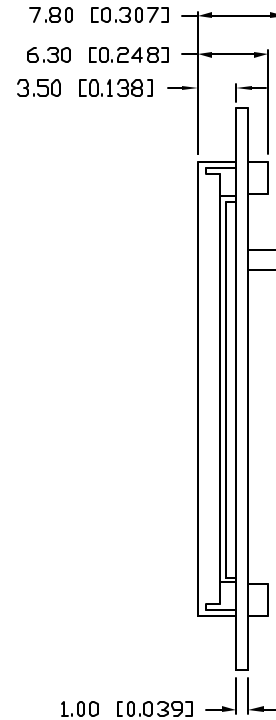
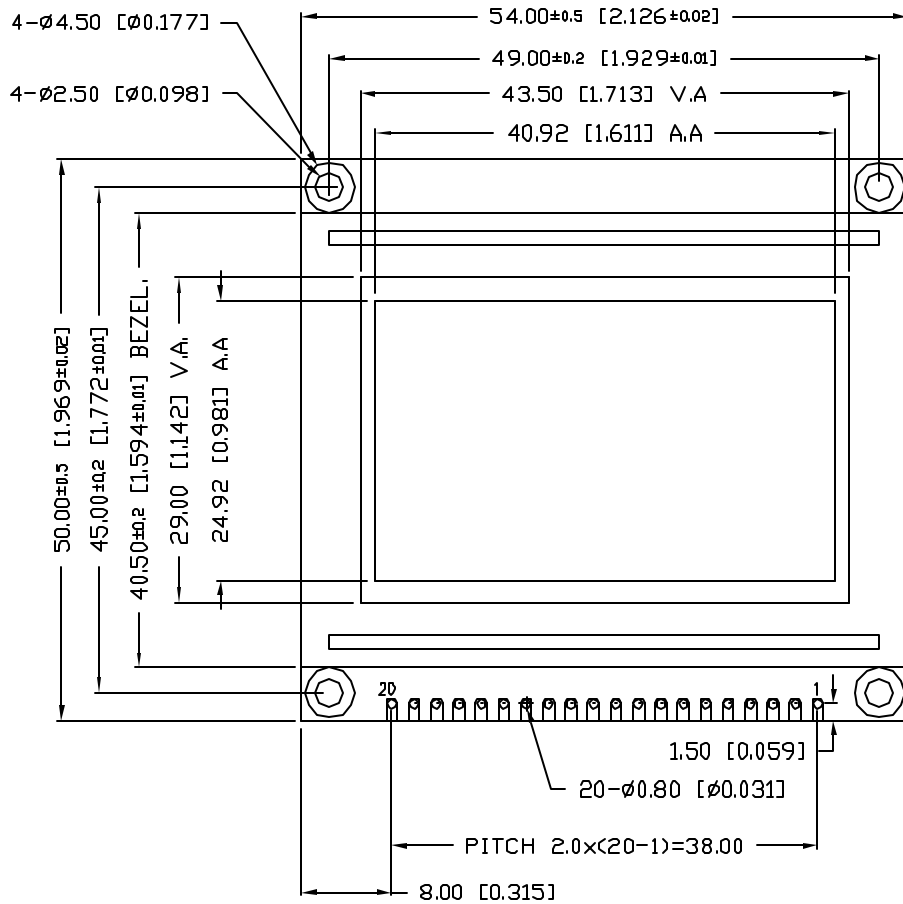


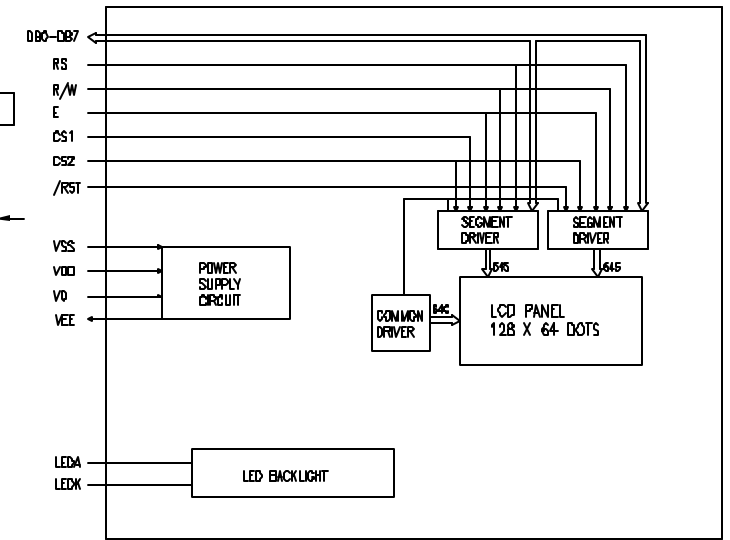
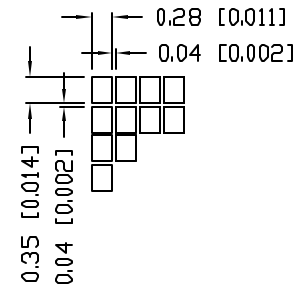
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PART NUMBER  
LCM-H12864GSF/U-3

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PIXEL DETAIL



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\*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.	PART NUMBER LCM-H12864GSF/U-3	<p><b>CONFIDENTIAL INFORMATION</b> 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><b>RELIABILITY NOTE</b> 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>		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 LCD MODULE. STN, TRANSFLECTIVE, Y/G LED BKLT 6:00 VIEW W/DC-DC ON BOARD, HIGH OPERATING TEMP.		DRAWN BY: JC	CHECKED BY:	APPROVED BY: DATE: 12.19.06 PAGE: 1 OF 1 SCALE: N/A

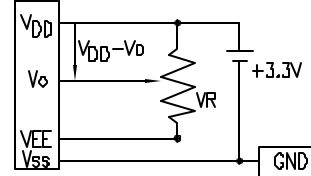
PIN CONFIGURATION

PIN NO.	SYMBOL	LEVEL	FUNCTION
1	V <sub>SS</sub>	-	POWER SUPPLY GND (0V)
2	V <sub>DD</sub>	-	
3	V <sub>O</sub>	-	
4	RS	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--SOFTWARE SELECTABLE 4 OR 8 BIT MODE.
15	CS1	H	CHIP SELECT IC1
16	CS2	H	CHIP SELECT IC2
17	/RST	L	RESET SIGNAL
18	VEE	-	OUTPUT VOLTAGE FOR LCD DRIVE (-10V)
19	A	-	ANODE LED BACKLIGHT
20	K	-	CATHODE LED BACKLIGHT

ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	TEST CONDITION	STANDARD VALUE		UNIT
			MIN	MAX	
SUPPLY VOLTAGE FOR LOGIC	V <sub>DD</sub> -V <sub>SS</sub>	Ta=25°C	0	6.5	V
SUPPLY VOLTAGE FOR LCD DRIVE	V <sub>DD</sub> -V <sub>O</sub>	-	0	18.0	V
INPUT VOLTAGE	V <sub>I</sub>	Ta=25°C	V <sub>I</sub>	V <sub>DD</sub>	V
OPERATING TEMPERATURE	T <sub>opr</sub>	-	-	-	°C
		LCM-H	-20	70	°C
STORAGE TEMPERATURE	T <sub>stg</sub>	-	-	-	°C
		LCM-H	-30	80	°C

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



ELECTRICAL CHARACTERISTICS

V<sub>DD</sub>=3.3V, T =25°C A

ITEM	SYMBOL	CONDITION	STANDARD VALUE			UNIT	
			MIN.	TYP.	MAX.		
SUPPLY VOLTAGE FOR LOGIC	V <sub>DD</sub> -V <sub>SS</sub>	-	-	3.3	5.5	V	
SUPPLY CURRENT FOR LOGIC	I <sub>DD</sub>	V <sub>DD</sub> =3.3V	-	6.0	8.0	mA	
SUPPLY VOLTAGE LCD	V <sub>DD</sub> -V <sub>O</sub>	V <sub>DD</sub> =3.3V	-	9.0	-	V	
SUPPLY CURRENT LCD	I <sub>O</sub>	-	-	0.3	0.4	mA	
INPUT VOLTAGE	HIGH	V <sub>IH</sub>	-	2.2	-	V <sub>DD</sub>	
	LOW	V <sub>IL</sub>	-	0	-	0.8	
OUTPUT VOLTAGE	HIGH	V <sub>OH</sub>	-	2.4	-	V	
	LOW	V <sub>OL</sub>	-	-	0.4	V	
*LED BACKLIGHT	VOLTAGE	V <sub>f</sub>	I <sub>f</sub> =70mA	-	5.0	5.7	V
	CURRENT	I <sub>f</sub>	-	-	70	90	mA
	POWER CONSUMPTION	P <sub>D</sub>	-	-	360	-	mW
	LUMINOUS	L	I <sub>f</sub> =70mA	70	-	-	cd/m <sup>2</sup>
	COLOR	-	-	-	568	-	nm

\*ONLY APPLIES TO MODULES WITH BACKLIGHT

TIMING SPECIFICATIONS

ITEM	SYMBOL	MIN.	MAX.	UNIT
E CYCLE	t <sub>C</sub>	1000	-	ns
E HIGH LEVEL WIDTH	t <sub>WH</sub>	450	-	ns
E LOW LEVEL WIDTH	t <sub>WL</sub>	450	-	ns
E RISE TIME	t <sub>R</sub>	-	25	ns
E FALL TIME	t <sub>F</sub>	-	25	ns
ADDRESS SETUP TIME	t <sub>ASU</sub>	140	-	ns
ADDRESS HOLD TIME	t <sub>AH</sub>	10	-	ns
DATA SETUP TIME	t <sub>DSU</sub>	200	-	ns
DATA DELAY TIME	t <sub>D</sub>	-	320	ns
DATA HOLD TIME (WRITE)	t <sub>DHW</sub>	10	-	ns
DATA HOLD TIME (READ)	t <sub>DHR</sub>	20	-	ns

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JC

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APPROVED BY:

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PAGE: 1 OF 1

SCALE: N/A

128 x 64 DOT MATRIX GRAPHIC MODULE.  
STN, TRANSFLECTIVE Y/G LED BKLT 6:00 VIEW  
W/DC-DC ON BOARD, HIGH OPERATING TEMP.