

CLOVER DISPLAY LIMITED

LCD Specification S5977D	Page: 1 of 5
	Date: 5 MAR, 2009

CUSTOMER NAME : STANDARD

CUSTOMER MODEL NO. : ----

CLOVER MODEL NO. : S5977D

PRODUCT DETAILED : SAMPLE NO.--




APPLICABLE DOCUMENT

COUNTER DRAWING (C/D) : REV. 00

LCD GENERAL SPECIFICATION : REV. D

* CUSTOMER APPROVAL *

PLEASE KINDLY FIND & APPROVE THE SAMPLES & SPECIFICATION AND RETURN ONE COPY OF THIS PAGE WITH AUTHORIZED SIGNATURE AND COMPANY STAMP.

SAMPLE NO .	DESCRIPTION OF CHANGE	C / D DATE
--	CHANGE POLARIZER	03 MAR, 09
<p>Q.A. APPROVAL</p> <div style="text-align: center;">  </div>		<p>PREPARED BY :</p> <div style="text-align: center;">  </div> <hr/> <p>APPROVED BY :</p> <div style="text-align: center;">  </div>

CLOVER DISPLAY LIMITED

LCD Specification S5977D	Page: 2 of 5
Date: 5 MAR, 2009	

1.0 QUALITY STANDARD

DEFECT	CRITERIA	TYPE	FIGURE
SHORT CIRCUIT	-	MAJOR	-
MISSING SEGMENT	-	MAJOR	-
UNEVEN / POOR CONTRAST	-	MAJOR	-
CROSS TALK	-	MAJOR	-
PIN HOLE	$\text{MAX}(a,b) \leq 1/4 W$	MINOR	1
EXCESS SEGMENT	$\text{MAX}(c,d) \leq 1/4 T$	MINOR	1
BUBBLES	$d^* \geq 0.2$ QTY=0	MINOR	2
BLACKS SPOTS	$d \leq 0.3$ N.A.** $0.3 < d \leq 0.4$ QTY \leq 1 $0.4 < d$ QTY=0	MINOR	2
LINE SCRATCHES	$x \geq 0.7$ $y \geq 0.05$ QTY=0	MINOR	3
BLACK LINE	$x \geq 0.7$ $y \geq 0.05$ QTY=0	MINOR	3

*d = MAX (d₁,d₂)

** N. A. = NOT APPLICABLE

DEFECT TABLE : B

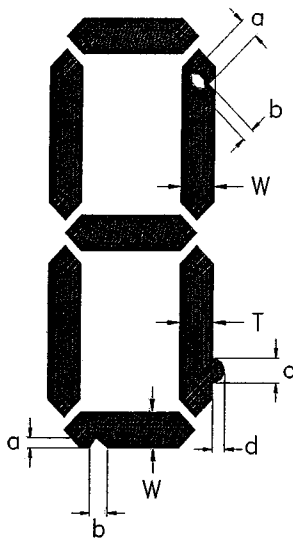
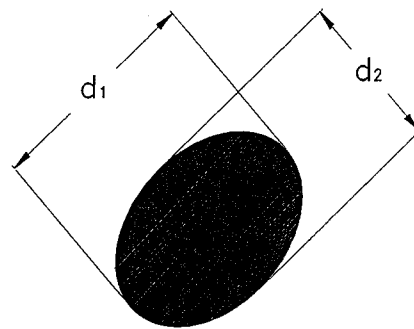
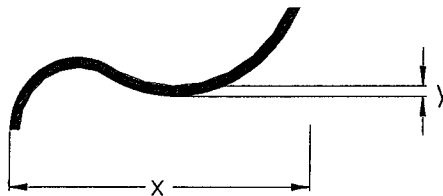


fig . 1



POLARIZER BUBBLES / SPOTS

fig . 2



LINE SCRATCHES / BLACK LINE

fig . 3

CLOVER DISPLAY LIMITED

LCD Specification S5977D

Page: 3 of 5

Date: 5 MAR, 2009

1.1 QUALITY STANDARD (CONT.)

DEFECT		CRITERIA	TYPE	FIGURE
CHIPS	CONTACT EDGE	$e \leq 1/2T$ $f \leq 1/3W$ $g \leq 3.5$	MINOR	4
	BOTTOM GLASS	$p \leq 1.0$ $q \leq 3.5$ $r \leq 1/2T$		4
	CORNER	$a \leq 1.5$ $b \leq W$		4
	TOP GLASS	$a \leq 3.0$ $b \leq 1/3T$ $c \leq 1/2W$		5
GLASS PROTRUSION		$a \leq 1/4 W$	MINOR	6
RAINBOW		-	MINOR	-

UNLESS STATE OTHERWISE, ALL UNIT ARE IN MILLIMETER.

DEFECT TABLE : B

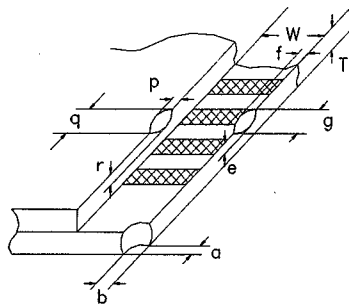


fig . 4

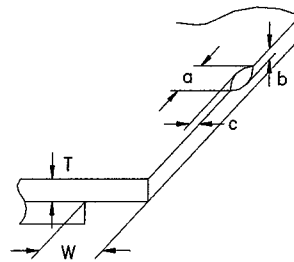


fig . 5

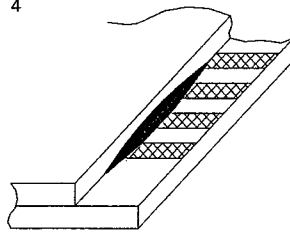


fig . 6

CLOVER DISPLAY LIMITED

LCD Specification S5977D

Page: 4 of 5

Date: 5 MAR, 2009

2. SAMPLING METHOD

SAMPLING PLAN : MIL - STD 105E

CLASS OF AQL : LEVEL II / SINGLE SAMPLING

MAJOR - 0.65% MINOR - 1.5%

3. MAXIMUM RATING

ITEM	UNIT	RATING	CONDITION
APPLIED VOLTAGE	V	10	<1 HOURS
ALLOWABLE D.C. VOLTAGE	mV	50	-

4. DRIVING METHOD

ITEM	SYMBOL	UNIT	MIN	TYP	MAX
DRIVING VOLTAGE	V_{op}	V	4.8	5.0	5.2
FRAME FREQUENCY	f_F	Hz	32	-	128
DUTY	-	-	-	STATIC	-
BIAS	-	-	-	STATIC	-

5. RELIABILITY

ITEM	TEST CONDITION	TIME (TYP)
HIGH TEMPERATURE OPERATING	70°C	240 HOURS
LOW TEMPERATURE OPERATING	-20°C	240 HOURS
HIGH TEMPERATURE STORAGE	80°C	240 HOURS
LOW TEMPERATURE STORAGE	-30°C	240 HOURS
TEMPERATURE-HUMIDITY STORAGE	60°C 90% R.H.	96 HOURS
TEMPERATURE CYCLING	-30°C ↔ 80°C 30 MIN DWELL	5 CYCLES

CLOVER DISPLAY LIMITED

LCD Specification S5977D

Page: 5 of 5

Date: 5 MAR, 2009

6. *ELECTRO – OPTICAL CHARACTERISICS*

MEASURING CONDITION :

POWER SUPPLY = V_{op} / 64 Hz

TEMPERATURE = $23 \pm 5^\circ\text{C}$

RELATIVE HUMIDITY = $60 \pm 20\%$

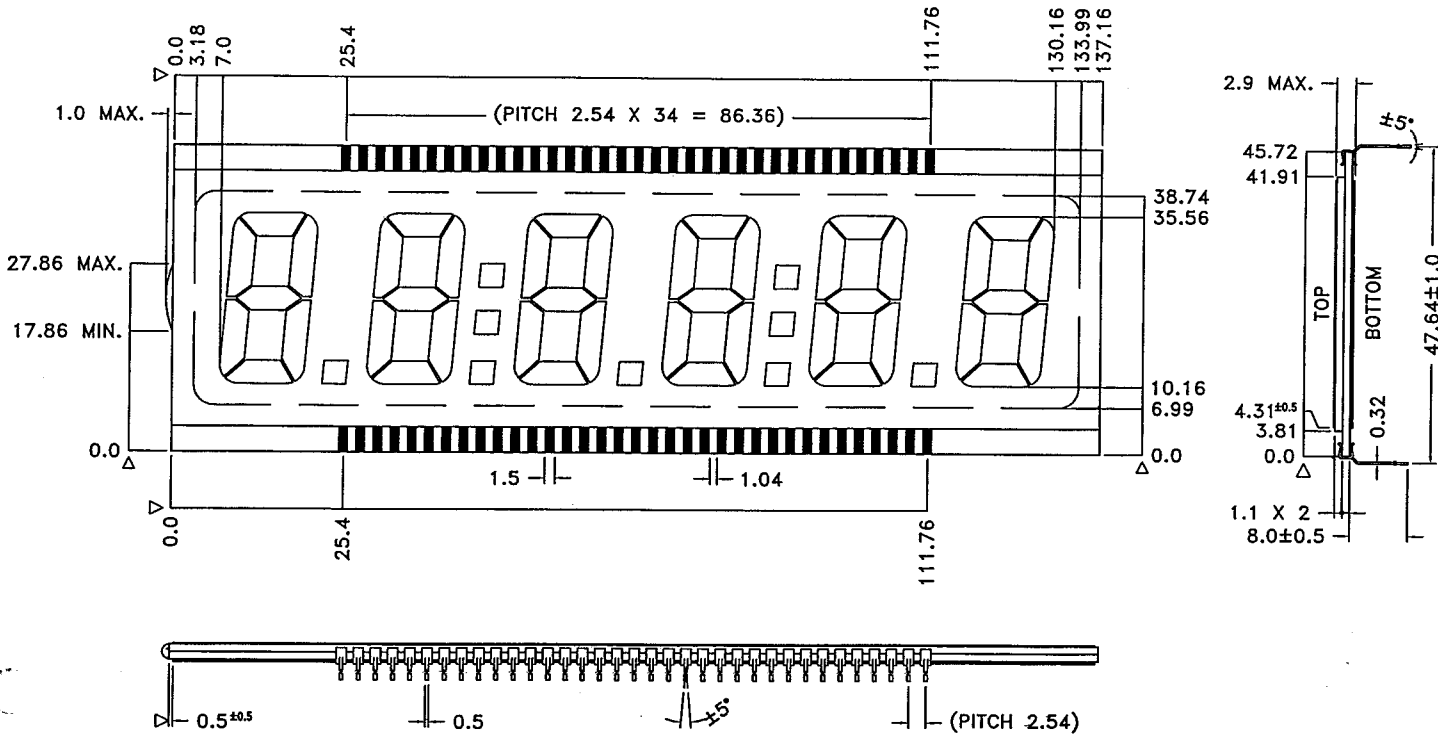
THE DEFINITION OF FOLLOWING ITEM CAN BE REFERED TO GENERAL SPECIFICATION .

ITEM	SYMBOL	UNIT	TYP	DEFINITION
RESPONSE TIME	T_{on}	ms	60	APPENDIX 2
	T_{off}	ms	80	APPENDIX 2
D.C. RESISTANCE	R_{LC}	$M\Omega$	100	APPENDIX 3
CURRENT CONSUMPTION	I_{op}	μA	100	APPENDIX 3
CONTRAST RATIO	C_r	-	30	-
VIEWING ANGLE ($C_r \geq 2$)	$\theta 1$ 12:00	°	25	APPENDIX 4
	$\theta 2$ 6:00	°	65	APPENDIX 4
	$\phi 1$ 3:00	°	70	APPENDIX 4
	$\phi 2$ 9:00	°	70	APPENDIX 4

THE ELECTRO–OPTICAL CHARACTERISTICS ARE MEASURED VALUE BUT NOT GUARANTEED ONES .

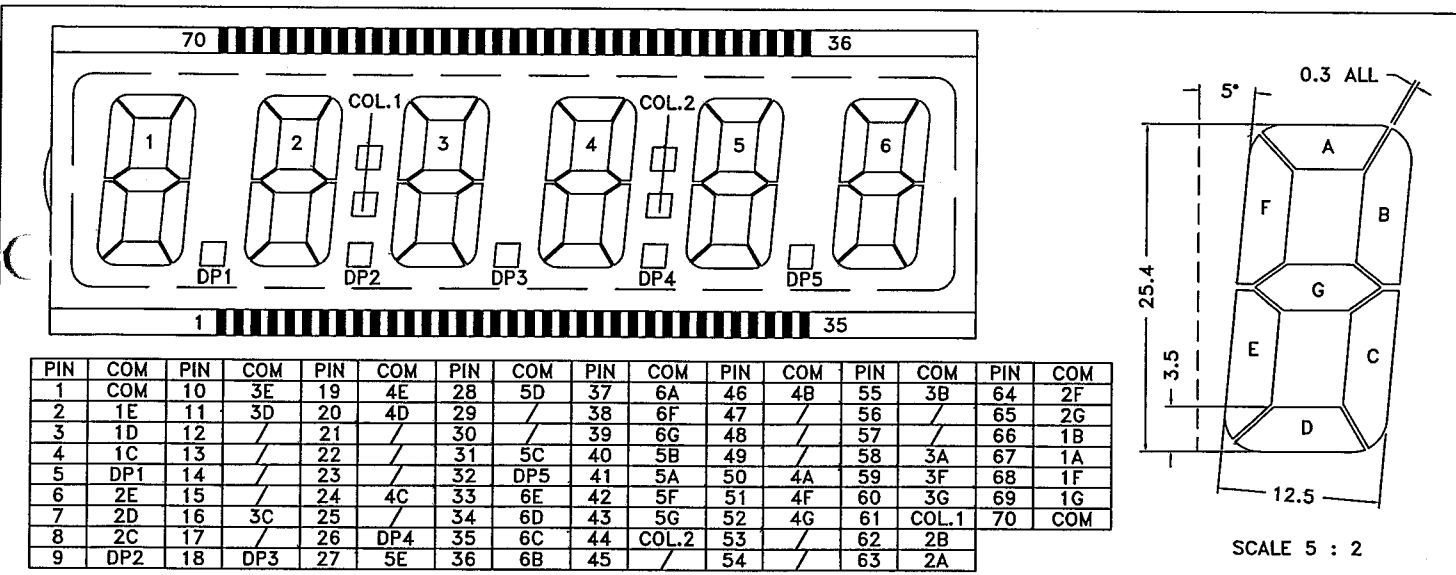
7. *WARRANTY*

CLOVER WILL REPLACE OR REPAIR ANY OF HER LCD IN ACCORDANCE WITH HER LCD SPECIFICATION FOR A PERIOD OF ONE YEAR FROM DATE OF SHIPMENT. THE WARRANTY LIABILITY OF CLOVER IS LIMITED TO REPAIR AND / OR REPLACEMENT .CLOVER WILL NOT BE RESPONSIBLE FOR ANY SUBSEQUENT OR CONSEQUENTIAL EVENT.



MECHANICAL TOL. ±0.2 UNLESS SPECIFIED

APPROVAL	COUNTER DRAWING	CUSTOMER REF.	REV.	DATE	 PROJECTION S5977	APPROVAL	DRAFTING	CUSTOMER-SERVICE	ENGINEERING
APPROVED BY	STANDARD		00	03-MAR-09		APPROVED BY	Y.WEN		
COMPANY NAME					DATE	03Mar,09	03 Mar 09	03 Mar 09	
APPROVED BY		SHEET 1 OF 2			DRAWN BY :	M.F.YU	UNIT IN mm	OUR REF. 00	
DATE		SCALE N.T.S			CLOVER DISPLAY LIMITED				



TN TYPE

MODEL NO.	S5977A	S5977B	S5977C	S5977D	S5977E	S5977F	S5977G	S5977H
VIEWING DIRECTION	6 O'CLOCK	6 O'CLOCK	6 O'CLOCK	6 O'CLOCK	12 O'CLOCK	12 O'CLOCK	12 O'CLOCK	12 O'CLOCK
TEMPERATURE RANGE	OPERATE 0°C ~ 50°C STORAGE -10°C ~ 60°C	-20°C ~ 70°C -30°C ~ 80°C	0°C ~ 50°C -10°C ~ 60°C	-20°C ~ 70°C -30°C ~ 80°C	0°C ~ 50°C -10°C ~ 60°C	-20°C ~ 70°C -30°C ~ 80°C	0°C ~ 50°C -10°C ~ 60°C	-20°C ~ 70°C -30°C ~ 80°C
CONNECTOR	ZEBRA	ZEBRA	PIN	PIN	ZEBRA	ZEBRA	PIN	PIN
DISPLAY TYPE	POSITIVE / NEGATIVE REFLECTIVE / TRANSLUCENTIVE / TRANSMISSIVE							
OPERATION VOLTAGE	5.0 V							
DRIVING METHOD	STATIC							

REV.	REVISION RECORD	DATE	STANDARD	 PROJECTION S5977	APPROVAL	DRAFTING	CUSTOMER-SERVICE	ENGINEERING
00	1st ISSUE	03-MAR-09	CUSTOMER REF.		APPROVED BY	Y.WEN		
				DATE	03Mar,09	03 Mar 09	03 Mar 09	
			SHEET 2 OF 2	DRAWN BY :	M.F.YU	UNIT IN mm	OUR REF. 00	
			SCALE N.T.S	CLOVER DISPLAY LIMITED				