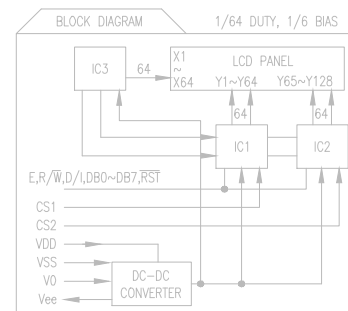
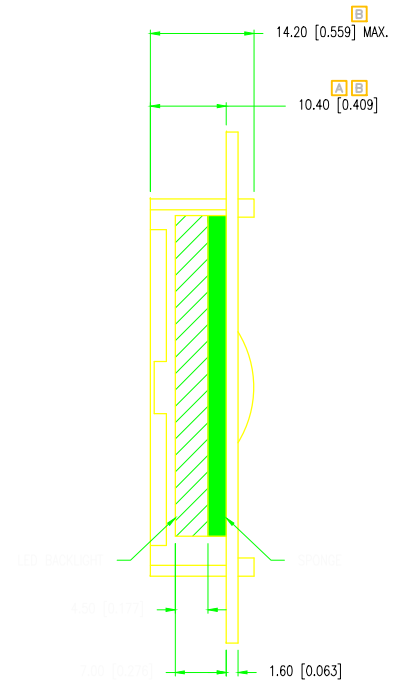
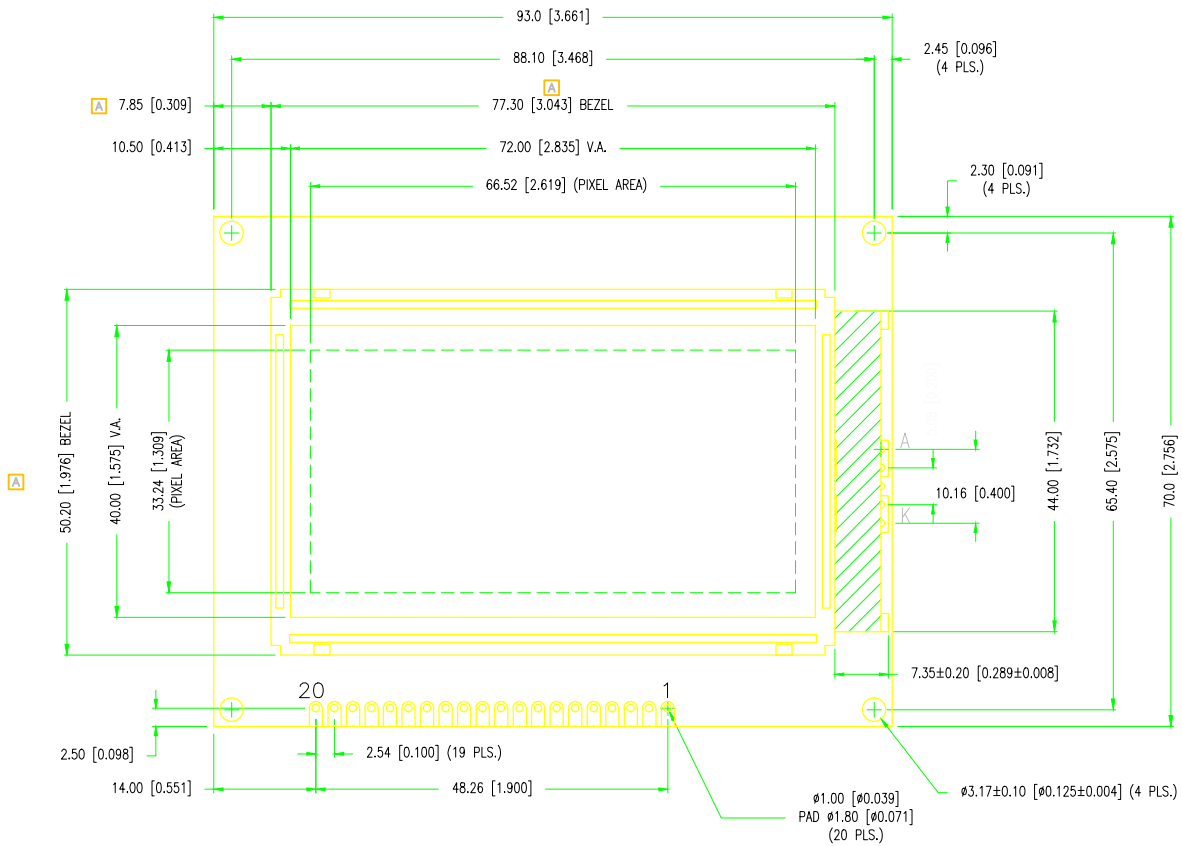


UNCONTROLLED DOCUMENT

PART NUMBER	LCM-S12864GWF44861	REV.	B
DATE	E.C.N. NUMBER AND REVISION COMMENTS		REV.
10.12.10	E.C.N. #11666.		A
10.22.10	E.C.N. #11671.		B



*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 MAX.=+0.00
-0.00 -DECIMAL PRECISION

P:\ARTWORK\Lumex logos\LUMEX-09.bmp

290 E. HELEN ROAD
PALATINE, IL 60067-6976
PHONE: +1.847.359.2790
FAX: +1.847.359.6538
WEB: WWW.LUMEX.COM

128 x 64 DOT MATRIX GRAPHICS MODULE, TRANSFLECTIVE, FSTN, WHITE LED BACKLIGHT, NEGATIVE CHARGE PUMP.

THE SPECIFICATIONS MAY CHANGE AT ANY TIME WITHOUT NOTICE DUE TO NEW MATERIALS OR PRODUCT IMPROVEMENT.

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.

DATE: 05.18.10	DRAWN BY: JH
----------------	--------------

PAGE: 1 OF 2	CHKD BY: KE
--------------	-------------

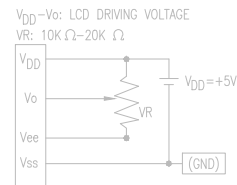
SCALE:	N/A	APPROVED BY:	ID:
--------	-----	--------------	-----

SCALE: N/A	APRVD BY: JD
UNIT: mm [INCH]	(Pb)

PART NUMBER	LCM-S12864GWF44861	REV.	A
DATE	E.C.N: NUMBER AND REVISION COMMENTS		REV.
10.12.10	E.C.N. #11666.		A
10.22.10	E.C.N. #11671.		B

PIN CONFIGURATION			
PIN NO.	SYMBOL	LEVEL	FUNCTION
1	V _{SS}	—	POWER SUPPLY
2	V _{DD}	—	
3	V _O	—	
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 (–15V)
19	A	—	ANODE
20	K	—	CATHODE

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 VOLTAGE FOR LCD	V _{DD} –V _O	—	12.5	13.5	15.5	V
SUPPLY CURRENT FOR LOGIC	I _{DD}	V _{DD} =5V	—	8.0	—	mA
INPUT VOLTAGE	HIGH LOW	V _{IH}	—	0.7*V _{DD}	—	V _{DD} V
		V _{IL}	—	0	—	0.3*V _{DD} V
*LED BACKLIGHT	VOLTAGE	V _F	I _F =60mA	—	3.5	3.6 V
	CURRENT	I _F	—	—	60	mA
	POWER CONSUMPTION	P _D	—	—	210	mW
	LUMINOUS	L	I _F =60mA	—	TBA	— 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	—	0	16	V
INPUT VOLTAGE	V _I	T _a =25°C	V _{SS}	V _{DD}	V
OPERATING TEMPERATURE	T _{opr}	LCM–S	0	50	°C
STORAGE TEMPERATURE	T _{stg}	LCM–S	–20	70	°C

*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 MAX= +0.00
–0.00 –DECIMAL PRECISION

P:\ARTWORK\Lumex logos\LUMEX-09.bmp	290 E. HELEN ROAD PALATINE, IL 60067–6976 PHONE: +1.847.359.2790 FAX: +1.847.359.6538 WEB: WWW.LUMEX.COM	28 x 64 DOT MATRIX GRAPHICS MODULE, TRANSFLECTIVE, FSTN, WHITE LED BACKLIGHT, NEGATIVE CHARGE PLUMP	DATE: 05.18.10	DRAWN BY: JH
	THE SPECIFICATIONS MAY CHANGE AT ANY TIME WITHOUT NOTICE DUE TO NEW MATERIALS OR PRODUCT IMPROVEMENT.		PAGE: 2 OF 2	CHKD BY: KF
	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.		SCALE: N/A	APRVD BY: JD
			UNIT: mm [INCH]	(b)