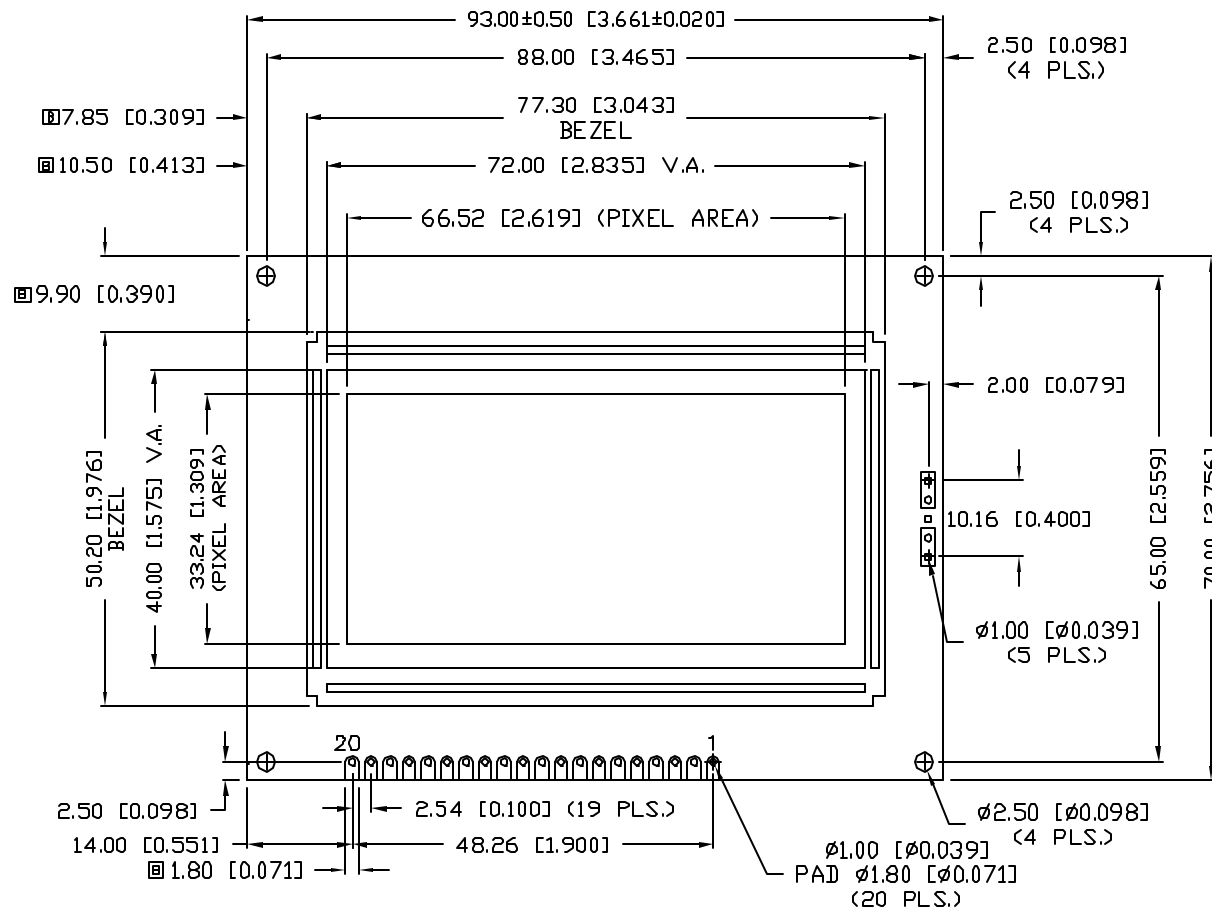


UNCONTROLLED DOCUMENT

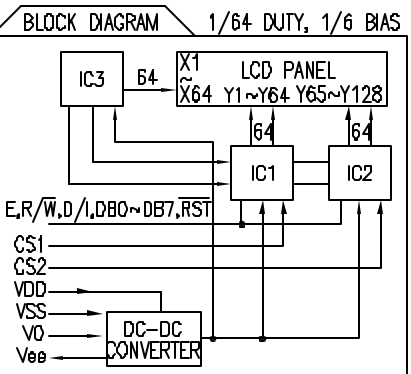
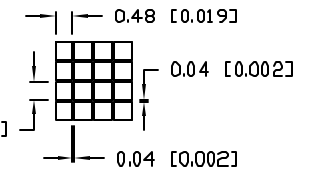
P/N PREFIX/SUFFIX TABLE		
LCM-X	DX	DESCRIPTION
STANDARD	S	SR STN, REFLECTIVE
HIGH TEMP.	H	SF STN, TRANSELECTIVE(W/ BACKLIGHT)

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



TYPE	DIM.	A	B
WITH BACKLIGHT	12.7	8.7	
NO BACKLIGHT	8.8	4.8	

PIXEL DETAIL



*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.039), 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.=+0.00 -0.00, MAX.=+0.00 -0.00

UNCONTROLLED DOCUMENT

REV.	PART NUMBER
B	LCM-X12864GXX

128 x 64 DOT MATRIX GRAPHIC MODULE,
1/64 DUTY, 1/6 BIAS, WITH NEGATIVE CHARGE PUMP.

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.

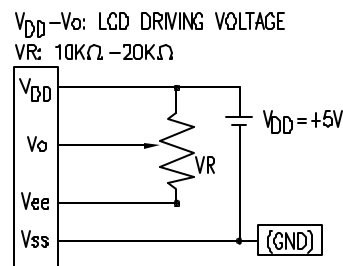


290 E. HELEN ROAD
PALATINE, IL 60067-6976
PHONE: +1.847.359.2790
US WEB: www.lumex.com
TW WEB: www.lumex.com.tw

DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
JD			3.15.05
			PAGE: 1 OF 1
			SCALE: N/A

PART NUMBER
LCM-X12864GXXREV.
B

PIN CONFIGURATION				
PIN NO.	SYMBOL	LEVEL	FUNCTION	
1	V _{SS}	-	POWER SUPPLY	GND (0V)
2	V _{DD}	-		5V
3	V _b	-		FOR LCD DRIVE
4	D/I	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	
15	CS1	H/L	CHIP SELECTION SIGNAL FOR IC1	
16	CS2	H/L	CHIP SELECTION SIGNAL FOR IC2	
17	RST	-	RESET SIGNAL (ACTIVE "LOW")	
18	V _{ee}	-	OUTPUT VOLTAGE FOR LCD DRIVING	
19	A	-	ANODE	LED BACKLIGHT
20	K	-	CATHODE	LED BACKLIGHT



READ/WRITE TIMING FOR MPU INTERFACE				
PARAMETER	SYMBOL	MIN	MAX	UNIT
ADDRESS HOLD TIME	t _{AH}	10	-	ns
ADDRESS SETUP TIME	t _{AS}	140	-	ns
E CYCLE TIME	t _{CYC}	1000	-	ns
E HIGH LEVEL WIDTH	t _{WEH}	450	-	ns
E LOW LEVEL WIDTH	t _{WEL}	450	-	ns
DATA SETUP TIME	t _{DSW}	200	-	ns
DATA HOLD TIME (READ)	t _{DHR}	20	-	ns
DATA DELAY TIME	t _{DDR}	-	320	ns
DATA HOLD TIME (WRITE)	t _{DHW}	10	-	ns
E RISE TIME	t _R	-	25	ns
E FALL TIME	t _F	-	25	ns

ELECTRICAL CHARACTERISTICS		V _{DD} =4.75V to 5.25V, T _A =25°C				
ITEM	SYMBOL	CONDITION	STANDARD VALUE			UNIT
SUPPLY VOLTAGE FOR LOGIC	V _{DD} -V _{SS}	-	4.75	5.0	5.25	V
SUPPLY CURRENT FOR LOGIC	I _{DD}	V _{DD} =5V	-	8.0	-	mA
INPUT VOLTAGE	HIGH	V _{IH}	-	0.7*V _{DD}	-	V _{DD} V
	LOW	V _{IL}	-	0	-	0.3*V _{DD} V
*LED BACKLIGHT	VOLTAGE	V _f	I _f =300mA	-	4.2	4.5 V
	CURRENT	I _f	-	-	300	mA
	POWER CONSUMPTION	P _D	-	-	1260	mW
	LUMINOUS	L	I _f =300mA	60	90	cd/m ²
	COLOR	-	-	-	-	nm

*ONLY APPLIES TO MODULES WITH BACKLIGHT

ABSOLUTE MAXIMUM RATINGS					
ITEM	SYMBOL	TEST CONDITION	STANDARD VALUE		UNIT
SUPPLY VOLTAGE FOR LOGIC	V _{DD} -V _{SS}	T _a =25°C	-	7.0	V
SUPPLY VOLTAGE FOR LCD DRIVE	V _{DD} -V _o	-	10.8@40°C	12.4@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

*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.039), 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 -0.00 MAX= +0.00 -DECIMAL PRECISION

REV.
BPART NUMBER
LCM-X12864GXX

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.



290 E. HELEN ROAD
PALATINE, IL 60067-6976
PHONE: +1.847.359.2790
US WEB: www.lumex.com
TW WEB: www.lumex.com.tw

128 x 64 DOT MATRIX GRAPHIC MODULE,
1/64 DUTY, 1/6 BIAS, WITH NEGATIVE CHARGE PUMP.

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:
JD

CHECKED BY:

APPROVED BY:

DATE: 3.15.05
PAGE: 1 OF 1
SCALE: N/A