

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

PIN CONFIGURATION FFC CABLE

PIN NO.	SYMBOL	LEVEL	FUNCTION
1	FP	—	FRAME PULSE
2	LP	—	LATCH PULSE IN ONE LINE
3	SCP	—	SHIFT CLOCK PULSE FOR X-DRIVERS
4	$\overline{\text{DISP}}$	L	SEQUENCE SIGNAL OF POWER SUPPLY (L:OFF)
5	VDD	+5V	POWER SUPPLY FOR LOGIC (+5V)
6	VSS	—	GROUND
7	VEE	—	POWER SUPPLY FOR CONTRAST CONTROL
8~11	UDO~3	H/L	DATA INPUT FOR UPPER HALF OF THE SCREEN
12~15	LDO~3	H/L	DATA INPUT FOR LOWER HALF OF THE SCREEN

PIN CONFIGURATION
CCFL CONNECTOR MITSUMI

PIN NO.	SYMBOL	LEVEL	FUNCTION
1	VFL	—	POWER SUPPLY FOR CCFL (HOT)
2	NC	—	NO CONNECTION
3	NC	—	NO CONNECTION
4	VFLG	—	POWER SUPPLY FOR CCFL (GROUND)

ELECTRICAL CHARACTERISTICS

 $T_A = 25^\circ\text{C}$

ITEM		SYMBOL	CONDITION	STANDARD VALUE			UNIT
				MIN.	TYP.	MAX.	
SUPPLY VOLTAGE FOR LOGIC		V _{DD} -V _{SS}	—	2.7	4.5	5.5	V
POWER SUPPLY CURRENT (BACKLIGHT OFF)		I _{DD}	V _{DD} =4.5V V _{DD} -V _O =21.2V	—	3.0	10.0	mA
		I _{EE}	FLM=64Hz	—	6.0	20.0	mA
INPUT VOLTAGE	HIGH	V _{IH}	—	2.2	—	V _{DD}	V
	LOW	V _{IL}	—	0	—	0.6	V
RECOMMENDED MODULE DRIVING VOLTAGE		V _{EE} -V _{SS}	T _A =0°C	22.5	23.5	24.5	V
			T _A =25°C	21.0	22.0	23.0	V
			T _A =50°C	19.5	20.5	21.5	V
CCFL BACKLIGHT	STARTING VOLTAGE	V _{FLS}	—	—	750	—	V _{rms}
	DRIVING VOLTAGE	V _{FLD}	—	—	360	—	V _{rms}
	DRIVING FREQUENCY	f _{FL}	V _{FLD} =450V _{rms}	15	30	85	kHz
	DRIVING CURRENT	I _{FLD}	V _{FLD} =450V _{rms} f _{FL} =30kHz	—	5.0	—	mA
	SATURATION TIME	t _{SAT}	—	—	1	—	minute

*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.=+0.001 PRECISION MAX.=+0.00 PRECISION
-0.00 -0.00 PRECISION

REV.

PART NUMBER

LCM-S640480GWN-CT

1/2 VGA 640 x 480 GRAPHIC LCD MODULE, BLACK & WHITE,
FSTN, TRANSMISSIVE NEGATIVE IMAGE, 1/240 DUTY,
DUAL SCAN, CCFL BACKLIGHT, TOUCH PANEL.

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: 1.12.04

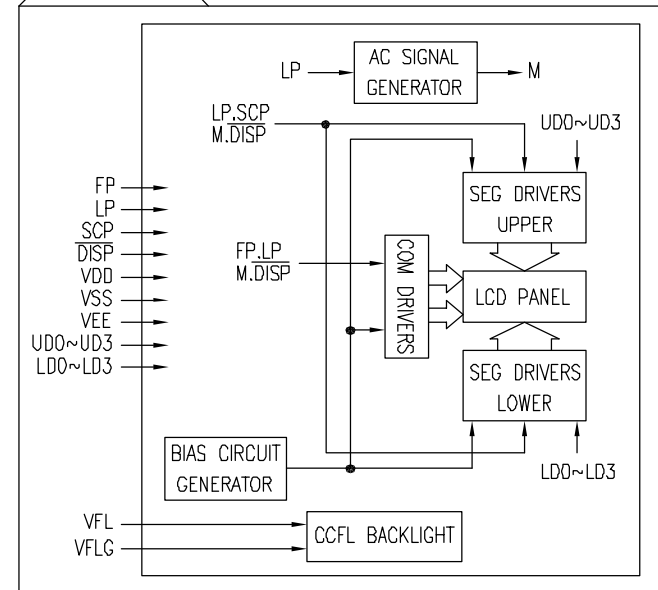
BC

PAGE: 2 OF 4

SCALE: N/A

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----

BLOCK DIAGRAM



NOTES:

1. BUILT IN M-CLOCK GENERATING CIRCUIT ON BOARD. USER DOES NOT HAVE TO SUPPLY M-CLOCK.

ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	TEST CONDITION	STANDARD VALUE		UNIT
			MIN	MAX	
SUPPLY VOLTAGE FOR LOGIC	V _{DD} -V _{SS}	T _a =25°C	-0.3	7.0	V
SUPPLY VOLTAGE FOR LCD DRIVE	V _{EE} -V _{SS}	—	0	30.0	V
INPUT VOLTAGE	V _{IN}	T _a =25°C	-0.3	V _{DD}	V
OPERATING TEMPERATURE	T _{opr}	—	0	50	°C
STORAGE TEMPERATURE	T _{stg}	—	-20	70	°C

UNCONTROLLED DOCUMENT

AC CHARACTERISTICS

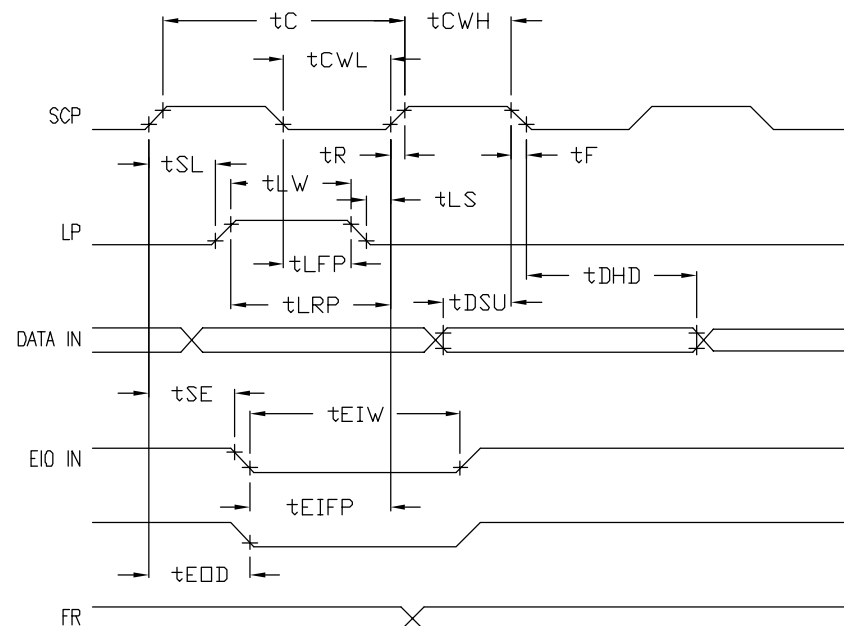
(VDD = 2.5~4.5V, VEE = +15.0~24.0V, T_a = 0°C~50°C)

ITEM	SYMBOL	CONDITION	STANDARD VALUE		UNIT
			MIN.	MAX.	
CLOCK CYCLE	t _c	—	125	—	ns
SCP PULSE WIDTH	t _{CWH} , t _{CWL}	—	50	—	ns
DATA SET-UP TIME	t _{DSU}	—	50	—	ns
DATA HOLD TIME	t _{DHD}	—	50	—	ns
SCP RISE/FALL TIME	t _R , t _F	—	—	(*)5	ns
LP RISE TIME	t _{LRP}	—	50	—	ns
LP FALL TIME	t _{LFP}	—	50	—	ns
LP PULSE WIDTH	t _{LW}	—	45	—	ns
SCP TO LP DELAY TIME	t _{SL}	—	40	—	ns
LP TO SCP DELAY TIME	t _{LS}	—	40	—	ns
EIO-IN FALL TIME	t _{EIPF}	—	40	—	ns
EIO-IN PULSE WIDTH	t _{EIW}	—	40	—	ns
SCP TO EIO DELAY TIME	t _{SE}	—	20	—	ns
EIO-OUT DELAY TIME	t _{EOD}	—	—	80	ns

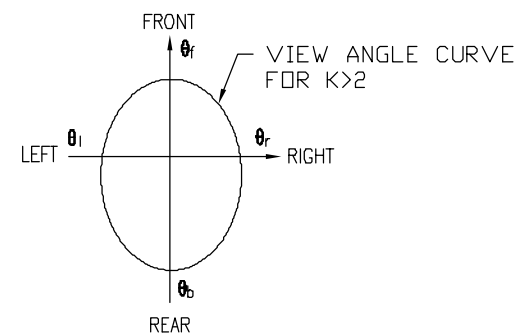
OPTICAL CHARACTERISTICS

T_A = 25°C

ITEM	SYMBOL	STANDARD VALUE			UNIT
		MIN.	TYP.	MAX.	
CONTRAST	K	12	16.5	—	—
RESPONSE TIME	t _R	—	150	—	ms
	t _F	—	220	—	
VIEWING ANGLE RANGE	θ _f	—	45	37	deg
	θ _b	—	45	22	
	θ _r	—	20	50	
	θ _l	—	33	50	
FRAME FREQUENCY	Fr	—	70	—	Hz
CHROMATICITY COORDINATES	x	—	0.31	—	—
	y	—	0.34	—	
LUMINANCE	L	100	120	—	cd/m ²



DEFINITION OF VIEWING DIRECTION



UNCONTROLLED DOCUMENT

*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 -DECIMAL PRECISION

REV.

PART NUMBER

LCM-S640480GWN-CT

1/2 VGA 640 x 480 GRAHPIE LCD MODULE, BLACK & WHITE,
FSTN, TRANSMISSIVE NEGATIVE IMAGE, 1/240 DUTY,
DUAL SCAN, CCFL BACKLIGHT, TOUCH PANEL.

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:

BC

CHECKED BY:

APPROVED BY:

DATE: 1.12.04

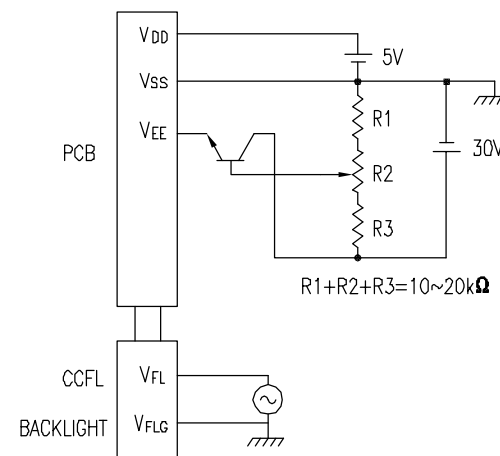
PAGE: 3 OF 4

SCALE: N/A

DISPLAY PATTERN

	SEG1	SEG2	SEG3	SEG4		SEG637	SEG638	639	640
COM1	UD3	UD2	UD1	UD0		UD3	UD2	UD1	UD0
COM2	UD3	UD2	UD1	UD0		UD3	UD2	UD1	UD0
COM239	UD3	UD2	UD1	UD0		UD3	UD2	UD1	UD0
COM240	UD3	UD2	UD1	UD0		UD3	UD2	UD1	UD0
COM1	LD3	LD2	LD1	LD0		LD3	LD2	LD1	LD0
COM2	LD3	LD2	LD1	LD0		LD3	LD2	LD1	LD0
COM239	LD3	LD2	LD1	LD0		LD3	LD2	LD1	LD0
COM240	LD3	LD2	LD1	LD0		LD3	LD2	LD1	LD0

POWER SUPPLY



*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 -DECIMAL PRECISION

REV.

PART NUMBER

LCM-S640480GWN-CT

1/2 VGA 640 x 480 GRAHPIC LCD MODULE, BLACK & WHITE,
FSTN, TRANSMISSIVE NEGATIVE IMAGE, 1/240 DUTY,
DUAL SCAN, CCFL BACKLIGHT, TOUCH PANEL.

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:

BC

CHECKED BY:

APPROVED BY:

DATE: 1.12.04

PAGE: 4 OF 4

SCALE: N/A