

UNCONTROLLED DOCUMENT

PART NUMBER

LCM-H12864CGWF/E

REV.

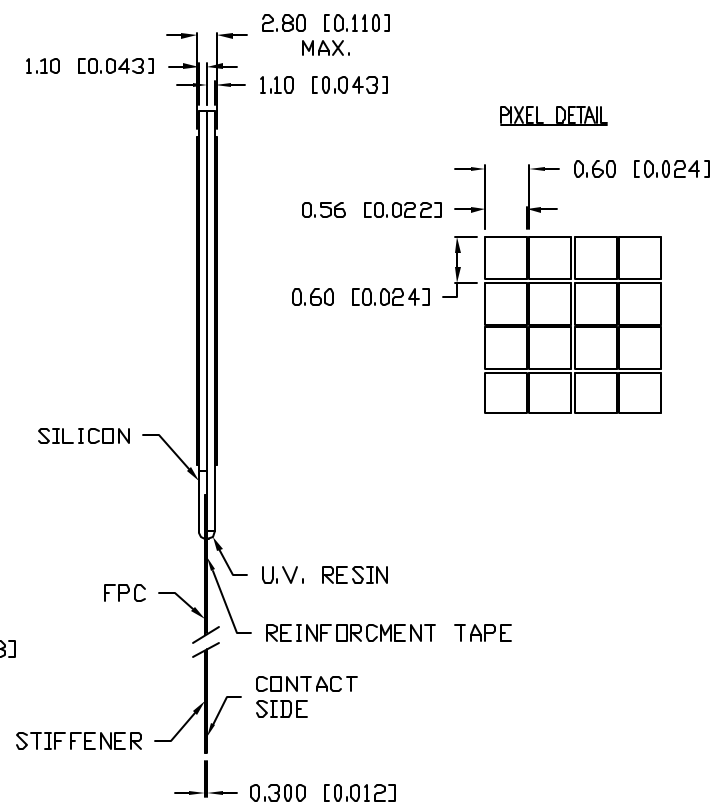
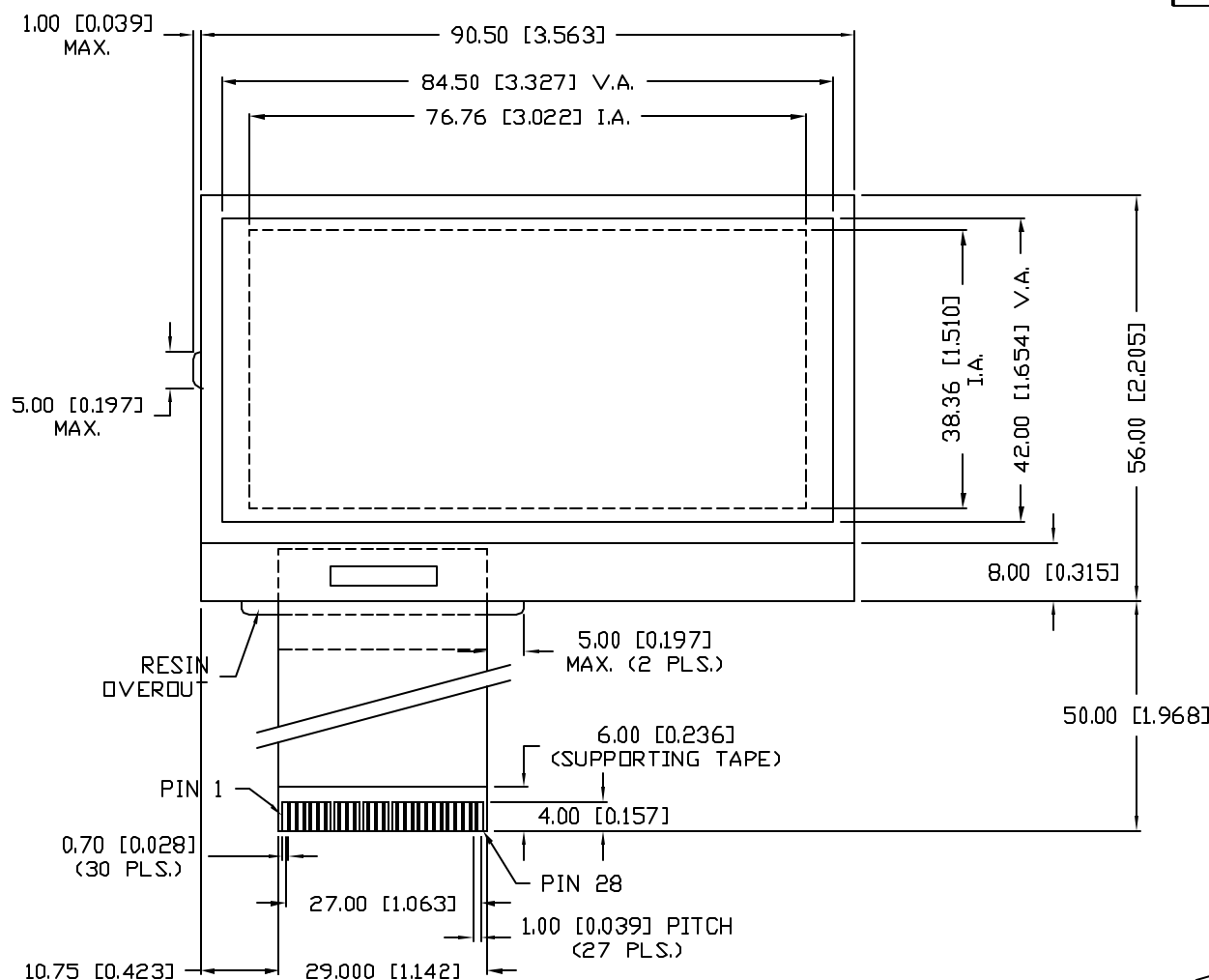
A

REV. E.C.N. NUMBER AND REVISION COMMENTS

DATE

A E.C.N. #11148.

4.20.07



NOTES:

1. OPERATING TEMPERATURE:
-20°C TO +70°C.
2. STORAGE TEMPERATURE:
-30°C TO +80°C.



UNCONTROLLED DOCUMENT

*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 MAX.= +0.00 -DECIMAL PRECISION

REV.

A

PART NUMBER

LCM-H12864CGWF/E

128 x 64 CHIP ON GLASS LCD MODULE, FSTN,
TRANSFLECTIVE, -20°C TO +70°C OPERATING TEMP,
6:00 VIEW ANGLE.

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:

JC

DATE: 3.15.02

PAGE: 1 OF 5

SCALE: N/A

ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	STANDARD VALUE		UNIT
		MIN	MAX	
POWER SUPPLY VOLTAGE	VDD	-0.3	7.0	V
POWER SUPPLY VOLTAGE (1)	VSS2	-7.0	0.3	V
		-6.0	0.3	V
		-4.5	0.3	V
POWER SUPPLY VOLTAGE (VDD STANDARD)	V5, VOUT	-18.0	0.3	V
POWER SUPPLY VOLTAGE (VDD STANDARD)	V1 ~ V4	V5	0.3	V
INPUT VOLTAGE	VIN	-0.3	VDD+0.3	V
OUTPUT VOLTAGE	Vo	-0.3	VDD+0.3	V
OPERATING TEMPERATURE	Topr	-20	+70	°C
STORAGE TEMPERATURE	Tstr	-30	+80	°C

(1) VDD ≥ V1 ≥ V2 ≥ V3 ≥ V4 ≥ V5.

ELECTRICAL CHARACTERISTICS

ITEM	SYMBOL	STANDARD VALUE			TEST CONDITION	UNIT
		MIN	TYP	MAX		
OPERATING VOLTAGE (1)	VDD	2.7	-	0.3		V
	POSSIBLE OPERATING VOLTAGE	1.8	-	5.5		
OPERATING VOLTAGE (2)	VSS2	-3.3	-	-2.7	RELATIVE TO VDD	
	POSSIBLE OPERATING VOLTAGE	-6.0	-	-1.8	RELATIVE TO VDD	
OPERATING VOLTAGE (3)	POSSIBLE OPERATING VOLTAGE	V5	-	4.5	RELATIVE TO VDD	
	POSSIBLE OPERATING VOLTAGE	V1, V2	0.4 * V5	VDD	RELATIVE TO VDD	
	POSSIBLE OPERATING VOLTAGE	V3, V4	V5	0.6 * V5	RELATIVE TO VDD	
INPUT VOLTAGE	HIGH	VIHC	0.8*VDD	VDD		
	LOW	VILC	VSS	0.2*VDD		
OUTPUT VOLTAGE	HIGH	VOHC	0.8*VDD	VDD	IOH=-0.5mA	
	LOW	VOLC	VSS	0.2*VDD	IOL=0.5mA	
INPUT LEAKAGE CURRENT	IIL	-1.0	-	1.0	VIN=VDD OR VSS	μA
OUTPUT LEAKAGE CURRENT	ILO	-3.0	-	3.0		

PIN CONFIGURATION			
PIN NO.	SYMBOL	LEVEL	FUNCTION
1	IRS	H/L	INTERNAL RESISTOR SELECT INPUT H: USE INTERNAL RESISTORS L: DO NOT USE INTERNAL RESISTORS
2	VR	H/L	VOLTAGE REGULATOR OUTPUT
3~7	V5~V1	H/L	MULTILEVEL POWER SUPPLY FOR LCD DRIVE
8	CAP2+	-	DC/DC VOLTAGE CONVERTER
9	CAP2-	-	DC/DC VOLTAGE CONVERTER
10	CAP1-	-	DC/DC VOLTAGE CONVERTER
11	CAP1+	-	DC/DC VOLTAGE CONVERTER
12	CAP3-	-	DC/DC VOLTAGE CONVERTER
13	VOUT	-	DC/DC VOLTAGE CONVERTER
14	VSS	-	GROUND
15	VDD	-	POWER SUPPLY
16~23	DB7~DB0	H/L	8-BIT BIDIRECTIONAL DATA BUS
24	RD	L	READ SIGNAL
25	WR	L	WRITE SIGNAL
26	AD	H/L	REGISTER SELECT: H: DISPLAY DATA, L: CONTROL DATA
27	RES	L	RESET SIGNAL
28	CS1	L	CHIP SELECT SIGNAL
29	CL	H/L	DISPLAY CLOCK INPUT
30	N/C	-	NO CONNECTION

*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.

A

PART NUMBER

LCM-H12864CGWF/C

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:

JC

CHECKED BY:

APPROVED BY:

DATE: 3.15.02

PAGE: 2 OF 5

SCALE: N/A

128 x 64 CHIP ON GLASS LCD MODULE, FSTN,
TRANSFLECTIVE, -20°C TO +70°C OPERATING TEMP,
6:00 VIEW ANGLE, VLCD = 10V, 1/64 DUTY, 1/7 BIAS.

UNCONTROLLED DOCUMENT

PART NUMBER

LCM-H12864CGWF/C

REV.

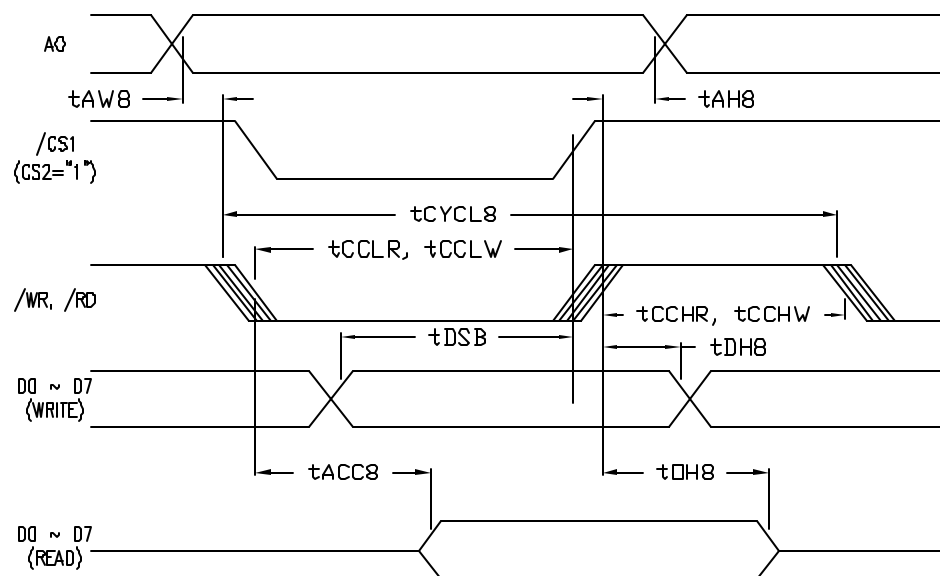
A

REV. E.C.N. NUMBER AND REVISION COMMENTS

DATE

SEE PAGE 1.

TIMING DIAGRAM



AC CHARACTERISTICS

(VDD=4.5V~5.5V, Ta=-20°C TO +70°C)

ITEM	SIGNAL	SYMBOL	MIN	MAX	UNIT	CONDITION
ADDRESS HOLD TIME	A0	tAH8	0	-	ns	
ADDRESS SETUP TIME	A0	tAW8	0	-	ns	
SYSTEM CYCLE TIME	A0	tCYB	166	-	ns	
CONTROL L PULSE WIDTH (/WR)	/WR	tCCLW	30	-	ns	
CONTROL L PULSE WIDTH (/RD)	/RD	tCCLR	70	-		
CONTROL H PULSE WIDTH (/WR)	/WR	tCCHW	30	-		
CONTROL H PULSE WIDTH (/RD)	/RD	tCCHR	30	-		
DATA SETUP TIME	DO ~ D7	tDSB	30	-	ns	
ADDRESS HOLD TIME		tDH8	10	-	ns	
/RD ACCESS TIME		tACC8	-	70	ns	CL=100pF
OUTPUT DISABLE TIME		tQH8	5	50	ns	CL=100pF

UNCONTROLLED DOCUMENT

*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.

A

PART NUMBER

LCM-H12864CGWF/C

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:

JC

CHECKED BY:

APPROVED BY:

DATE: 3.15.02

PAGE: 3 OF 5

SCALE: N/A

128 x 64 CHIP ON GLASS LCD MODULE, FSTN,
TRANSFLECTIVE, -20°C TO +70°C OPERATING TEMP,
6:00 VIEW ANGLE, VLCD = 10V, 1/64 DUTY, 1/7 BIAS.

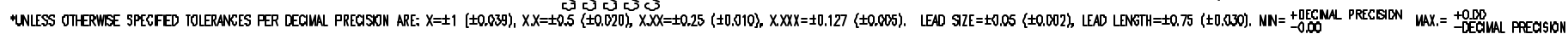
CIRCUIT DIAGRAM

LCM-H12864CGWF/C

A

DATE _____

SEE PAGE 1.



A

LCM-H12864CGWF/C

128 x 64 CHIP ON GLASS LCD MODULE, FSTN,
TRANSFLECTIVE, -20°C TO +70°C OPERATING TEMP,
6:00 VIEW ANGLE, VLCD = 10V, 1/64 DUTY, 1/7 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.



JC

CHECKED BY:

APPROVED BY:

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

DATE: 3.15.02

PAGE: 4 OF 5

SCALE: N/A

UNCONTROLLED DOCUMENT

PART NUMBER

LCM-H12864CGWF/C

REV.

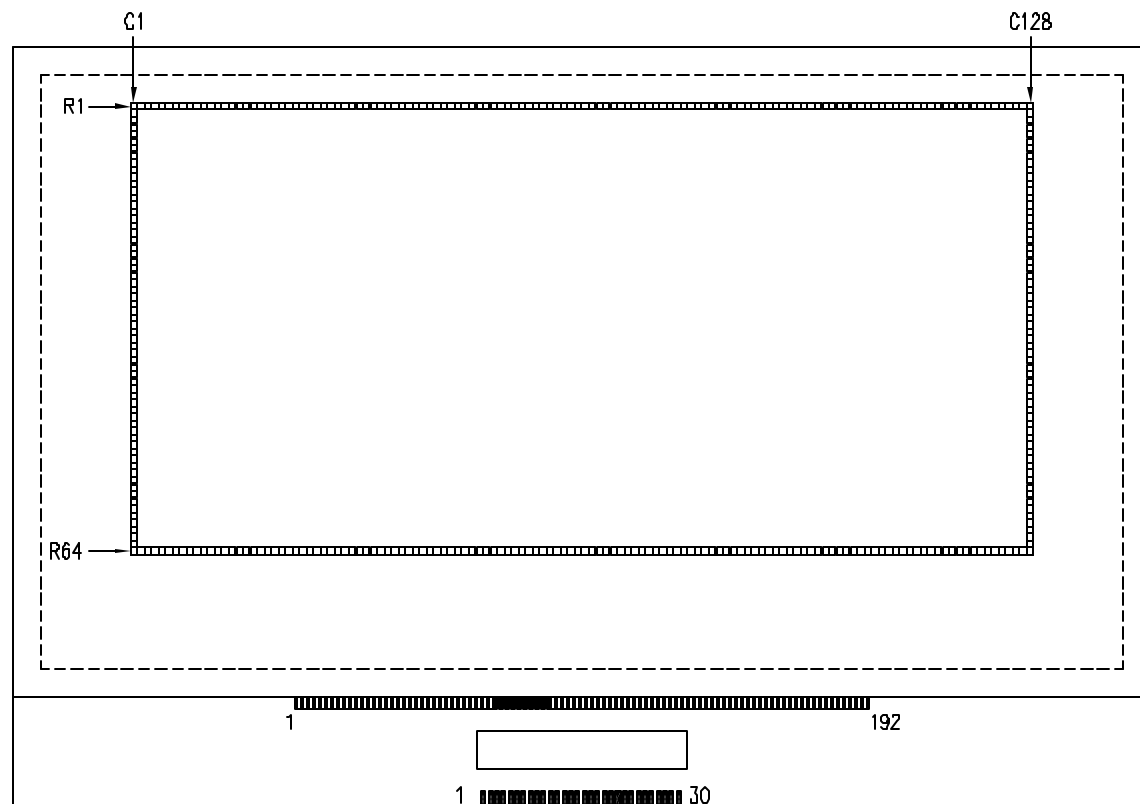
A

REV. E.C.N. NUMBER AND REVISION COMMENTS

DATE

SEE PAGE 1.

LABELING



PAD NO.

CONFIGURATION

1	COM31[R33(C1-C128)]
2	COM30[R34(C1-C128)]
31	COM1[R63(C1-C128)]
32	COM0[R64(C1-C128)]
33	SEG0[C1(R1-R64)]
34	SEG1[C2(R1-R64)]
159	SEG126[C127(R1-R64)]
160	SEG127[C128(R1-R64)]
161	COM32[R32(C1-C128)]
162	COM33[R31(C1-C128)]
191	COM62[R2(C1-C128)]
192	COM63[R1(C1-C128)]

UNCONTROLLED DOCUMENT

*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 DECIMAL PRECISION MAX.= +0.00 DECIMAL PRECISION

REV.

A

PART NUMBER

LCM-H12864CGWF/C

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:

JC

CHECKED BY:

APPROVED BY:

DATE: 3.15.02

PAGE: 5 OF 5

SCALE: N/A

128 x 64 CHIP ON GLASS LCD MODULE, FSTN,
TRANSFLECTIVE, -20°C TO +70°C OPERATING TEMP,
6:00 VIEW ANGLE, VLCD = 10V, 1/64 DUTY, 1/7 BIAS.