HY-LINE®
COMPUTER COMPONENTS

TFT-DISPLAY DATENBLATT

DataImage
Modell: FG080081DSSWBG01

KURZDATEN:

Hersteller	DataImage
Diagonale	8”
Format	16:9
Auflösung	800 x 480
Backlight	LED / 450 cd/m²
Interface	RGB
Touchscreen	nein
Temperatur	-20...+70 °C (Betrieb)

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DATA IMAGE CORPORATION

TFT Module Specification

Preliminary

ITEM NO.: FG080081DSSWBG01

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Customer Companies	R&D Dept.	Q.C. Dept.	Eng. Dept.	Prod. Dept.
	JACK	JOE	GARY	KEN
Approved by	Version:	Issued Date:	Sheet Code:	Total Pages:
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2. RECORD OF REVISION

Rev	Date	Item	Page	Comment
1	18/APR/11'			Initial PRELIMINARY
2	18/NOV/11'	13	16	Modify OUTLINE DRAWING from Rev:1 to 2
3	13/FEB/12'	3 7 8.1 13	3 7 11 16	1. Add weight. 2. Modify central luminance from 360cd/m^2(min.) & 450cd/m^2(typ.) to 300cd/m^2(min.) & 350cd/m^2(typ.). 3. Modify power on/off sequence timing. 4. Modify OUTLINE DRAWING from Rev:2 to 3

3. GENERAL SPECIFICATIONS

Parameter	Specifications	Unit
Screen Size	8 (diagonal)	inch
Display Format	800(H) x (R,G,B) x 480(V)	dot
Active Area	176.64(H) x 99.36(V)	mm
Dot Pitch	0.0736(H) x 0.207(V)	mm
Pixel Configuration	Stripe	
Outline Dimension	192.8(W) x 116.9(H) x 10.1 (D)	mm
Surface treatment	Anti-glare	
Back-light	LED	
Display mode	Normally white	
Weight	255	g
View Angle direction	6 o'clock	
LED Backlight MTBF	40,000	Hr
Our components and processes are compliant to RoHS standard		

4. ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	MIN.	MAX.	Unit	Remark
Power supply voltage		Vcc	-0.3	5.0	V	
Logic input voltage		VI	-0.3	VCC+0.3	V	
Operating temperature		Top	-20	70	℃	
Storage temperature		Tst	-30	80	℃	-
Humidity	Operation	20%~90% relative humidity				Ta<=38℃
	Non Operation	10%~90% relative humidity				Ta<=38℃

5. ELECTRICAL CHARACTERISTICS

Ta=25°C,DCLK=33.3MHz

Parameter	Symbol	MIN.	Typ.	MAX.	Unit	Remark
Power Supply voltage	V_{CC}	3.0	3.3	3.6	V	
Power Supply Current	I_{CC}	--	740	1000	mA	V_{CC} =3.3V
Ripple voltage	V_{RF}	-	-	100	mV_{P-P}	
"H" level logical input voltage	V_{IH}	0.7Vcc	--	Vcc+0.3	V	
"L" level logical input voltage	V_{IL}	-0.3	--	0.8	V	
LED_PWM frequency	LED_PWM	100		1000	Hz	

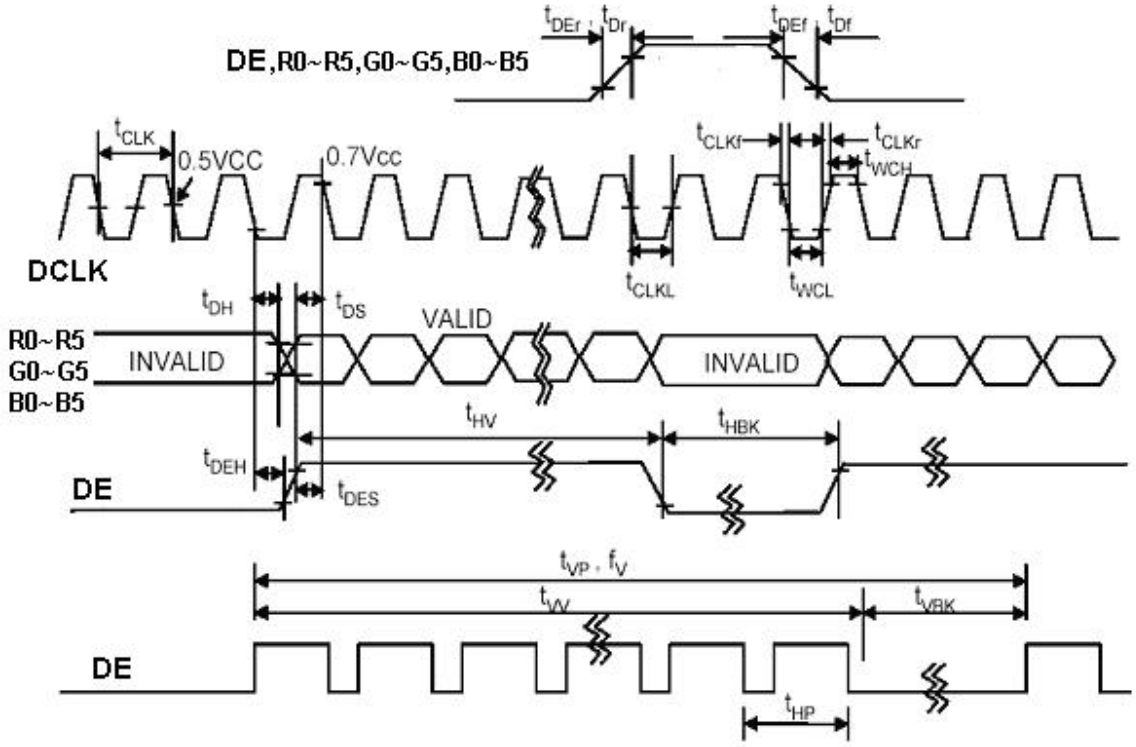
6. INTERFACE SPECIFICATIONS

6.1 Input Signal Timing Specifications

Signal	Parameter	Symbol	MIN.	TYP.	MAX.	Unit	Remarks
DCLK	Period	t_{CLK}	25	30	40	ns	
	Frequency	f_{CLK}	25	33.3	40	MHz	
	Low Level Width	t_{WCL}	8	-	-	ns	
	High Level Width	t_{WCH}	8	-	-	ns	
	Rise, Fall Time	t_{CLKr}, t_{CLKf}	-	-	3	ns	
	Duty	-	0.4	0.50	0.6	-	Note1
DE (Data Enable)	Setup Time	t_{DES}	8	-	-	ns	
	Hold Time	t_{DEH}	8	-	-	ns	
	Rise, Fall Time	t_{DEr}, t_{DEf}	-	-	16	ns	
	Horizontal Period	t_{HP}	856	1056	1200	t_{CLK}	
	Horizontal Valid	t_{HV}	800	800	800	t_{CLK}	
	Horizontal Blank	t_{HBK}	56	256	400	t_{CLK}	
	Vertical Period	t_{VP}	487	525	650	t_{HP}	
	Vertical Valid	t_{W}	480	480	480	t_{HP}	
	Vertical Blank	t_{VBK}	7	45	170	t_{HP}	
	Vertical Frequency	f_{v}	50	60	80	Hz	
Data R,G,B	Setup Time	t_{DS}	8	-	-	ns	
	Hold Time	t_{DH}	8	-	-	ns	
	Rise, Fall Time	t_{Dr}, t_{Df}	-	-	3	ns	

Note1: tCLKL / tCLK.

6.1.1 DE and RGB input data timing waveform



6.2 Color Data Input Assignment

Color		Data Signal																	
		Red						Green						Blue					
		R5	R4	R3	R2	R1	R0	G5	G4	G3	G2	G1	G0	B5	B4	B3	B2	B1	B0
Basic Colors	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
	Green	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
	Blue	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1
	Cyan	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
	Magenta	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1
	Yellow	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0
	White	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gray Scale of Red	Red(0) / Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(1)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	Red(2)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Red(61)	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	Red(62)	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(63)	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Gray Scale of Green	Green(0)/ Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Green(1)	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
	Green(2)	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Green(61)	0	0	0	0	0	0	1	1	1	1	0	1	0	0	0	0	0	0
	Green(62)	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0
	Green(63)	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Gray Scale of Blue	Blue(0)/ Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Blue (1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Blue (2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Blue (61)	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1
	Blue (62)	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0
	Blue (63)	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1

Correspondence between Data and Display Position

	S0001	S0002	S0003	S0004	S0005	S0006	S0007	S0008	----------	S2399	S2400
C001	R001	G001	B001	R002	G002	B002	R003	G003		G800	B800
C480	R001	G001	B001	R002	G002	B002	R003	G003		G800	B800

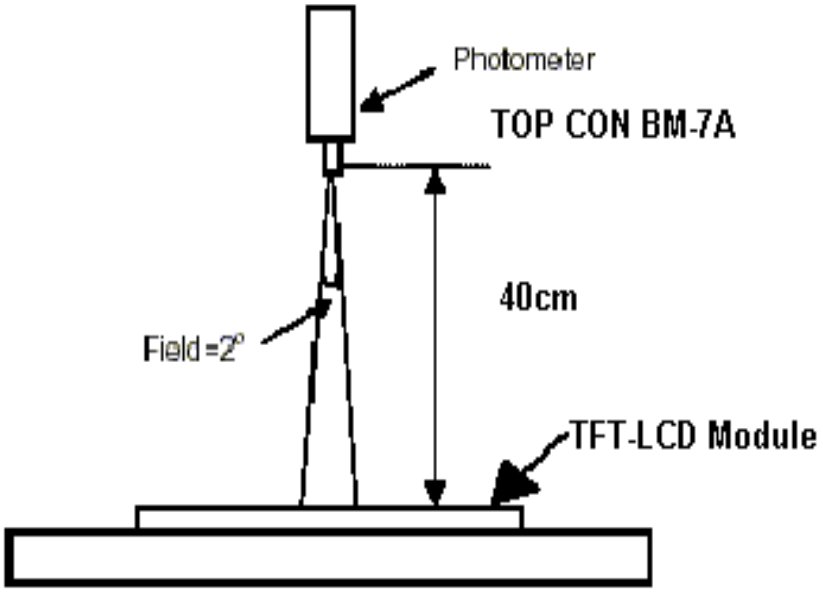
7. OPTICAL CHARACTERISTIC

7-1. Specification:

Parameter		Symbol	Condition	MIN.	TYP.	MAX.	Unit	Remarks
Viewing Angle	Horizontal	θ_x+	Center CR≥10	60	70	--	deg	Note 1,4
		θ_x-		60	70	--		
	Vertical	θ_Y+		40	50	--		
		θ_Y-		60	70	--		
Contrast Ratio		CR max.	Center	250	300	--		Note 1,3
Response time	Rise	Tr	Center	--	10	20	ms	Note 1,6
	Fall	Tf	θx=θy =0°	--	15	30	ms	
Brightness Uniformity		B-uni	θx=θy =0°	70	75	--	%	Note1,5
Central Luminance		L	LED_PWM=vcc	300	350	--	cd/m^2	Note 1,2,4
Chromaticity		x_W	Center	0.26	0.31	0.36		Note 1,7
		y_W	θx=θy =0°	0.28	0.33	0.38		
Image sticking		tis	2 hours			2	Sec	Note 8

The following optical specifications shall be measured in a darkroom or equivalent state(ambient luminance≤1 lux, and at room temperature). The operation temperature is 25°C±2°C. The measurement method is shown in Note1.

Note1: The method of optical measurement:



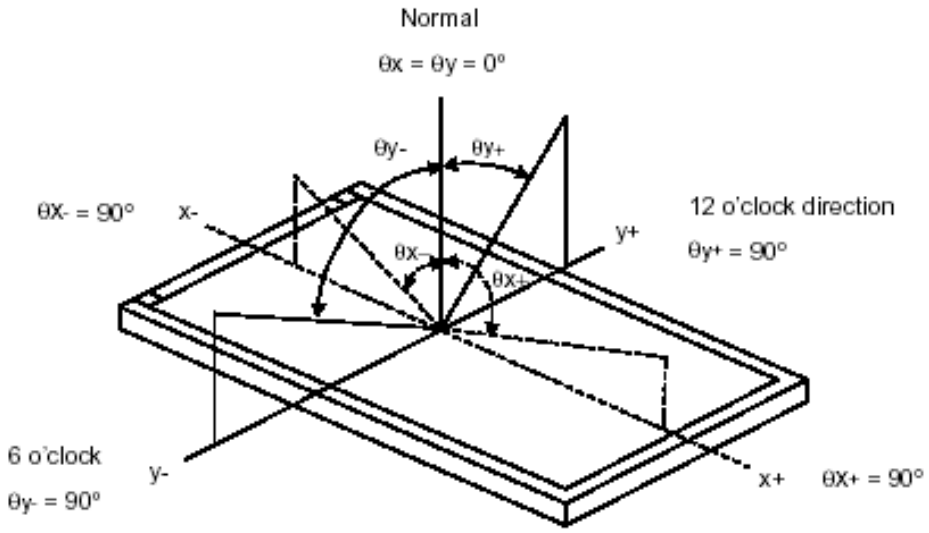
Note2: Definition of Central Luminance (L):

Central Luminance must be measured at the central point of the LCD module and at the viewing angle of the θx=θy=0°(Note 4).

Note3: Definition of Contrast Ratio (CR):

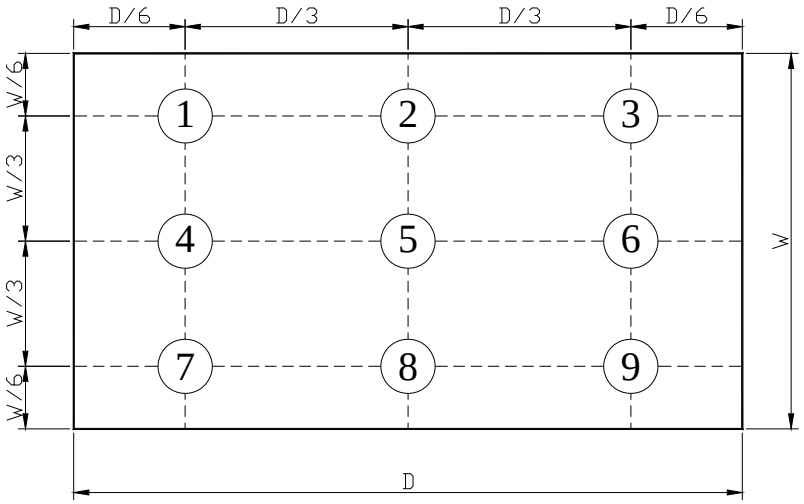
$$CR = \frac{\text{Luminance with all pixels in white state}}{\text{Luminance with all pixels in Black state}}$$

Note 4: Definition of Viewing Angle(CR≥10):



Note 5: Definition of Brightness Uniformity (B-uni):

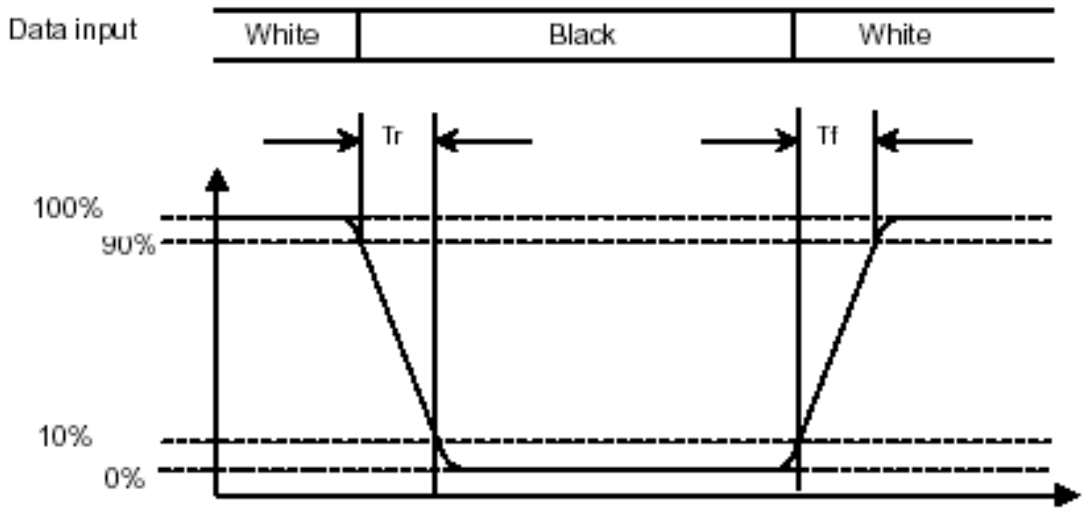
Luminance Measuring Points



$$\text{B-uni} = \frac{\text{Minimum luminance of 9 points}}{\text{Maximum luminance of 9points}}$$

Note 6: Definition of Response Time:

The Response Time is set initially by defining the “Rising Time (Tr)” and the “Falling Time (Tf)” respectively. Tr and Tf are defined as following figure.



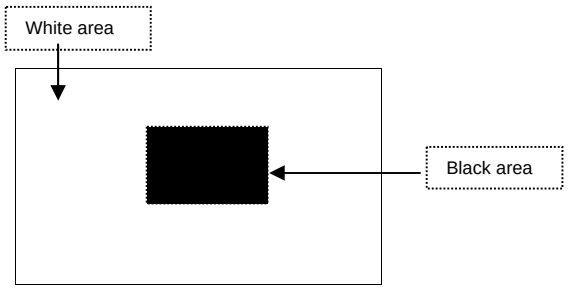
Note 7: Definition of Chromaticity:

The color coordinates (x_W,y_W) is obtained with all pixels in the viewing field at white state.

Note 8: Definition of Image sticking (tis):

Continuously display the test pattern shown in the figure below for 2 hours. Then display a completely white screen. The previous image shall not persist more than 2 sec at 25 °C

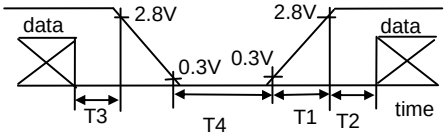
Image sticking pattern



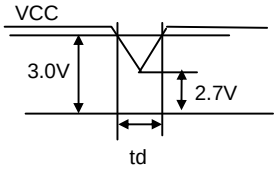
8. PIN CONNECTIONS

Pin NO.	SYMBOL	DESCRIPTION
1	LED_PWM	LED Dimming Control “High”=ON,“LOW”=OFF
2	V_{SS}	Ground
3	NC	No Connection
4	V_{CC}	Power Supply
5	V_{CC}	Power Supply
6	V_{CC}	Power Supply
7	V_{CC}	Power Supply
8	NC	No Connection
9	DE	Data Enable Timing Signal
10	V_{SS}	Ground
11	V_{SS}	Ground
12	V_{SS}	Ground
13	B5	Blue Data 5 (MSB)
14	B4	Blue Data 4
15	B3	Blue Data 3
16	V_{SS}	Ground
17	B2	Blue Data 2
18	B1	Blue Data 1
19	B0	Blue Data 0 (LSB)
20	V_{SS}	Ground
21	G5	Green Data 5 (MSB)
22	G4	Green Data 4
23	G3	Green Data 3
24	V_{SS}	Ground
25	G2	Green Data 2
26	G1	Green Data 1
27	G0	Green Data 0 (LSB)
28	V_{SS}	Ground
29	R5	Red Data 5 (MSB)
30	R4	Red Data 4
31	R3	Red Data 3
32	V_{SS}	Ground
33	R2	Red Data 2
34	R1	Red Data 1
35	R0	Red Data 0 (LSB)
36	V_{SS}	Ground
37	V_{SS}	Ground
38	DCLK	Data Clock
39	V_{SS}	Ground
40	V_{SS}	Ground

8.1 Power ON/OFF Sequence



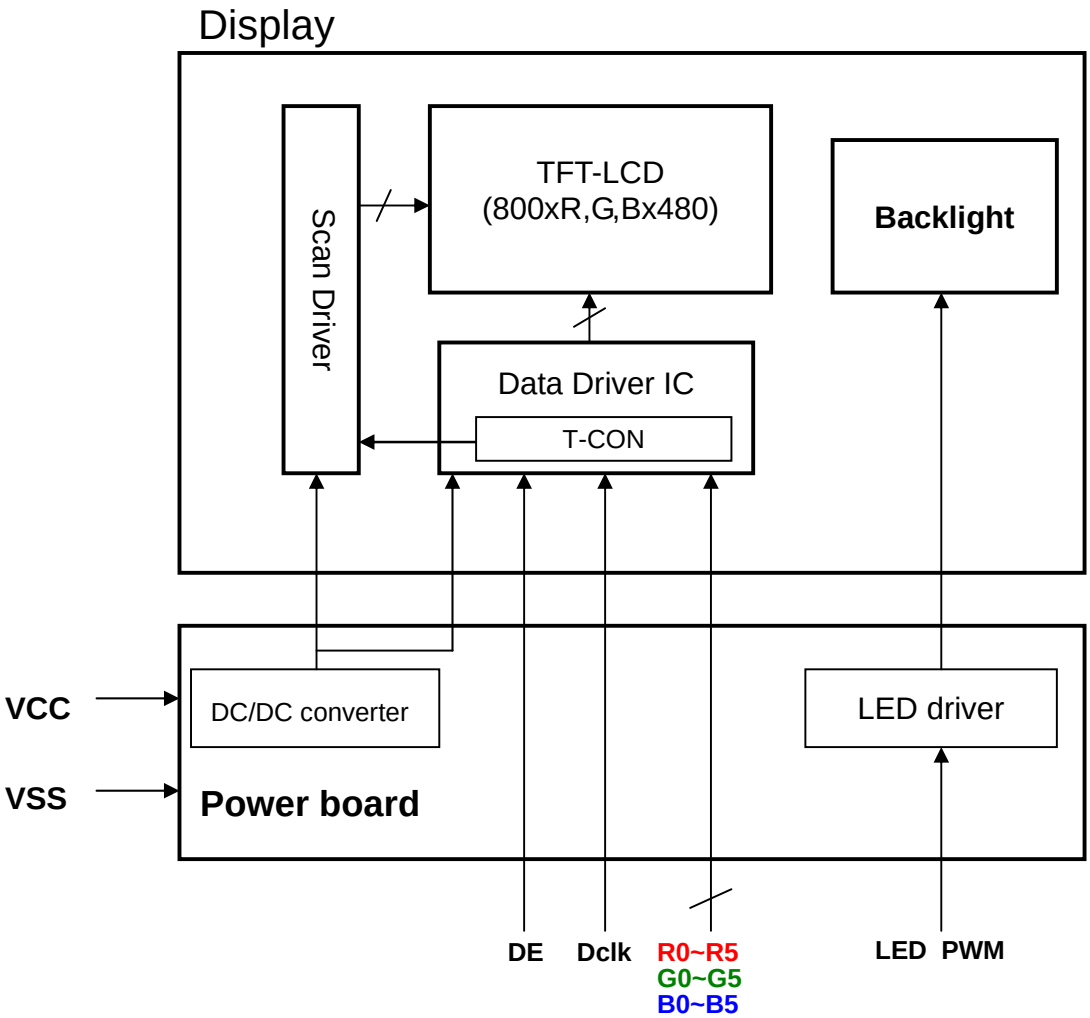
Timing Specifications:
0<T1≤15ms
0<T2≤20ms
0<T3≤1s
1s <T4



1)2.7V≤VCC<3.0V, td≤10ms
2)VCC<2.7V

Notes: 1. Please avoid floating state of interface signal at invalid period.
2. When the interface signal is invalid, be sure to pull down the power supply for LCD V_{CC} to 0V.

9. BLOCK DIAGRAM



10. QUALITY ASSURANCE

10.1 Test Condition

10.1.1 Temperature and Humidity(Ambient Temperature)

Temperature : 25 ± 5°C
Humidity : 65 ± 5%

10.1.2 Operation

Unless specified otherwise, test will be conducted under function state.

10.1.3 Container

Unless specified otherwise, vibration test will be conducted to the product itself without putting it in a container.

10.1.4 Test Frequency

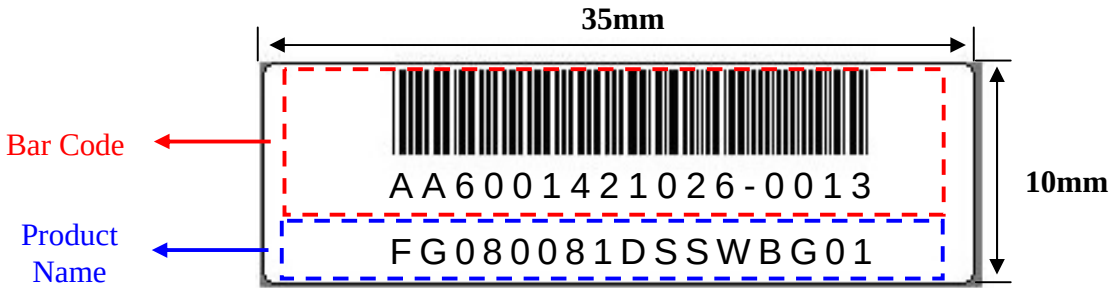
In case of related to deterioration such as shock test. It will be conducted only once.

10.1.5 Test Method

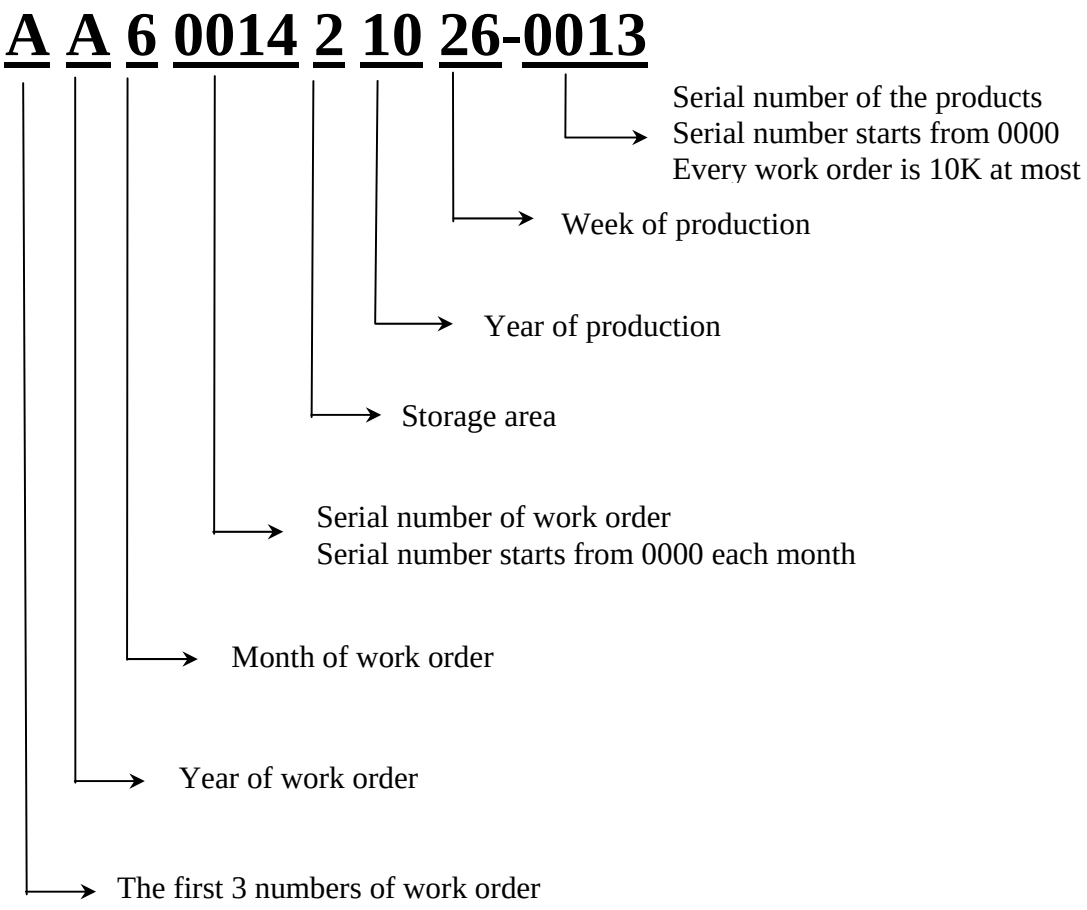
Reliability Test Item & Level		Test Level
No.	Test Item	
1	High Temperature Storage Test	T=80℃,240hrs
2	Low Temperature Storage Test	T=-30℃,240hrs
3	High Temperature Operation Test	T=70℃,240hrs
4	Low Temperature Operation Test	T=-20℃,240hrs
5	High Temperature and High Humidity Operation Test	T=38℃,90%RH,240hrs
6	Thermal Cycling Test (No operation)	-30℃ → +25℃ → +80℃,50 Cycles 30 min 5 min 30 min
7	Vibration Test (No operation)	Frequency：10 ~ 57 Hz Amplitude：1.0 mm 58 ~ 500 Hz, 1G Sweep Time：11min Test Period：3hrs (1hrs for each Direction of X,Y,Z)
8	Shock Test (No operation)	80G, 6ms Direction：± X,± Y,± Z Cycle：1 times

11. LCM PRODUCT LABEL DEFINE

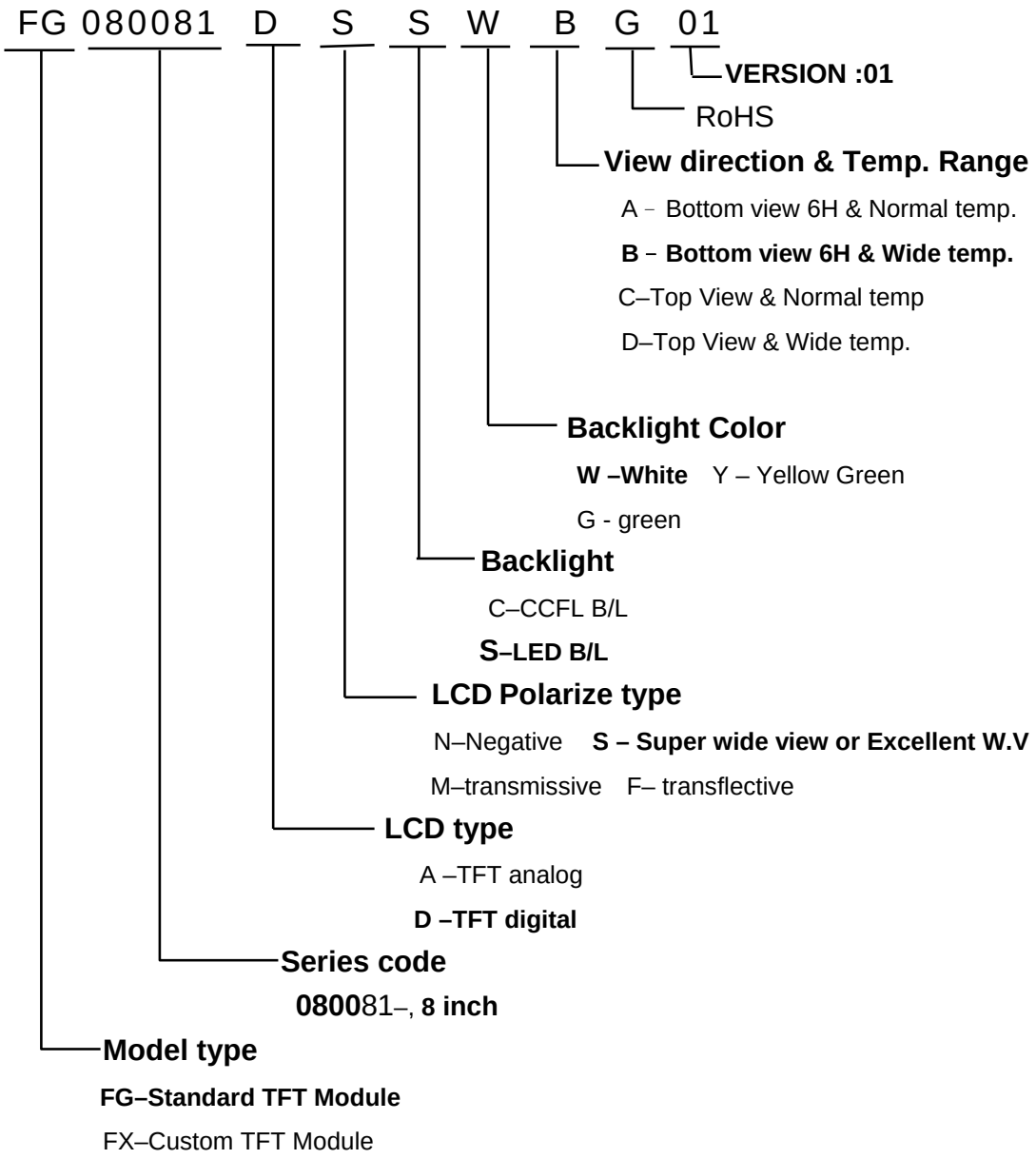
Product Label style:



Barcode Define:



Product Name Define:



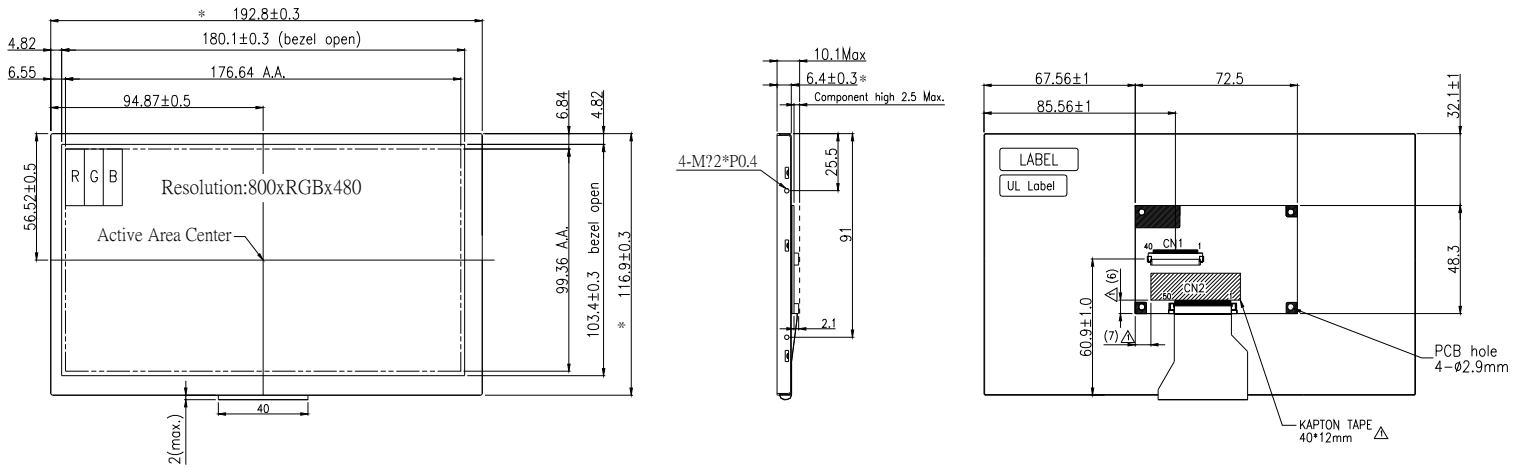
12. PRECAUTION FOR USING LCM

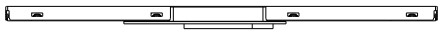
1. ASSEMBLY PRECAUTIONS
   (1) You must mount a module using holes arranged in four corners or four sides.
   (2) You should consider the mounting structure so that uneven force (ex. Twisted stress) is not applied to the module. And the case on which a module is mounted should have sufficient strength so that external force is not transmitted directly to the module.
   (3) Do not touch, push or rub the exposed polarizers with glass, tweezers or anything harder than HB pencil lead. And please do not rub with dust clothes with chemical treatment.
   (4) Wipe off saliva or water drops as soon as possible. Their long time contact with polarizer causes deformations and color fading.
   (5) Do not open the case because inside circuits do not have sufficient strength.
   (6) Please do not take a LCD module to pieces and reconstruct it. Resolving and reconstructing modules may cause them not to work well.
   (7) Please do not touch metal frames with bare hands and soiled gloves. A color change of the metal frames can happen during a long preservation of soiled LCD modules.
   (8) Please pay attention to handling lead wire of backlight so that it is not tugged in connecting with inverter.
2. OPERATING PRECAUTIONS
   (1) Please be sure to turn off the power supply before connecting and disconnecting signal input cable.
   (2) Please do not change variable resistance settings in LCD module. They are adjusted to the most suitable value. If they are changed, it might happen LCD does not satisfy the characteristics specification
   (3) Be careful for condensation at sudden temperature change. Condensation makes damage to polarizer or electrical contacted parts. And after fading condensation, smear or spot will occur.
   (4) When fixed patterns are displayed for a long time, remnant image is likely to occur.
   (5) Module has high frequency circuits. Sufficient suppression to the electromagnetic interference shall be done by system manufacturers. Grounding and shielding methods may be important to minimize the interference.
   (6) Please consider that LCD backlight takes longer time to become stable of radiation characteristics in low temperature than in room temperature.
3. ELECTROSTATIC DISCHARGE CONTROL
   (1) The operator should be grounded whenever he/she comes into contact with the module. Never touch any of the conductive parts such the copper leads on the PCB and the interface terminals with any parts of the human body.
   (2) The modules should be kept in antistatic bags or other containers resistant to static for storage.
   (3) Only properly grounded soldering irons should be used.
   (4) If an electric screwdriver is used, it should be well grounded and shielded from commutator sparks.
   (5) The normal static prevention measures should be observed for work clothes and working benches; for the latter conductive (rubber) mat is recommended
   (6) Since dry air is inductive to statics, a relative humidity of 50-60% is recommended.
4. STORAGE PRECAUTIONS
   (1) When you store LCDs for a long time, it is recommended to keep the temperature between 0°C-40°C without the exposure of sunlight and to keep the humidity less than 90%RH.
   (2) Please do not leave the LCDs in the environment of high humidity and high temperature such as 60°C 90%RH
   (3) Please do not leave the LCDs in the environment of low temperature; below -20°C.
5. OTHERS
   (1) A strong incident light into LCD panel might cause display characteristics' changing inferior because of polarizer film, color filter, and other materials becoming inferior. Please do not expose LCD module direct sunlight Land strong UV rays
   (2) Please pay attention to a panel side of LCD module not to contact with other materials in preserving it alone.
   (3) For the packaging box, please pay attention to the followings:
      a. Please do not pile them up more than 5 boxes. (They are not designed so.) And please do not turn over.
      b. Please handle packaging box with care not to give them sudden shock and vibrations. And also please do not throw them up.
      c. Packing box and inner case for LCDs are made of cardboard. So please pay attention not to get them wet. (Such like keeping them in high humidity or wet place can occur getting them wet.)
6. LIMITED WARRANTY

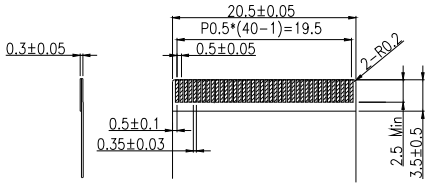
Unless otherwise agreed between DATA IMAGE and customer, DATA IMAGE will replace or repair any of its LCD and LCM which is found to be defective electrically and visually when inspected in accordance with DATA IMAGE acceptance standards, for a period on one year from date of shipment. Confirmation of such date shall be based on freight documents. The warranty liability of DATA IMAGE is limited to repair and/or replacement on the terms set forth above. DATA IMAGE will not responsible for any subsequent or consequential events.

13. OUTLINE DRAWING

PRELIMINARY







Applicable FPC

NOTE:

1. CN1 CONNECTOR: STARCONN 089H40-000000-G2-C OR EQUIVALENT.
2. LED DRIVER IC INCLUDED.
3. ALLOWED DEPTH OF USER HOLE SCREW INSERTION IS 1.2mm MAX.
4. GENERAL TOLERANCE ±0.5mm.
5. ⚠ BRIGHTNESS: CENTER POINT 300 cd/m² (MIN); 350 cd/m² (TYP)
   Uniformity:75% (TYP)
6. FOR RoHS.
7. * is important dimension.

CN1 PIN FUNCTION

1. LED_PWM	11. Vss	21. G5	31. R3
2. Vss	12. Vss	22. G4	32. Vss
3. NC	13. B5	23. G3	33. R2
4. Vcc	14. B4	24. Vss	34. R1
5. Vcc	15. B3	25. G2	35. R0
6. Vcc	16. Vss	26. G1	36. Vss
7. Vcc	17. B2	27. G0	37. Vss
8. NC	18. B1	28. Vss	38. DCLK
9. DE	19. B0	29. R5	39. Vss
10. Vss	20. Vss	30. R4	40. Vss

⚠2	Modify brightness: center point 360 cd/m²(MIN); 450 cd/m²(TYP)---> 300 cd/m²(MIN); 350 cd/m²(TYP).	02/10/12'	
⚠1	Add KAPTON TAPE .<<11S-BB0016>>	11/14/11'	
	<<ESR0003027>>		
AUTH	DESCRIPTION	DATE	APPROVED
REVISIONS			

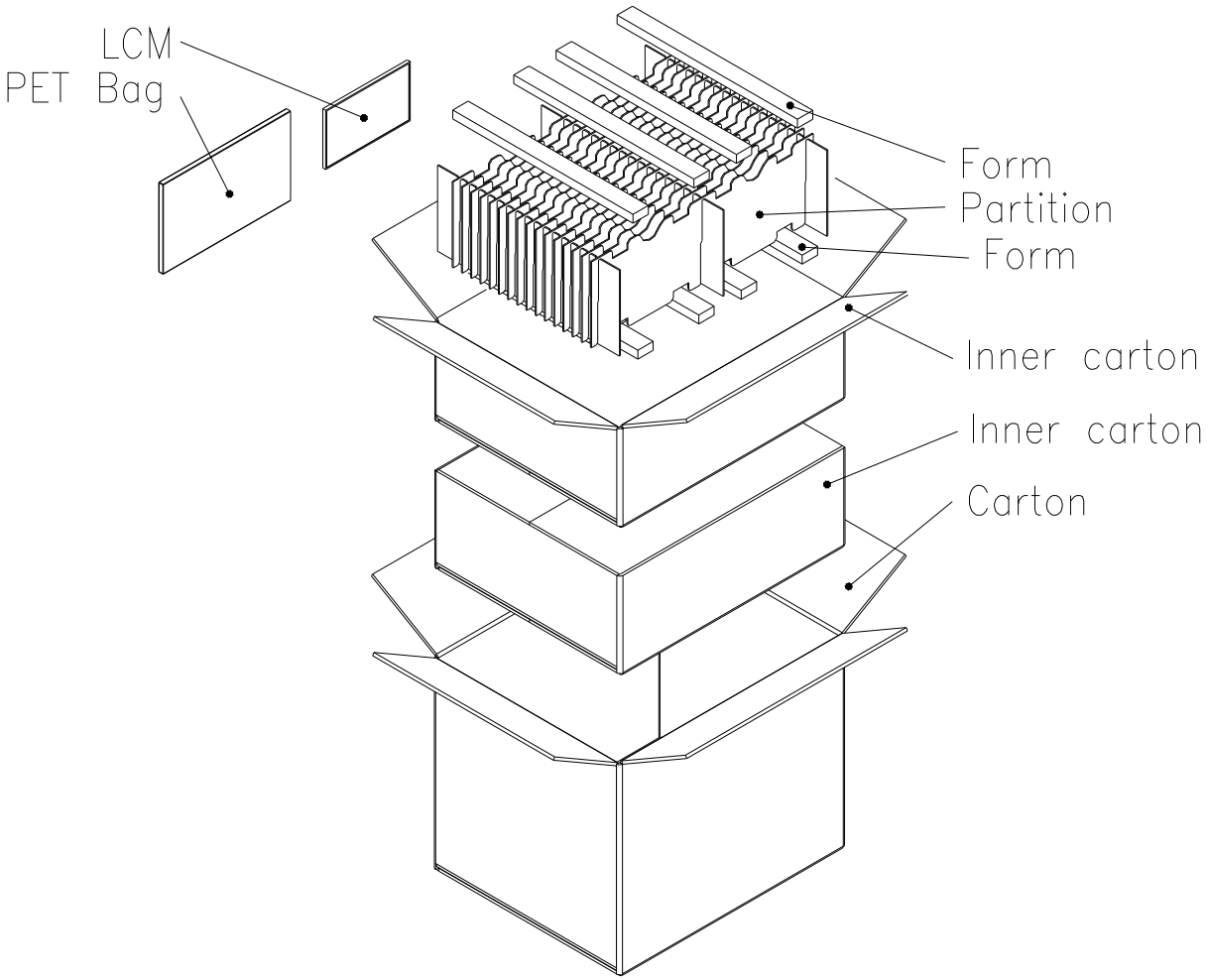
DATE:	03/31/11'
DRAWN:	
CHECK:	
APPROVE:	

TITLE: 8.0" TFT Outline Dimension

DWG. NO.	FG080081SG01		
UNITS M M		REV.	3
SCALE 1 / 1	SHEET 1 OF 1		

DATA IMAGE

14. PACKAGE INFORMATION



1 Inner carton= 30 pcs
1 Carton= 2 Inner carton
= 30 pcs*2= 60 pcs
Carton size : 465L x 380W x 395H (mm)