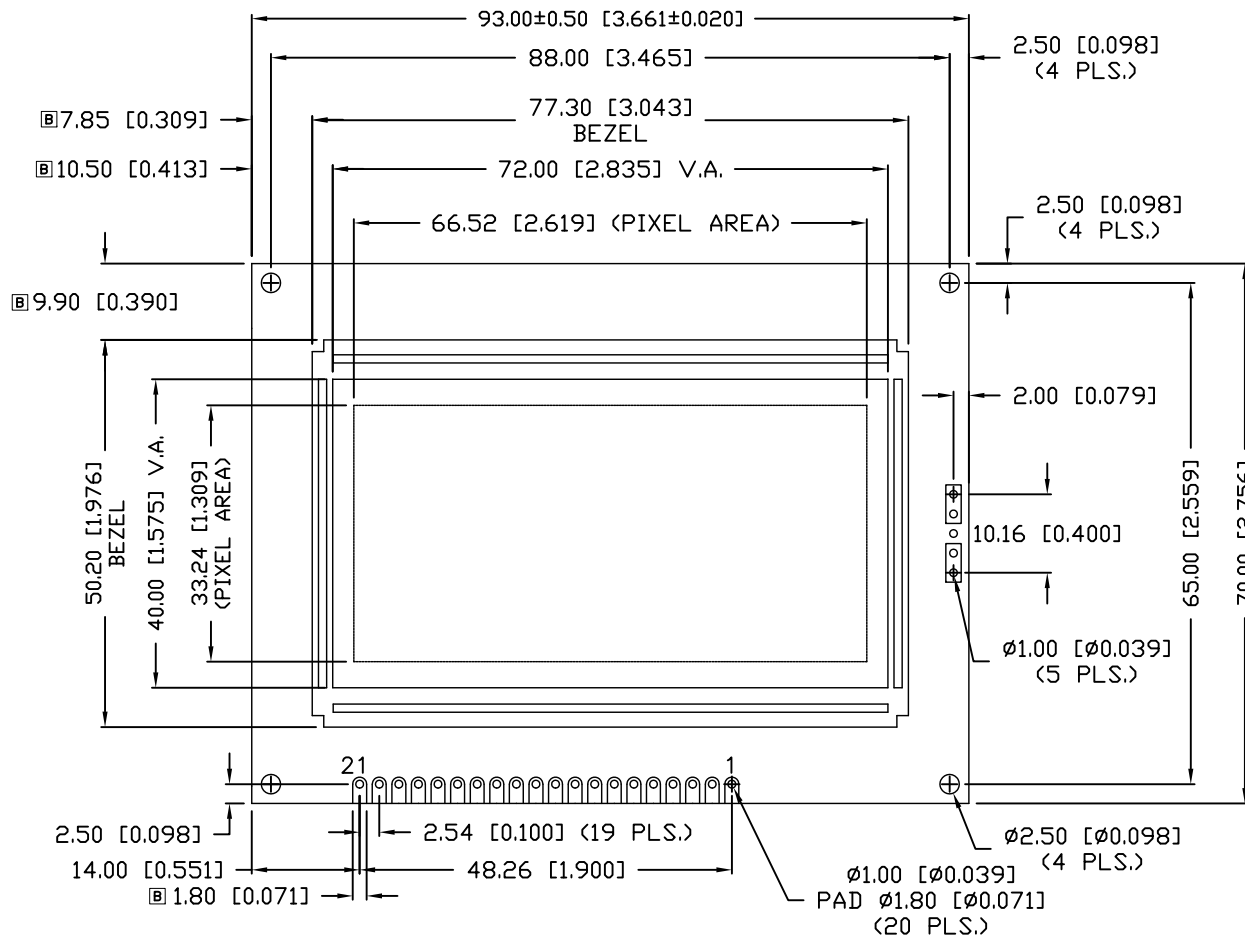
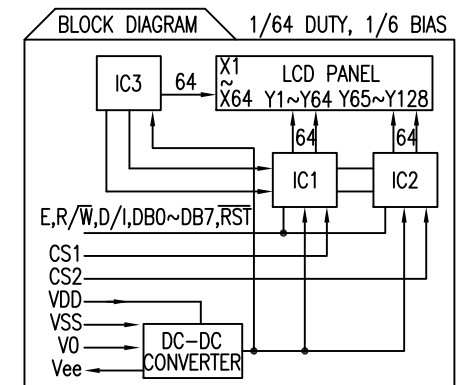
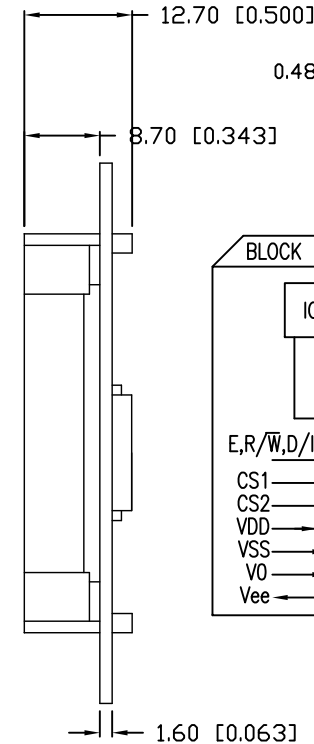
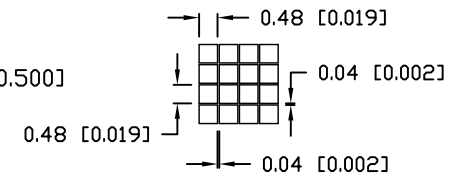


CAUTION: STATIC SENSITIVE DEVICE  
FOLLOW PROPER E.S.D. HANDLING PROCEDURES  
WHEN WORKING WITH THIS PART.



PIXEL DETAIL



\*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 LCM-S12864GSF
-----------	------------------------------

128 x 64 DOT MATRIX GRAPHIC MODULE,  
1/64 DUTY, 1/6 BIAS.

**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.

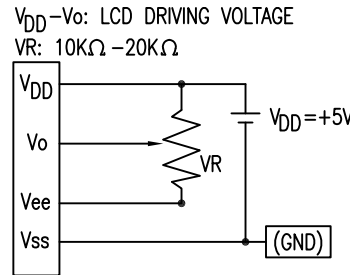
**RELIABILITY NOTE**  
OUR MANY YEARS OF EXPERIENCE DATA ACCUMULATION INDICATE THAT SOLDER HEAT IS A MAJOR CAUSE OF EARLY AND FUTURE FAILURE. PLEASE PAY ATTENTION TO YOUR SOLDERING PROCESS.

**LUMEX**  
Creating LED and LCD Solutions Together™

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

PIN CONFIGURATION			
PIN NO.	SYMBOL	LEVEL	FUNCTION
1	V <sub>SS</sub>	—	POWER SUPPLY GND (0V) 5V FOR LCD DRIVE
2	V <sub>DD</sub>	—	
3	V <sub>O</sub>	—	
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 <sub>EE</sub>	—	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 <sub>AH</sub>	10	—	ns
ADDRESS SETUP TIME	t <sub>AS</sub>	140	—	ns
E CYCLE TIME	t <sub>CYC</sub>	1000	—	ns
E HIGH LEVEL WIDTH	t <sub>WEH</sub>	450	—	ns
E LOW LEVEL WIDTH	t <sub>WEL</sub>	450	—	ns
DATA SETUP TIME	t <sub>DSW</sub>	200	—	ns
DATA HOLD TIME (READ)	t <sub>DHR</sub>	20	—	ns
DATA DELAY TIME	t <sub>DDR</sub>	—	320	ns
DATA HOLD TIME (WRITE)	t <sub>DHW</sub>	10	—	ns
E RISE TIME	t <sub>R</sub>	—	25	ns
E FALL TIME	t <sub>F</sub>	—	25	ns

ELECTRICAL CHARACTERISTICS		V <sub>DD</sub> =4.75V to 5.25V, T <sub>A</sub> =25°C					
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	5.25	V	
SUPPLY CURRENT FOR LOGIC	I <sub>DD</sub>	V <sub>DD</sub> =5V	—	8.0	—	mA	
INPUT VOLTAGE	HIGH	V <sub>IH</sub>	—	0.7*V <sub>DD</sub>	—	V <sub>DD</sub>	
	LOW	V <sub>IL</sub>	—	0	—	0.3*V <sub>DD</sub>	
*LED BACKLIGHT	VOLTAGE	V <sub>f</sub>	I <sub>f</sub> =300mA	—	4.2	4.5	V
	CURRENT	I <sub>f</sub>	—	—	300	—	mA
	POWER CONSUMPTION	PD	—	—	1260	—	mW
	LUMINOUS	L	I <sub>f</sub> =300mA	60	90	—	cd/m <sup>2</sup>
	COLOR	—	—	—	—	—	nm

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>	—	10.8@40°C	12.4@0°C	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
STORAGE TEMPERATURE	T <sub>stg</sub>	LCM-S	-20	70	°C

\*ONLY APPLIES TO MODULES WITH BACKLIGHT

\*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.=<sup>+DECIMAL PRECISION</sup>-0.00 MAX.=<sup>+DECIMAL PRECISION</sup>-0.00

REV. —	PART NUMBER LCM-S12864GSF
-----------	------------------------------

**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.

**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