

Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from, Europe, America and south Asia, supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts, Customers Priority, Honest Operation, and Considerate Service", our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip, ALPS, ROHM, Xilinx, Pulse, ON, Everlight and Freescale. Main products comprise IC, Modules, Potentiometer, IC Socket, Relay, Connector. Our parts cover such applications as commercial, industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



# Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

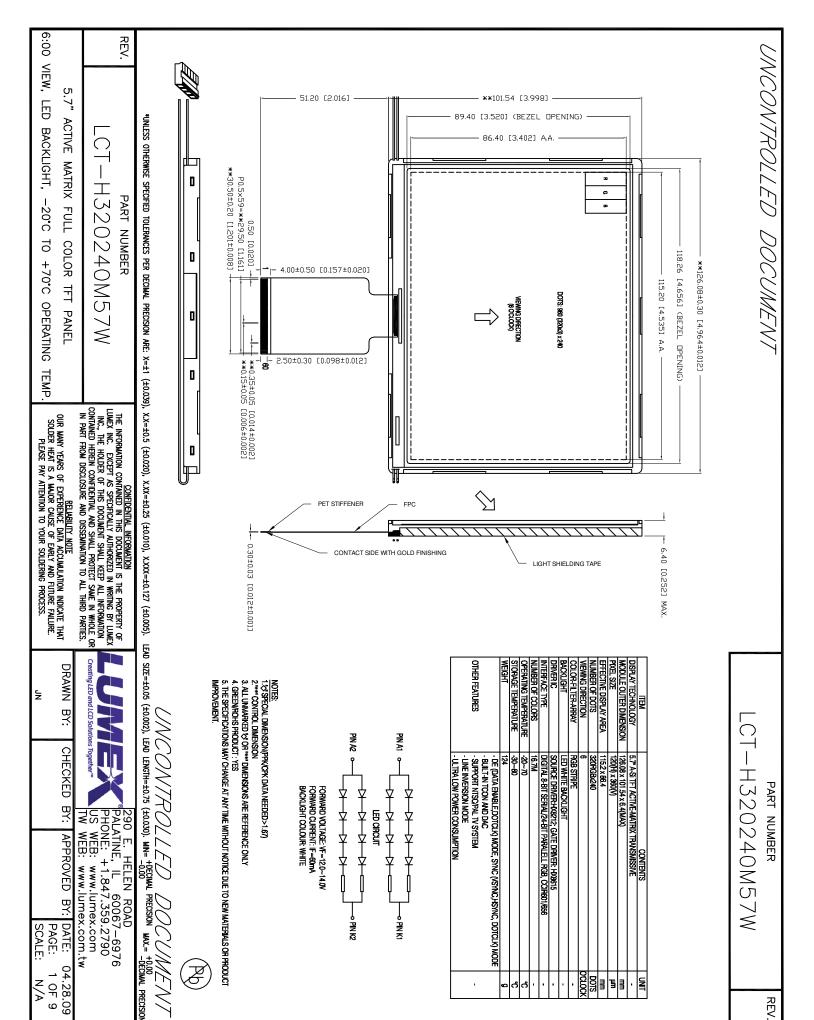
Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China









### PART NUMBER

### LCT-H320240M57W

INTER	RFACE PIN CO	DNNECTION \
PIN	SYMBOL	FUNCTION
1	VCOM	COMMON ELECTRODE DRIVING SIGNAL.
2	OSD_HS	OSD HSYNC OUTPUT.
3	OSD_VS	OSD VSYNC OUTPUT.
4	OSD_CLK	OSD CLOCK OUTPUT.
5	OSD-R	OSD RED DATA INPUT. NORMALLY PULL LOW.
6	OSD-G	OSD GREEN DATA INPUT. NORMALLY PULL LOW.
7	OSD_B	OSD BLUE DATA INPUT. NORMALLY PULL LOW.
8	OSD_EN	OSD ENABLE INPUT. NORMALLY PULL LOW.
9	DVCC	DIGITAL POWER FOR SOURCE DRIVER. 3V~3.6V.
10	ZX1	ZOOM IN/OUT MODE SETTING PIN.
11	ZX2	ZOOM IN/OUT MODE SETTING PIN.
12	ZX3	ZOOM IN/OUT MODE SETTING PIN.
13	DEN	INPUT DATA ENABLE CONTROL. NORMALLY PULL LOW.
14	IVS	VERTICAL SYNC INPUT IN DIGITAL RGB MODE
15	IHS	HORIZONTAL SYNC INPUT IN DIGITAL RGB MODE
16	CLK	CLOCK SIGNAL. LATCHING DATA AT THE RISING EDGE.
17~24	D00~D07	DIGITAL DATA INPUT.
25	AVSS	ANALOG GROUND.
26	AVDD	ANALOG POWER. 4.5V~5.5V.
27~34		DIGITAL DATA INPUT.
35~42	D20~D27	DIGITAL DATA INPUT.
43	QXH	REFERENCE SIGNAL FOR VIDEO DECODER TO ARRANGE DATA SEQUENCE.
44	NPC	NTSC OR PAL MODE AUTO DETECTION RESULT.
45	POL	POLARITY SELECT FOR THE LINE INVERSION CONTROL SIGNAL.
46	SPDA	SERIAL PORT DATA INPUT/OUTPUT.
47	SPCK	SERIAL PORT CLOCK. NORMALLY PULL HIGH.
48	SPENA	SERIAL PORT DATA ENABLE SIGNAL. NORMALLY PULL HIGH.
49	IF1	CONTROL THE INPUT DATA FORMAT.
50	IF2	CONTROL THE INPUT DATA FORMAT.
51	LRC	THE SHIFT DIRECTION OF DEVICE INTERNAL SHIFT REGISTER SETTING PIN.
52	UD	UP/DOWN SCAN SETTINGS.
53	RESETB	HARDWARE GLOBAL RESET. LOW ACTIVE. NORMALLY PULL HIGH.
54	DGND	DIGITAL GROUND FOR SOURCE DRIVER.
55	VGH	POWER SUPPLY FOR LCM GATE HIGH (+15V)
56	VEE	POWER SUPPLY FOR LCM GATE LOW (-7V)
57	DVDD	DIGITAL POWER SUPPLY FOR GATE DRIVER.
58	DVSS	DIGITAL GROUND FOR GATE DRIVER.
59	NC	NO CONNECTION.
60	NC	NO CONNECTION.

OF RED	COLO	R DATA INF	PUT	ASS	SIGNI	ΛEN <sup>-</sup>	r\														
BLACK   O   O   O   O   O   O   O   O   O								•		D.	ATA	SIGN	VAL								GRAY
BLACK	COLOR	DISPLAY			R	ED					GR	EEN					BLUE				SCALE
BASIC COLOR RED 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			R0	R1	R2	R3	R4	R5	G0	G1	G2	G3	G4	G5	B0	B1	B2	В3	B4	B5	LEVEL
BASIC   CYAN   O   O   O   O   O   O   O   O   O		BLACK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ı
BASIC COLOR  RED 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		BLUE	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	ı
COLOR   RED			0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	ı
MAGNETA			0		0	0	0	0	1		1	1	1	1	1	<u> </u>	1	1	1	1	-
YELLOW	COLOR		1	1	1	1	1	1		_	0	0	0	0	0	0	0	0	0	0	-
WHITE					1	1	1	1	_	_	0	0		0	_		'	1	<u> </u>	_	-
BLACK   O   O   O   O   O   O   O   O   O			_		1	1		1			<u> </u>				_	_	-	-			_
GRAY SCALE OF RED  GRAY SCALE OF RED  GRAY SCALE OF RED  DARK  O 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0					1	_	1	1			<u> </u>	1						1	<u> </u>	_	
GRAY SCALE OF RED    1			-		_	_						_	_		_	_	<u> </u>	-	-	-	
SCALE OF RED    1		DARK	_	_	-	_			_	_		_				_	<u> </u>	<u> </u>			
SCALE OF RED    1	GRAY	<b> </b>						_													R2
OF RED	SCALE				•																R3~R60
LIGHT					:	:												_		-	
RED 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0			_	_	1	1		1	-		_	_		,					_		
BLACK   O   O   O   O   O   O   O   O   O			-		1	1		'	-	-		-	-	-	-	-	_	-		-	
GRAY SCALE OF GREEN         0			<u> </u>		<u> </u>	_				_	_		_	_		_	<u> </u>	_	_	_	
GRAY SCALE OF GREEN  □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □			_		_	_	_	-				_	<u> </u>	_	_		_	_		_	
SCALE OF GREEN    1	CDAY	DARK •	_	-							1	_	<u> </u>	_	_		-	-	-		
GREEN		!		_	_	_	_			,					_	_	_	_	_		62
GREEN    JUGHT   0 0 0 0 0 0 0 0 1 0 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 661   LIGHT   0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 662   GREEN   0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 0 0 0 0													_						_		G3~G60
LIGHT				_	_				_		_		_				_	_	_		001
GREEN 0 0 0 0 0 0 1 1 1 1 1 1 0 0 0 0 0 0 0	ONLLIV	₩		_	_	_	_			_	<u> </u>				_	_	_	_	_	-	
BLACK 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			-	-	-	-	-	-			<u> </u>		<u> </u>		-	-	_	-	-	-	
GRAY SCALE OF BLUE  DARK 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			L.	L.	_ <u> </u>	_	-									L.	Ļ.	L.	L.	-	
GRAY SCALE OF BLUE	SCALE OF				-	_	_	-	_	_	-	_		_	_	_	_	-			
SCALE OF BLUE     SCALE OF BLUE					-	_	_	-	_	_	_	-	_	_		_	_	-			
OF BLUE		'			_	_	_	_	_	_	_	_	_	_	_		_	_	_		
BLUE				_	ŀ	_	_		_		_	_	_			_			_		B3~B60
LIGHT 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1 1 B62		l 1			-		0	_									1	<u> </u>	1	1	B61
2.511		LIĞHT				_				_		-					<u> </u>	<u> </u>	<u> </u>		
		BLUE	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	B63

NOTE: DEFINITION OF GRAY

RN: RED GRAY, GN: GREEN GRAY, BN: BLUE GRAY (N=GRAY LEVEL) INPUT SIGNAL: 0=LOW LEVEL VOLTAGE. 1=HIGH LEVEL VOLTAGE

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 ARE: X=±1 (±0.039), X.X=±0.5 (±0.020), X.XX=±0.127 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD SIZE=±0.05 (±0.0

REV.

### PART NUMBER LCT-H320240M57W

5.7" ACTIVE MATRIX FULL COLOR TFT PANEL

6:00 VIEW, LED BACKLIGHT, -20°C TO +70°C OPERATING TEMP.

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: 04.28.09

PAGE: 2 OF 9 SCALE: N/A

CHARASTERISTICS `

	\					
ITEM	SYMBOL	STA	NDARD V	ALUE	UNIT	REMARKS
IILM	SIMIDUL	MIN	TYP.	MAX	UNII	IVLIMAINNO
	DVDD	2.7	3.3	5.5	٧	
POWER VOLTAGE	AVDD	3.8	5	5.5	٧	
	DVCC	3	3.3	3.6	٧	
GATE ON VOLTAGE	VGH	7	15	VEE+40	٧	
GATE OFF VOLTAGE	VGL	-20	-10	-5	٧	
INPUT HIGH VOLTAGE	VIH	0.7*VDDIQ	-	VDD	٧	
INPUT LOW VOLTAGE	VIL	Vss	-	0.3xVDD	>	
OUTPUT HIGH VOLTAGE	VOH	VDD-0.3	-	$V_{DD}$	٧	IOH=200uA
OUTPUT LOW WOLTAGE	VOL	Vss	-	VSS+0.3	٧	IOL=200uA
OUTPUT VOLTAGE DEVIATION	VVD	_	±20	_	m۷	
DC OFFSET	Vos	_	_	±20	m۷	

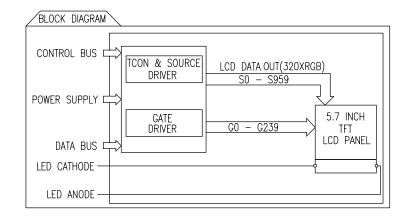
<b>ABSOLUTE</b>	MAYIMLIM	RATINGS
ABOULUIE	MAXIMUM	KAHINGS

ADSOLUTE MAXIMUM NATINGS \	\					
ITEM	SYMBOL	TEST	STA	ALUE	UNIT	
ITEM!	STWIDOL	CONDITION	MIN	TYP.	MAX	OINII
POWER VOLTAGE	DVDD	DVSS=0	-0.3	ı	7.0	٧
	AVDD	AVSS=0	-0.3	ı	7.0	٧
	DVCC	DGND=0	-0.3	_	7.0	٧
GATE ON VOLTAGE	VGH	GND=0	-0.3	-	32	٧
GATE OFF VOLTAGE	VGL	GIND-0	-22	-	0.3	٧
INPUT VOLTAGE	VIN	-	-0.3	-	DVCC+0.3	٧
LOGICAL OUTPUT VOLTAGE	VOUT	_	-0.3	_	7.0	٧

IT IS A NORMAL CHARACTERISTIC THAT THE LCD COLOR AND CONTRAST WILL CHANGE (SOME TIMES UNEVENNES CAN BE SEEN) UNDER LOW TEMPERATURE AND HIGH TEMPERATURE ENVIRONMENT. WHEN THE APPLICATION TEMPERATURE RETURNS BACK TO ROOM TEMPERATURE, LCD COLOR AND CONTRAST WILL REVERSE BACK TO ITS ORIGINAL COLOR AND CONTRAST WITHIN 24 HOURS AND ITS FUNCTIONALITY IS NOT AFFECTED.

### BACKLIGHT SPECIFICATIONS

	\						
ITEM	SYMBOL	STA	NDARD VA	ALUE	UNIT	REMARKS	
ITEM	STWIDUL	MIN	TYP.	MAX	UNII	KEWAKKS	
FORWARD VOLTAGE	Vf	12	13	14	٧	If=60mA	
ABSOLUTE MAX FORWARD CURRENT	lfm	-	60	-	mA		
REVERSE VOLTAGE	Vr	-	-	5	٧		
RESERVE CURRENT	lr	-	-	15	Α	Vr=3.0V	
CHROMACITY COORDINATES	Χ	0.287	-	0.320	-		
CHROMACITI COORDINATES	Υ	0.276	-	0.328	_		
LUMINANCE (BLU ONLY)	Lv	2800	3400	4000	cd/m²	If=60mA	
UNIFORMITY	Δ	70	75	85	%	MIN/MAX*100%	
REMARK	LED PATENTED						
HALF-BRIGHTNESS LIFE TIME		50	000 HOU	RS			
· · · · · · · · · · · · · · · · · · ·							



## 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 PRECI

REV.

### PART NUMBER LCT-H320240M57W

5.7" ACTIVE MATRIX FULL COLOR TFT PANEL

6:00 VIEW, LED BACKLIGHT, -20°C TO +70°C OPERATING TEMP.

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: 04.28.09 PAGE: 3 OF 9

### UNCONTROLLED DOCUMENT

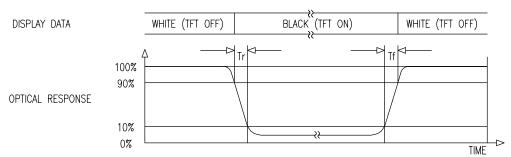
### PART NUMBER

### LCT-H320240M57W

ODTICAL CHARASTERISTICS

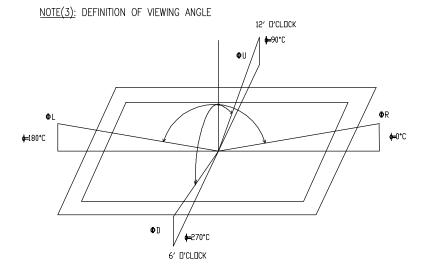
OPTICAL CHARASTERI	21102 /	\						
ITEM		SYMBOL	CONDITION	STA	NDARD V	ALUE	UNIT	NOTE
IIEM		3 I MIDUL	CONDITION	MIN	TYP.	MAX	OINII	NOTE
DECDONCE TIME	_	Tr	<b>0=0</b> °C	_	15	30	٧	1
RESPONSE TIME	_	Tf	<b>0-4</b> -0 €	-	35	50	\ \	
CONTRAST RATIO	)	CR	<b>0=φ=</b> 0°C	150	250	-	٧	2
		RIGHT	<b>φ=</b> 0°C	_	45	-	DEG	3
VIEWING ANGLE		LEFT	<b>¢=</b> 180°C	-	45	-	DEG	
(CR≱10)		UPPER	<b>¢=</b> 90°C	_	15	-	DEG	
		LOWER	<b>¢=</b> 270°C	_	35	-	DEG	
LUMINANCE OF WHI (CENTER POINT OF		L	_	200	250	-	Cd/m²	5
COLOR CROMACITY	LCM)	Rx		0.610	0.640	0.670	_	
(CIE1931)		Ry		0.314	0.040	0.070		4
(0121931)		Gx		0.268	0.298	0.374	_	
							_	"SIMULATION
"CIMILITATION DATA		Gy	<b>0=0</b> °C	0.553	0.583	0.613	_	REFERENCE
"SIMULATION DATA REFERENCE ONLY"		Bx		0.107	0.137	0.167	_	ONLY"
INCITCINCE ONLY		Ву		0.083	0.103	0.123	_	
		Wx		0.282	0.312	0.342	_	
		Wy		0.299	0.329	0.359	_	
OPTIMUM VIEWING DI	RECTION			6 0'CL00	CK			_

NOTE(1): DEFINITION OF RESPONSE TIME



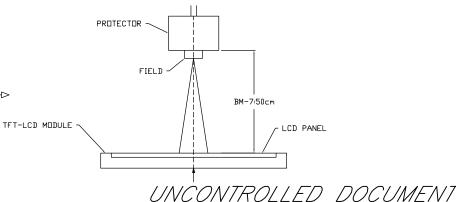
NOTE(2): DEFINITION OF CONTRAST RATIO CR=BRIGHTNESS AT ALL PIXELS "WHITE" / BRIGHTNESS AT ALL PIXELS "BLACK"

NOTE(5): MEASURED AT CENTER POINT VERTICALLY WITH BACKLIGHT ON."



NOTE(4): AFTER STABILIZING AND LEAVING THE PANEL ALONE AT GIVEN TEMPERATURE FOR 30MIN, THE MEASUREMENT SHOULD BE EXECUTED. MEASURMENT SHOULD BE EXECUTED IN STABLE, WINDLESS, AND DARK ROOM 30 MINS AFTER LIGHTING THE BACK-LIGHT. THIS SHOULD BE MEASURED IN THE CENTER OF SCREEN.

ENVIRONMENT CONDITION: Ta=25±2°C BACK-LIGHT ON CONDITION



\*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 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD SIZE=±0.05 (±0.002), LEAD SIZE=±0.05 (±0.003). MIN= +DECIMAL PRECISION MAX.= +0.00 (±0.003). MIN= +DECIMAL PRECISIO

REV.

### PART NUMBER LCT-H320240M57W

5.7" ACTIVE MATRIX FULL COLOR TFT PANEL 6:00 VIEW, LED BACKLIGHT, -20°C TO +70°C OPERATING TEMP. 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: 04.28.09 PAGE: 4 OF 9 SCALE: N/A

REV.

#### STANDARD SPECIFICATION FOR REABILITY

#### STANDARD SPECIFICATION OF REABILITY TEST

NO	TEST ITEM	CONTENT OF TEST	TEST CONDITION	APPLICABLE STANDARD
1	HIGH TEMPERATURE STORAGE	ENDURANCE TEST APPLYING THE HIGH STORAGE TEMPERATURE FOR A LONG TIME.	80+/-3°C 240HRS	
2	LOW TEMPERATURE STORAGE	ENDURANCE TEST APPLYING THE HIGH STORAGE TEMPERATURE FOR A LONG TIME.	-30+/-3°C 240HRS	
3	HIGH TEMPERATURE OPERATION	ENDURANCE TEST APPLYING THE ELECTRIC STRESS (VOLTAGE & CURRENT) AND THE THERMAL STRESS TO THE ELEMENT FOR A LONG TIME.	70+/-3°C 240HRS	
4	LOW TEMPERATURE OPERATION	ENDURANCE TEST APPLYING THE ELECTRIC STRESS UNDER LOW TEMPERATURE FOR A LONG TIME.	-20+/-3°C 240HRS	
5	HIGH TEMPERATURE/ HUMIDITY OPERATION	ENDURANCE TEST APPLYING THE ELECTRIC STRESS (VOLTAGE & CURRENT) AND TEMPERATURE / HUMIDITY STRESS TO THE ELEMENT FOR A LONG TIME.	40°C, 90%RH 120HRS	MIL-202E-103B JIS-C5023
O	TEMPERATURE CYCLE	ENDURANCE TEST APPLYING THE LOW AND HIGH TEMPERATURE CYCLE.  -20°C \( \sum \) 25°C \( \sum \) 70°C \( \sum \) 30 MIN \( \sum \) 30 MIN  1 CYCLE	-20°C/ 70°C 10 CYCLES	
		MECHANICAL TEST		
7	DROP TEST		PACKED,100cm FREE FALL(6 SLIDES, 1 CORNER, 3 EDGES)	

#### REMARKS:

- 1. FOR OPERATION TEST, ABOVE SPECIFICATION IS APPLICABLE WHEN TEST PATTERN IS CHANGING DURING ENTIRE OPERATION TEST.
- 2. INSPECTIONS AFTER RELIABILITY TESTS ARE PERFORMED WHEN THE DISPLAY TEMPERATURE RESUMES BACK TO ROOM TEMPERATURE.
- 3. IT IS A NORMAL CHARACTERISTIC THAT SOME DISPLAY ABNORMALITY CAN BE SEEN DURING REABILITY TEST. IF THE DISPLAY ABNORMALITY CAN RESUME BACK TO NORMAL CONDITION AT ROOM TEMPERATURE WITHIN 24 HOURS, THERE IS NO PERMANENT DESTRUCTION OVER THE DISPLAY. THE DISPLAY STILL POSSESSES ITS FUNCTIONALITY AFTER REABILITY TESTS.

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 (±0.000), XXXX=±0.127 (±0.000).

REV.

PART NUMBER LCT-H320240M57W

5.7" ACTIVE MATRIX FULL COLOR TFT PANEL

6:00 VIEW, LED BACKLIGHT, -20°C TO +70°C OPERATING TEMP.

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: 04.28.09 PAGE: 5 OF 9

#### QUALITY ASSURANCE

#### ACCEPTABLE QUALITY LEVEL (AQL)

EACH LOT SHOULD SATISFY THE QUALITY LEVEL DEFINED AS FOLLOWS:

A. INSPECTION METHOD: MIL-SDT-105E LEVEL II NORMAL ONE TIME SAMPLING. B. AOL LEVEL.

CATEGORY	AQL	DEFINITION
MAJOR	0.25%	FUNCTIONAL DEFECTIVE AS PRODUCT.
MINOR	1.00%	SATIFY ALL FUNCTIONS AS PRODUCT BUT NOT SATISFY COSMETIC STANDARD.

#### COSMETIC SCREENING CRITERIA

NO	DEFECT	JUDGMENT CRITERIA	CATEGORY
1	SPOTS/DUST /BUBBLE (ROUND TYPE)	SIZE, D(mm) ACCEPTABLE QUANTITY IN ACTIVE AREA D≤0.15 DISREGARD 0.15<0≤0.20 3 D>0.20 0	MINOR
2		ACCEPTABLE QUANTITY WIDTH, W(mm) LENGTH, L(mm) IN ACTIVE AREA W≤0.02 DISREGARD DISREGARD W≤0.03 L ≤ 1.0 DISREGARD W≤0.05 L ≤ 2.0 3 W>0.05 DISREGARD 0	MINOR
3	ALLOWABLE DENSITY	ABOVE DEFECTS SHOULD BE SEPARATED MORE THAN 5mm EACH OTHER.	MINOR
4	RAINBOW	OBVIOUS UNVEN COLOR (RAINBOW) SHALL NOT BE NOTICEABLE.	MINOR
5	DISPLAY CONDITION	DIM DISPLAY ON THE PATTERNS, EXTRA PATTERN AND SHORT CIRCUIT ARE NOT ACCEPTABLE.	MAJOR
6	NO DISPLAY OR MISSING DISPLAY	THE PATTERNS OF DISPLAY SHALL LIGHT UP AS REQUIRED. NO DISPLAY OR MISSING DISPLAY ARE NOT ACCEPTABLE.	MAJOR

NOTE: D= (LONG LENGTH + SORTH LENGTH)/2

#### FAILURE JUDGMENT CRITERIA

AFTER REABILITY TEST ABOVE, TEST SAMPLE SHALL BE LET RUN TO ROOM TEMPERATURE AND HUMIDITY AT LEAST 4 HOURS BEFORE FINAL TESTS ARE CARRIED OUT.

CRITERION ITEM	FAILURE JUDGMENT CRITERIA
ELECTRICAL CHARACTERISTIC	ELECTRICAL SHORT AND OPEN.
MECHANICAL CHARACTERISTIC	OUT OF MECHANICAL SPECIFICATION.
OPTICAL CHARACTERISTIC	OUT OF APPERANCE STANDARD.

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 PRECI

REV.

PART NUMBER
LCT-H320240M57W

5.7" ACTIVE MATRIX FULL COLOR TFT PANEL

6:00 VIEW, LED BACKLIGHT, -20°C TO +70°C OPERATING TEMP

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.

<u>RELIABILITY NOTE</u>

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

US WEB: www.lumex.com
TW WEB: www.lumex.com.tw
DRAWN BY: CHECKED BY: APPROVED BY: DATE: 0

CHECKED BY: APPROVED BY: DATE: 04.28.09
PAGE: 6 OF 9
SCALE: N/A

#### PRECAUTIONS FOR USING LCD MODULE

#### HANDLING PRECAUTIONS

- 1, THE DISPLAY PANEL IS MADE OF GLASS AND POLARIZER. DO NOT SUBJECT IT TO MECHANICAL SHOCK BY 1, OBSERVE THE FOLLOWING WHEN SOLDERING LEAD WIRE, CONNECTOR CABLE AND ETC. TO THE LCD DROPPING OR IMPACT WHICH MAY CAUSE CHIPPING ESPECIALLY ON THE EDGES.
- 2. DO NOT TOUCH, PUSH OR RUB THE EXPOSED POLARIZERS WITH ANYTHING HARDER THAN AN HB PENCIL SOLDERING IRON TEMPERATURE: 300~350°C. LEAD (GLASS.TWEEZERS, ETC.). THE POLARIZER COVERING THE DISPLAY SURFACE OF THE LCD MODULE IS SOFT AND EASILY SCRATCHED. HANDLE THIS POLARIZER CAERFULLY.
- A SOFT DRY CLOTH. IF IT IS HEAVILY CONTAMINATED, MOISTEN CLOTH WITH ISOPROPYL ALCOHOL OR ETHYL IT IS RECOMMENDED THAT CUSTOMER TO STUDY AND FINE TUNING THEIR SOLDERING PROCESS PARAMETERS ALCOHOL. AVOID USING SOLVENTS LIKE ACETONE (KETENE), WATER, TOLUENE, ETHANOL TO CLEAN THE POLARIZER SURFACE.
- 4. PLEASE KEEP THE TEMPERATURE WITHIN SPECIFIED RANGE FOR USE AND STORAGE. POLARIZATION DEGRADATION, BUBBLE GENERATION OR POLARIZER PEEL-OFF MAY OCCUR WITH HIGH TEMPERATURE AND
- 5. DO NOT APPLY EXCESSIVE FORCE TO THE DISPLAY SURFACE OR THE ADJOINING AREAS SINCE THIS MAY CAUSE THE COLOR TONE TO VARY.
- 6. INSTALL THE LCD MODULE BY USING THE MOUNTING HOLES. WHEN MOUNTING THE LCD MODULE MAKE SURE IT IS FREE OF TWISTING, WARPING AND DISTORTION.
- 7. EXERCISE CARE TO MINIMIZE CORROSION OF THE ELECTRODE. CORROSION OF THE ELECTRODES IS ACCELERATED BY WATER DROPLETS, MOISTURE CONDENSATION OR A CURRENT FLOW IN A HIGH-HUMIDITY ENVIRONMENT.
- 8. NC TERMINAL SHOULD BE OPEN. DO NOT CONNECT ANYTHING.
- 9. IF THE LOGIC CIRCUIT POWER IS OFF, DO NOT APPLY THE INPUT SIGNALS.
- 10. AVOID CONTACTING OIL AND FATS.
- 11. CONDENSATION ON THE SURFACE AND CONTACT WITH TERMINALS DUE TO COLD WILL DAMAGE, STAIN OR HOWEVER, IT WILL RETURN TO NORMAL IF IT IS TURNED OFF AND THEN BACK ON. DIRTY THE POLARIZERS. AFTER PRODUCTS ARE TESTED AT LOW TEMPERATURE THEY MUST BE WARMED UP IN 5. WHEN TURNING THE POWER ON, INPUT FACH SIGNAL AFTER THE POSITIVE/NEGATIVE VOLTAGE BECOMES A CONTAINER BEFORE COMING IN CONTACT WITH ROOM TEMPERATURE AIR.
- 12. WIPE OFF SALIVA OR WATER DROPS IMMIDEATLY, CONTACT WITH WATER OVER A LONG PERIOD OF TIME MAY CAUSE DEFORMATION OR COLOR FADING.

#### ELECTRO-STATIC DISCHARGE CONTROL

- 1, SINCE THIS MODULE USES A CMOS LSI, THE SAME CAERFUL ATTENTION SHOULD BE PAID TO ELECTROSTATIC DISCHARGE AS FOR AN ORDINARY CMOS IC.
- 2. BE SURE TO GROUND THE BODY WHEN HANDLING THE LCD MODULES. TOOLS REQUIRED FOR ASSEMBLING, SUCH AS SOLDERING IRONS, MUST BE PROPERLY GROUNDED.
- 3. TO REDUCE THE AMOUNT OF STATIC ELECTRICITY GENERATED, DO NOT CONDUCT ASSEMBLING AND OTHER WORK UNDER DRY CONDITIONS. TO REDUCE THE GENERATION OF STATIC ELECTRICITY, BE CARFUL THAT THE AIR IN THE WORK IS NOT TOO DRIED. A RELATIVE HUMIDITY OF 50%-60% IS RECOMMENDED.
- 4. THE LCD MODULE IS COATED WITH A FILM TO PROTECT THE DISPLAY SURFACE, EXERCISE CARE WHEN PEELING OFF THIS PROTECTIVE FILM SINCE STATIC ELECTRICITY MAY BE GENERATED.
- 5. WHEN SOLDERING THE TERMINAL OF LCM. MAKE CERTAIN THE AC POWER SOURCE FOR THE SOLDERING IRON DOES NOT LEAK.

#### PRECAUTION OF SOLDERING TO THE LCM

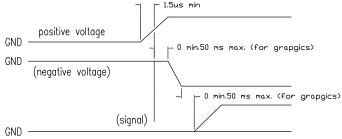
- MODULE.
- SOLDERING TIME: ≤3 SEC.
- SOLDER: EUTECTIC SOLDER.

3. IF THE DISPLAY SURFACE BECOMES CONTAMINATED, BREATHE ON THE SURFACE AND GENTLY WIPE IT WITH ABOVE IS A RECOMMENDED APPROACH. DUE TO DIFFERENT SOLDER COMPOSITION AND PROCESSING METHOD, ACCORDINGLY.

> 2. IF SOLDERING FLUX IS USED, BE SURE TO REMOVE ANY REMANING FLUX AFTER FINISHING TO SOLDERING OPERATION. (THIS DOSE NOT APPLY IN THE CASE OF A NON-HALOGEN TYPE OF FLUX.) IT IS RECOMMENDED THAT YOU PROTECT THE LCD SURFACE WITH A COVER DURING SOLDERING TO PREVENT ANY DAMAGE DUE TO FLUX SPATTERS.

#### PRECAUTION FOR OPERATION

- 1. VIEWING ANGLE VARIES WITH THE CHANGE OF LIQUID CRYSTAL DRIVING VOLTAGE (Vo). ADJUST Vo TO SHOW THE BEST CONTRAST.
- 2. DRIVING THE LCD IN THE VOLTAGE ABOVE THE LIMIT SHORTERNS ITS LIFETIME.
- 3. RESPONSE TIME IS GREATLY DELAYED AT TEMPERATURE BELOW THE OPERATING TEMPERATURE RANGE. HOWEVER, IT WILL RECOVER WHEN IT RETURNS TO THE SPECIFIED TEMPERATURE RANGE.
- 4. IF THE DISPLAY AREA IS PUSHED HARD DURING OPERATION, THE DISPLAY WILL BECOME ABNORMAL.
- STABLE (BELOW FIGURE IS A GENERAL ILLUSRATION WHERE TYPICAL VALUE DEPENDS ON INDIVIDUAL PRODUCT DESIGN).





\*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 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN=+DECIMAL PRECISION MAX.= +0.00 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN=+DECIMAL PRECISION MAX.= +0.00 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.005). MIN=+DECIMAL PRECISION MAX.= +0.00 (±0.005). LEAD SIZE=±0.05 (±0.005). LEAD SIZE=±0.05 (±0.005). MIN=+DECIMAL PRECISION MAX.= +0.00 (±0.005). LEAD SIZE=±0.05 (±0.005). LEAD SIZE=±0.05 (±0.005). MIN=+DECIMAL PRECISION MAX.= +0.00 (±0.005). MIN=+D

REV.

### PART NUMBER

### LCT-H320240M57W

5.7" ACTIVE MATRIX FULL COLOR TFT PANEL

6:00 VIEW, LED BACKLIGHT, -20°C TO +70°C OPERATING TEMP.

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: 04.28.09 PAGE: 7 OF 9

#### RoHS COMPLIANT PRODUCT

1. CADMIUM AND CADMIUM COMPOUNDS	LESS THAN 100PPM
2. HEXAVALENT CHROMIUM COMPOUNDS	LESS THAN 1000PPM
3. LEAD AND LEAD COMPOUNDS	LESS THAN 1000PPM
4. MERCURY AND MERCURY COPMPOUNDS	LESS THAN 1000PPM
5. POLYBROMINATED BIPHENYLS (PBBs)	LESS THAN 1000PPM
6. POLYBROMINATED DIPHENYL ETHERS (PBDEs)	LESS THAN 1000PPM

#### PACKAGING STANDARD

PRODUCT NO.	LCT-H320240M57W	RELEASE DATE	04/APR. 2007
PRODUCT NAME.	TFT MODULE	PREPARE BY:	
SUPPLIER	JETUP ELECTRONIC (SHENZHEN) CO LTD	RECYCLE	NO
QUANTITY/ EACH BOX	168 PCS.	BOX MATERIAL	PAPER CARTON
OUTER CARTON BOX SIZE	465mm x 405mm x 305mm	BOX TYPE	NEW
QUANTITY/ INER BOX QUANTITY/ OUTER BOX	12 X 7 X 2 = 168 PCS.	WEIGHT	8.6 KG

THERE ARE 12 PCS LCD PER EACH ANTI-STATIC PLASTIC PLATE. THERE ARE 7 LAYER PLASTIC PLATES PER EACH INNER CARTON BOX. THERE ARE 2 INNER CARTON BOX PER EACH OUTER CARTON BOX.

#### STORAGE

- 1. WHEN STORING LCDS AS SPARES FOR SOME YEARS, THE FOLLOWING PRECAUCTIONS ARE NECESSARY.
- 2. STORE THEM IN A SEALED POLYETHYLENE BAG. IF PROPERLY SEALED, THERE IS NO NEED FOR DESICCANT.
- 3. STORE THEM IN A DARK PLACE. DO NOT EXPOSE TO SUNLIGHT OR FLUORESCENT LIGHT, KEEP THE TEMPERATURE BETWEEN 0°C AND 35°C.
- 4. ENVIRONMENTAL CONDITIONS:
- 5. DO NOT LEAVE THEM FOR MORE THAN 168HRS. AT 60°C.
- 6. SHOULD NOT BE LEFT FOR MORE THAN 48HRS. AT -20°C.

#### SAFETY

- 1. ITS RECOMMENDED TO CRUSH DAMAGED OR UNNECESSARY LCD INTO PIECES AND WASH THEM OFF WITH SOLVENTS SUCH AS ACETONE AND ETHANOL. WHICH SHOULD LATER BE BURNED.
- 2. IF ANY LIQUID LEAKS OUT OF DAMAGED GLASS CELL AND COMES IN CONTACT WITH THE HANDS, WASH OFF THOROUGHLY WITH SOAP AND WATER.

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 (±0.000), XXXX=±0.127 (±0.000).

REV. PART NUMBER LCT-H320240M57W

5.7" ACTIVE MATRIX FULL COLOR TFT PANEL 6:00 VIEW, LED BACKLIGHT, -20°C TO +70°C OPERATING TEMP.

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.

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:

CHECKED BY: APPROVED BY: DATE: 04.28.09

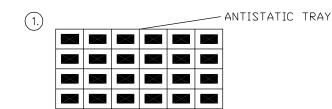
PAGE: 8 OF 9 SCALE: N/A

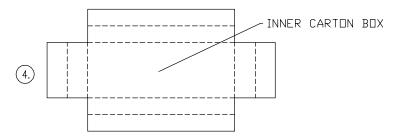
### UNCONTROLLED DOCUMENT

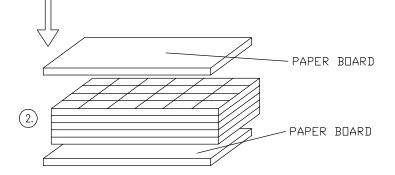
PART NUMBER

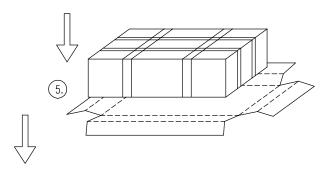
REV.

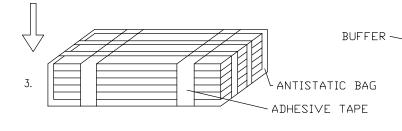
LCT-H320240M57W

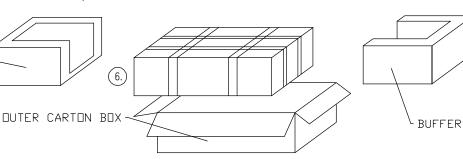












UNCONTROLLED DOCUMENT

\*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 PRECI

REV.

PART NUMBER LCT-H320240M57W

5.7" ACTIVE MATRIX FULL COLOR TFT PANEL

6:00 VIEW, LED BACKLIGHT, -20°C TO +70°C OPERATING TEMP.

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: 04.28.09 PAGE: 9 OF 9