUPPLY FOR LOGIC	V_{DD}-Vss	0	6.5	V
POWER SUPPLY FOR LCD DRIVING	V_{DD}-V_{EE}	0	22.0	V
INPUT VOLTAGE	V_I	Vss	V_{DD}	V
STATIC ELECTRICITY			100	V

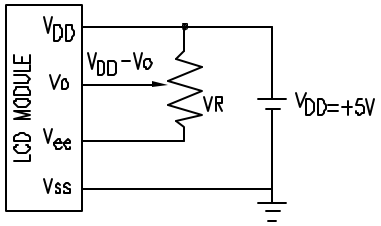
TIMING OF POWER SUPPLY AND INTERFACE SIGNAL



PIN CONFIGURATION

PIN #	SYMBOL	LEVEL	FUNCTION
1	Vss	–	GROUND (0V)
2	V_{DD}	–	POWER SUPPLY FOR LOGIC CIRCUIT
3	Vo	–	OPERATING VOLTAGE FOR LCD DRIVING
4	C/$\overline{D}$	H/L	$\overline{WR}$="L", C/$\overline{D}$="H": COMMAND WRITE, "L": DATA WRITE $\overline{RD}$="L", C/$\overline{D}$="H": STATUS READ, "L": DATA READ
5	$\overline{RD}$	L	DATA READ
6	$\overline{WR}$	L	DATA WRITE
7~14	DB0~DB7	H/L	DATA BUS LINE
15	$\overline{CE}$	L	CHIP ENABLE
16	$\overline{RST}$	L	RESET
17	Vee	–	POWER SUPPLY FOR LCD DRIVING
18	MD2	H/L	COLUMNS SELECT: "H": 32 COLUMNS, "L": 40 COLUMNS
19	FS	H/L	FONT SELECT: "H": 6*8 PIXEL/FONT, "L": 8*8 PIXEL/FONT
20	N.C.	–	
	A	–	POWER SUPPLY FOR LED BACKLIGHT (ANODE)
	K	–	POWER SUPPLY FOR LED BACKLIGHT (CATHODE)

[B] V_{DD}-Vo: LCD DRIVING VOLTAGE
VR: 10KΩ ~20KΩ



OPTO-ELECTRICAL CHARACTERISTICS

ITEM			SYMBOL	STANDARD VALUE MIN.	TYP.	MAX.	UNIT
POWER SUPPLY VOLTAGE FOR LOGIC			V_{DD}-Vss	+4.75	+5.0	+5.25	V
NEGATIVE POWER SUPPLY VOLTAGE FOR LCD DRIVE			V_{EE}-Vss	-15.5	-16.0	-16.5	V
INPUT VOLTAGE: NOTE (1)		H LEVEL	V_{IH}	2.2	–	–	V
		L LEVEL	V_{IL}	0	–	0.8	V
OUTPUT VOLTAGE: NOTE (2)		H LEVEL	V_{OH}	2.4	–	V_{DD}	V
		L LEVEL	V_{OL}	0	–	0.4	V
POWER SUPPLY CURRENT FOR LOGIC: NOTE (4)			I_{DD}	–	12.0	–	mA
POWER SUPPLY CURRENT FOR LCD DRIVE: NOTE (4)			I_{EE}	–	5.0	–	mA
RECOMMENDED LCD DRIVING VOLTAGE: (NOTE 3)		Ta=0°C	V_{DD}-Vo	–	+19.4	–	V
		Ta=25°C	Φ=10°C	–	+18.5	–	V
		Ta=50°C	θ=0°C	–	+16.2	–	V
CLOCK OSCILLATION FREQUENCY			fosc	–	5	–	MHZ
[C] *LED BACKLIGHT	VOLTAGE	If=900mA	Vf	–	4.2	4.6	V
	CURRENT	–	If	–	900	–	mA
	POWER CUNSUMPTION	–	PD	–	3.8	–	W
	LUMINOUS	If=900mA	L	60	–	–	cd/m²
	COLOR	–	–	–	574	–	nm

*ONLY APPLIES TO MODULES WITH BACKLIGHT

NOTE (1): APPLIED TO TERMINALS: FS, CE, $\overline{WR}$, $\overline{RD}$, C/$\overline{D}$, DB0~DB7, $\overline{RES}$, MD2.

NOTE (2): APPLIED TO TERMINALS: DB0~DB7.

NOTE (3): RECOMMENDED LCD DRIVING VOLTAGE MAY FLUCTUATE ABOUT ±1.0V BY EACH MODULE.

NOTE (4): V_{DD}-Vss=5.0V, V_{DD}-V0=20.6V.

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