Doc. Number:

☐ Tentative Specification
☐ Preliminary Specification
■ Approval Specification

MODEL NO：F043A11-601

(Product ID：2420S04311033)

Customer:

APPROVED BY **SIGNATURE**

Name / Title _____ _____
Note

_____
Please return 1 copy for your confirmation with your signature and comments.

Approved By	Checked By	Prepared By
Yulin CHANG	**TK LIN**	**Albin LAI**

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REVISION HISTORY

Version	Date	Page (New)	Section	Description
Ver. 2.0	2017/05/02	All	All	Approval product spec was first issued for LCD substrate.
Ver. 2.1	2017/05/22	5	2.2.1	Revise POLA Absorption
		19	4	Revise CUT size
Ver.2.2	2017/09/21	26	3	Revise Pin mark position
Ver.2.3	2020/08/18	23	7	Update Reliability Specification

1. PURPOSE

The specification F043A11-601 is a 4.3” a-Si TFT Liquid Crystal Display cell. The cell has been designed by Innolux, and manufactured by Innolux under the agreement of customer. The a-Si TFT-LCD cell will be applied to a high transmittance operating in the normally white mode a-Si TFT-LCD product.

2. GENERAL RULES OF SINGLE PANEL

2.1 GENERAL SPECIFICATION

No.	Item		Specification	unit
1	Glass thickness	TFT	0.4	mm
		CF	0.4	
2	Shipping mode		cut	-
3	Shipping size		540 (H) x 426 (V) x 0.8 (D)	mm
4	Panel outline dimension		63.5 (H) x 101.7 (V) x 0.8 (D)	mm
5	Active screen size		95.04 (H) x 53.856 (V)	mm
6	Resolution		480RGB x 272	pixel
7	Pixel driving element		a-Si TFT	-
8	Sub pixel size		66 x 198	um
9	Pixel arrangement		RGB-stripe	-
10	View direction (Gray inversion)		TN (6 o'clock)	-
11	Cell gap		4 ± 0.2	um
12	Driver IC		ST7282 *<Note>	-
13	Weight without POL		442 ± 10%	g

<Note> 1. Compatible IC : NA

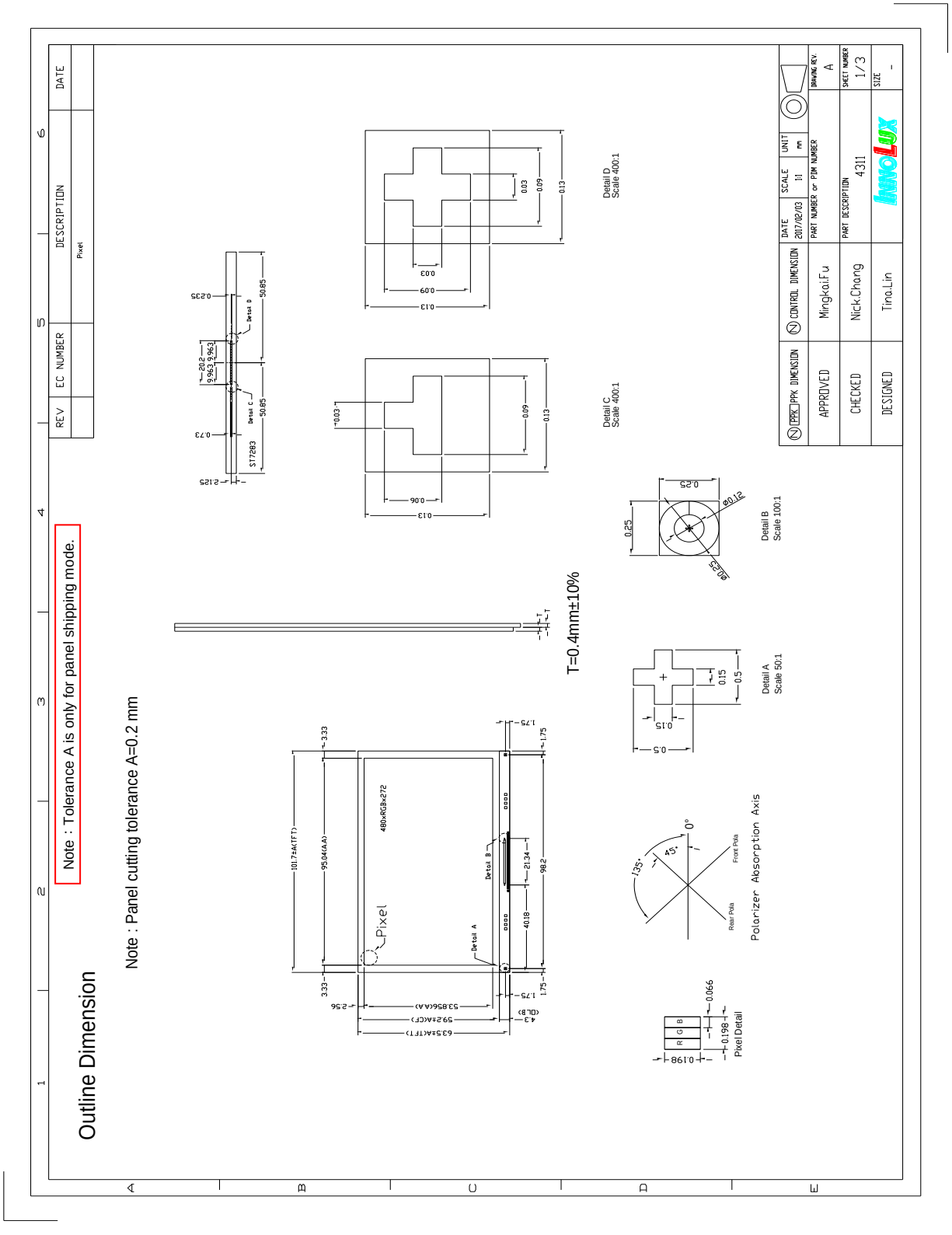
The other compatible IC are also considered for the design of pad locations.

2. Those compatible IC should be verified for panel performance. Please refer to the IC datasheet (AP note) respectively.

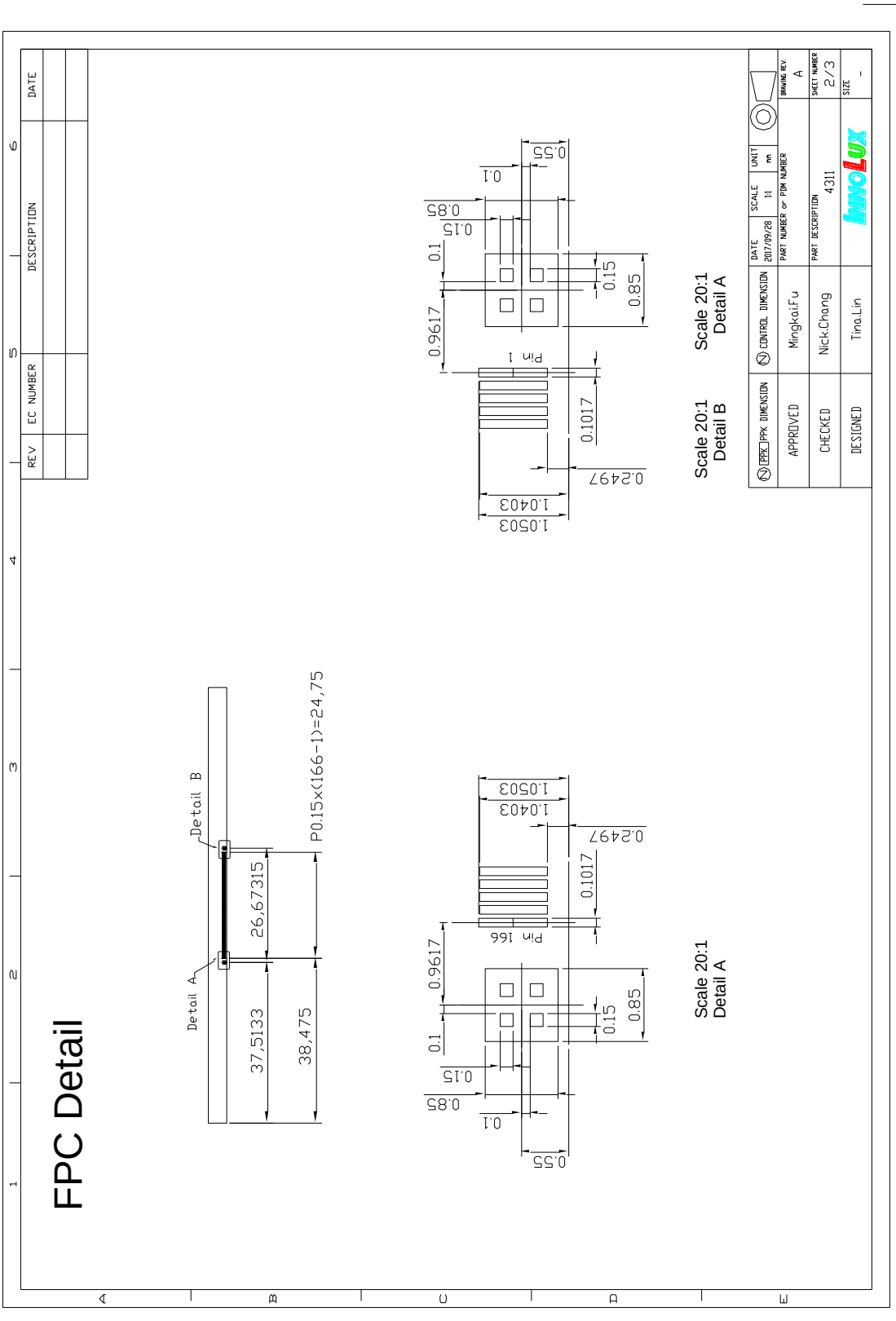
3. This model is designed by the driver IC without bumping compensation.

2.2 DIMENSION

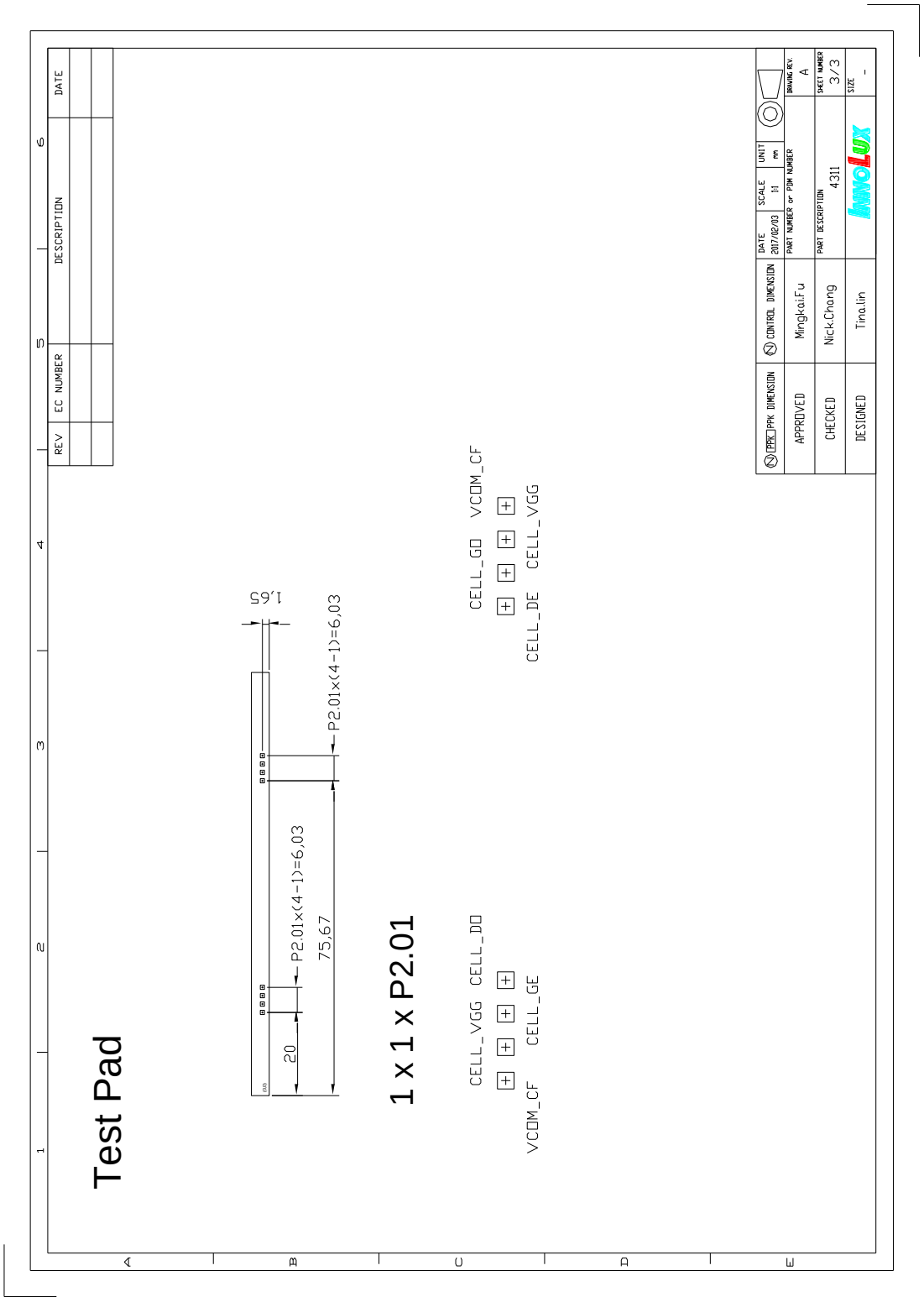
2.2.1 OUTLINE DIMENSION



2.2.2 LCD FPC DETAIL



2.2.3 TEST PAD



3. PIN ASSIGNMENT

3.1 LCD FPC/IC PIN ASSIGNMENT TABLE

ST7282

ST7282			ST7282	
IC No.	Pad name	connect to	FPC Pin out name	FPC No.
x		FPC	DUMMY	1
x		FPC	DUMMY	2
x		FPC	VCOM_R	3
x		FPC	VCOM_R	4
x		FPC	VCOM_R	5
1	DUMMY			
2	DGND	FPC	DGND	6
3	DUMMY	FPC	DUMMY	7
4	DUMMY			
5	DGND	FPC	DGND	8
6	VPP	FPC	VPP	9
7	VPP			
8	VPP			10
9	VPP			
10	VPP			11
11	VPP			
12	DGND	FPC	DGND	12
13	DUMMY	FPC	VCOM_TFT1	13
14	DUMMY			
15	DUMMY			14
16	DUMMY			15
17	DGND	FPC	DGND	16
18	GVDD	FPC	GVDD	17
19	GVDD			
20	GVDD			18
21	GVDD			
22	GVDD			19
23	GVDD			

24	GVCL	FPC	GVCL	20
25	GVCL			
26	GVCL			21
27	GVCL			
28	GVCL			22
29	GVCL			
30	VCOM	FPC	VCOM	23
31	VCOM			
32	VCOM			24
33	VCOM			
34	VCOM			25
35	VCOM			
36	DGND	FPC	DGND	26
37	DUMMY	FPC	DUMMY	27
38	DUMMY			
39	DGND	FPC	DGND	28
40	DUMMY	FPC	DUMMY	29
41	DUMMY			
42	DUMMY			30
43	DUMMY			
44	DUMMY	FPC		
45	DUMMY	FPC		
46	DGND	FPC	DGND	31
47	DGND			
48	DGND			32
49	DGND			
50	DGND			33
51	DGND			
52	DGND			34
53	DGND			
54	VCC	FPC	VCC	35
55	VCC			
56	VCC			36
57	VCC			
58	VCC			37
59	VCC			
60	VDDI	FPC	VDDI	38
61	VDDI			
62	VDDI			39

63	VDDI			
64	VDDI			40
65	VDDI			
66	VDD	FPC	VDD	41
67	VDD			
68	VDD			42
69	VDD			
70	VDD			43
71	VDD			
72	VDD			44
73	VDD			
74	DUMMY	FPC	DUMMY	45
75	VSYNC	FPC	VSYNC	46
76	VSYNC			
77	HSYNC	FPC	HSYNC	47
78	HSYNC			
79	DCLK	FPC	DCLK	48
80	DCLK			
81	VDPOL	FPC	VDPOL	49
82	VDPOL			
83	HDPOL	FPC	HDPOL	50
84	HDPOL			
85	DCLKPOL	FPC	DCLKPOL	51
86	DCLKPOL			
87	SBGR	FPC	SBGR	52
88	SBGR			
89	DE	FPC	DE	53
90	DE			
91	DUMMY1	FPC	DUMMY1	54
92	DUMMY1			
93	DUMMY2	FPC	DUMMY2	55
94	DUMMY2			
95	PARA_SERI	FPC	PARA_SERI	56
96	PARA_SERI			
97	EXTC	FPC	EXTC	57
98	EXTC			
99	HDIR	FPC	HDIR	58
100	HDIR			
101	VDIR	FPC	VDIR	59

102	VDIR			
103	TEST_IN3	FPC	TEST_IN3	60
104	TEST_IN3			
105	TEST_IN4	FPC	TEST_IN4	61
106	TEST_IN4			
107	CS	FPC	CS	62
108	CS			
109	SDA	FPC	SDA	63
110	SDA			
111	SCL	FPC	SCL	64
112	SCL			
113	DISP	FPC	DISP	65
114	DISP			
115	TEST_IN5	FPC	TEST_IN5	66
116	TEST_IN5			
117	GRB	FPC	GRB	67
118	GRB			
119	SYNC	FPC	SYNC	68
120	SYNC			
121	DUMMY	FPC	DUMMY	69
122	DUMMY			
123	DUMMY	FPC	DUMMY	70
124	DUMMY			
125	DGND	FPC	DGND	71
126	DR7	FPC	DR7	72
127	DR7	FPC	DR7	
128	DR6	FPC	DR6	73
129	DR6	FPC	DR6	
130	DR5	FPC	DR5	74
131	DR5	FPC	DR5	
132	DR4	FPC	DR4	75
133	DR4	FPC	DR4	
134	DR3	FPC	DR3	76
135	DR3	FPC	DR3	
136	DR2	FPC	DR2	77
137	DR2	FPC	DR2	
138	DR1	FPC	DR1	78
139	DR1	FPC	DR1	
140	DR0	FPC	DR0	79

141	DR0	FPC	DR0	
142	DG7	FPC	DG7	80
143	DG7	FPC	DG7	
144	DG6	FPC	DG6	81
145	DG6	FPC	DG6	
146	DG5	FPC	DG5	82
147	DG5	FPC	DG5	
148	DG4	FPC	DG4	83
149	DG4	FPC	DG4	
150	DG3	FPC	DG3	84
151	DG3	FPC	DG3	
152	DG2	FPC	DG2	85
153	DG2	FPC	DG2	
154	DG1	FPC	DG1	86
155	DG1	FPC	DG1	
156	DG0	FPC	DG0	87
157	DG0	FPC	DG0	
158	DB7	FPC	DB7	88
159	DB7	FPC	DB7	
160	DB6	FPC	DB6	89
161	DB6	FPC	DB6	
162	DB5	FPC	DB5	90
163	DB5	FPC	DB5	
164	DB4	FPC	DB4	91
165	DB4	FPC	DB4	
166	DB3	FPC	DB3	92
167	DB3	FPC	DB3	
168	DB2	FPC	DB2	93
169	DB2	FPC	DB2	
170	DB1	FPC	DB1	94
171	DB1	FPC	DB1	
172	DB0	FPC	DB0	95
173	DB0	FPC	DB0	
174	DUMMY	FPC	DUMMY	96
175	DUMMY	FPC	DUMMY	97
176	DUMMY	FPC	DUMMY	98
210	DUMMY	FPC	DUMMY	99
211	DUMMY	FPC	DUMMY	100
212	DUMMY			

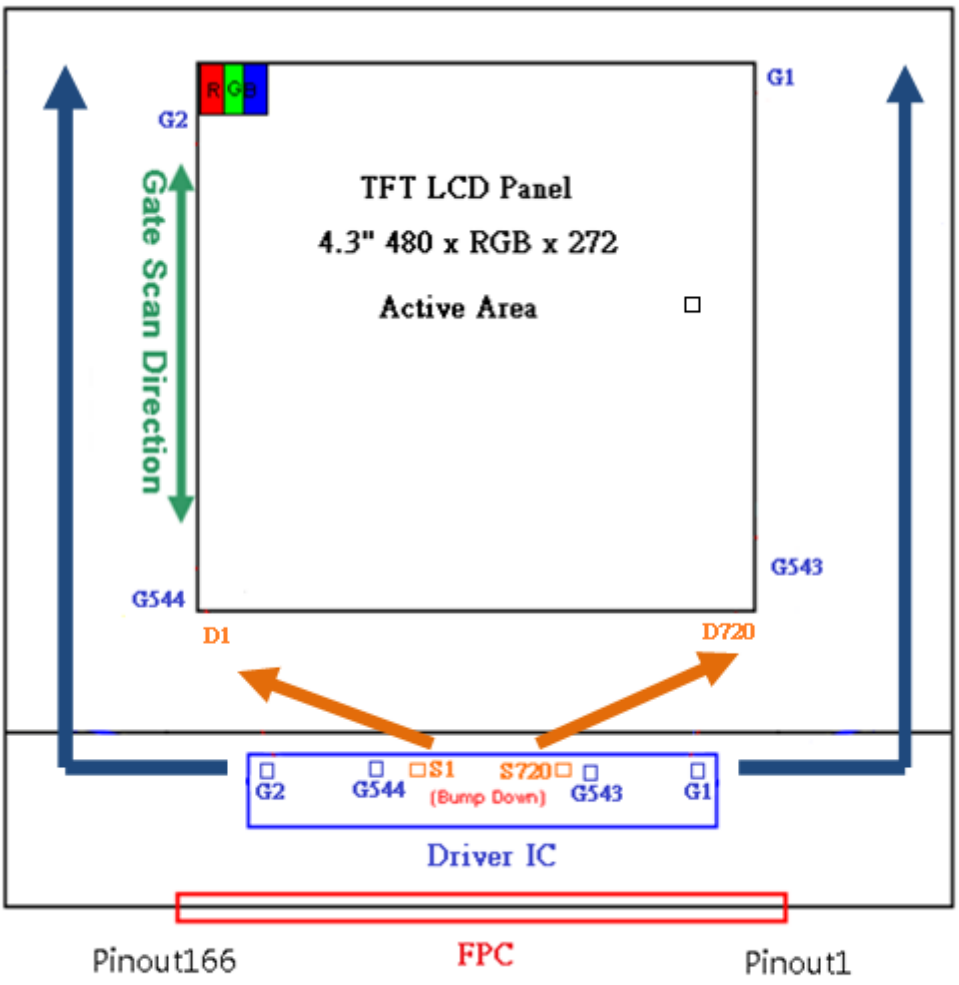
213	DUMMY			101
214	DUMMY			
215	DUMMY			102
216	DUMMY			
217	AGND	FPC	AGND	103
218	AGND			
219	AGND			104
220	AGND			
221	AGND			105
222	AGND			
223	AGND	FPC	AGND	106
224	AVCL	FPC	AVCL	107
225	AVCL			
226	AVCL			108
227	AVCL			
228	AVCL			109
229	AVCL			
230	DUMMY	FPC	DUMMY	110
231	DUMMY			
232	DUMMY			111
233	DUMMY			
234	DUMMY			112
235	DUMMY			
236	DUMMY	FPC	DUMMY	113
237	DUMMY			
238	DUMMY			114
239	DUMMY			
240	DUMMY			115
241	DUMMY			
242	AVDD	FPC	AVDD	116
243	AVDD			
244	AVDD			117
245	AVDD			
246	AVDD			118
247	AVDD			
248	AVDD			119
249	AVDD			
250	PGND	FPC	PGND	120
251	PGND			

252	PGND			121
253	PGND			
254	PGND			122
255	PGND			
256	PGND			123
257	PGND			
258	DUMMY	FPC	VCOM_TFT2	124
259	DUMMY			
260	DUMMY			125
261	DUMMY			126
262	AVDD1	FPC	AVDD1	
263	AVDD1			127
264	AVDD1			
265	AVDD1			128
266	AVDD1			
267	AVDD1			129
268	TESTOUT9	FPC	TESTOUT9	
269	TESTOUT9			130
270	TESTOUT9			
271	TESTOUT9			131
272	TESTOUT9			
273	TESTOUT9			132
274	AVCL1	FPC	AVCL1	
275	AVCL1			133
276	AVCL1			
277	AVCL1			134
278	AVCL1			
279	AVCL1			135
280	TESTOUT11	FPC	TESTOUT11	
281	TESTOUT11			136
282	TESTOUT11			
283	TESTOUT11			137
284	TESTOUT11			
285	TESTOUT11			138
286	PVDD	FPC	PVDD	

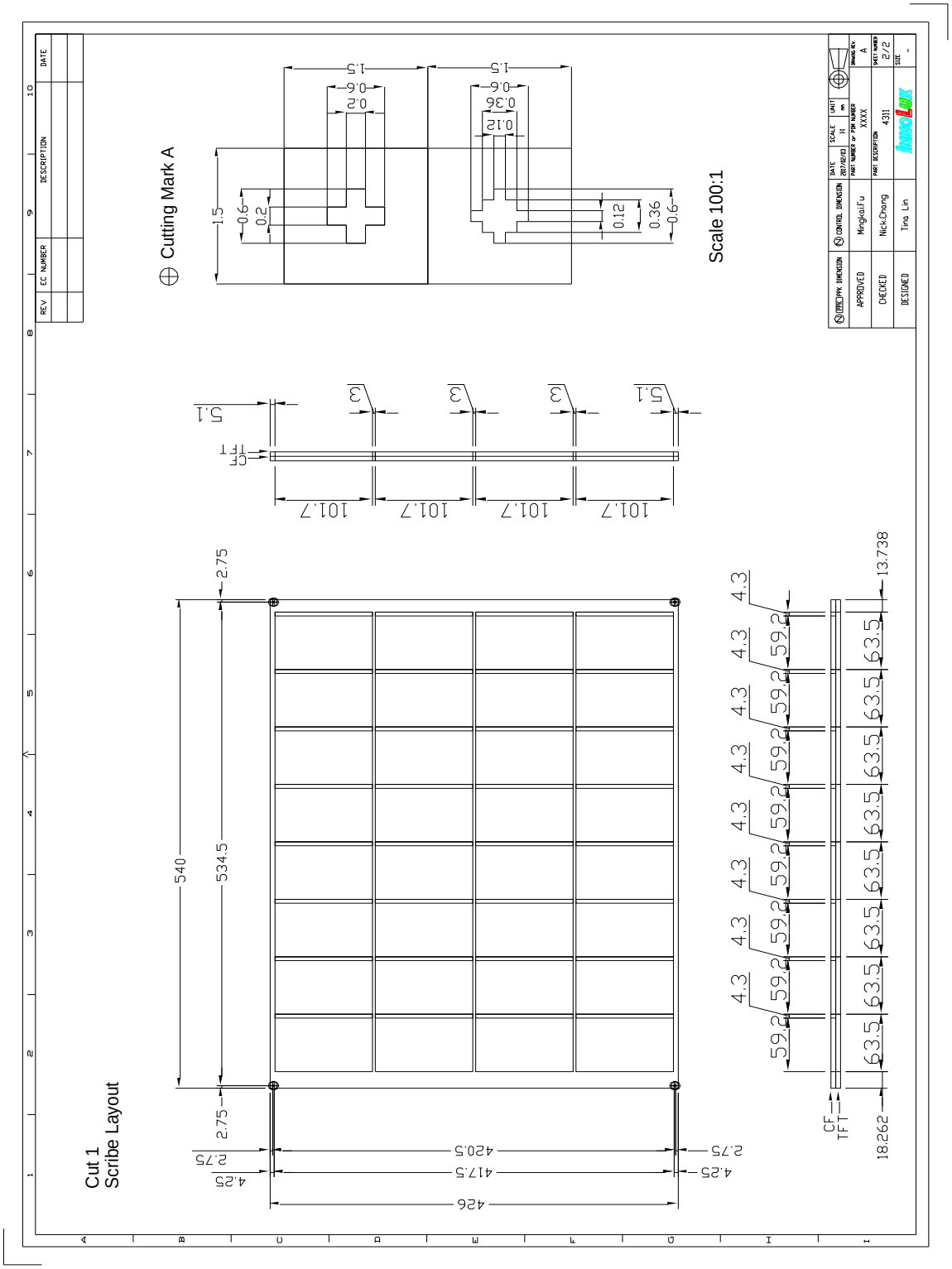
287	PVDD			139
288	PVDD			
289	PVDD			140
290	PVDD			
291	PVDD			141
292	PVDD			
293	PVDD			142
294	VGSP	FPC	VGSP	143
295	VGSP			
296	VGSP			
297	VGSP			144
298	VGSP			
299	VGSP			145
300	TESTOUT13	FPC	TESTOUT13	
301	TESTOUT13			146
302	TESTOUT13			
303	TESTOUT13			147
304	TESTOUT13			
305	TESTOUT13			148
306	VGH	FPC	VGH	
307	VGH			149
308	VGH			
309	VGH			150
310	VGH			
311	VGH			151
312	TESTOUT14	FPC	TESTOUT14	
313	TESTOUT14			152
314	TESTOUT14			
315	TESTOUT14			153
316	TESTOUT14			
317	TESTOUT14			154
318	TESTOUT15	FPC	TESTOUT15	
319	TESTOUT15			155
320	TESTOUT15			

321	TESTOUT15			156
322	TESTOUT15			
323	TESTOUT15			157
324	VGL	FPC	VGL	
325	VGL			158
326	VGL			
327	VGL			159
328	VGL			
329	VGL			160
330	DUMMY	FPC	DUMMY	161
331	DUMMY			
		FPC	VCOM_R	162
		FPC	VCOM_R	163
		FPC	VCOM_R	164
		FPC	DUMMY	165
		FPC	DUMMY	166

3.2 SCHEMATIC PANEL LAYOUT



4. CELL SCRIBE



5. ELECTRICAL SPECIFICATION

Item	Symbol	Specification			Unit
		Min.	Typ.	Max.	
TFT gate on voltage	VGH	--	15	--	V
TFT gate off voltage	VGL	--	-10	--	V
TFT common electrode voltage	Vcom(DC)	--	OTP. (1)	--	V
Control signal Logic 'H'	STVs, CKVs,RESET, BGAS, CKHs		VGH		V
Control signal Logic 'L'	STVs, CKVs, RESET, BGAS, CKHs		VGL		V

Note:(1) Vcom must be adjusted to optimize display quality: cross-talk, contrast ratio and etc.

(2) VGH is TFT gate operating voltage

(3) VGL is TFT gate operating voltage

(4) Environmental condition: 25±5

(5) Reference waveform for panel light on is as below: (release after sample output)

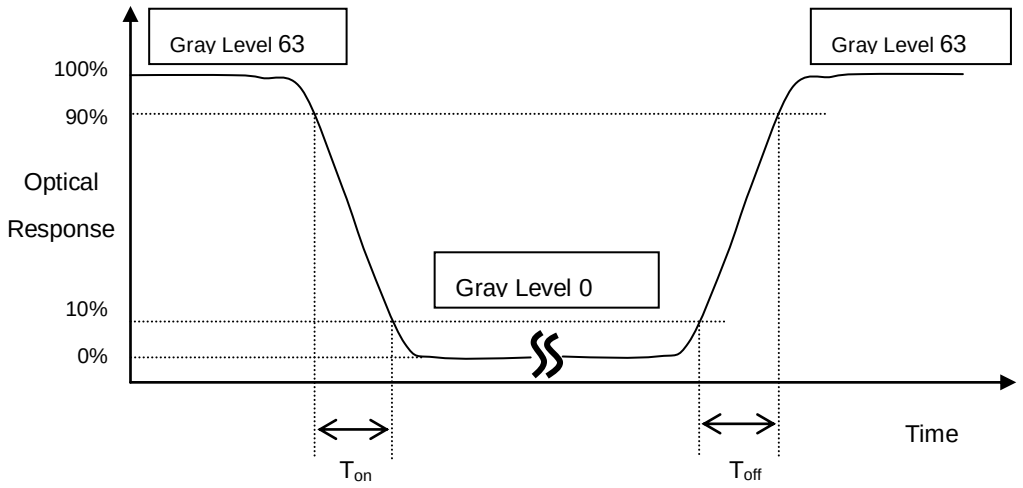
(6) Reference waveform timing for panel light on is as below:

6. OPTOCAL SPECIFICATION

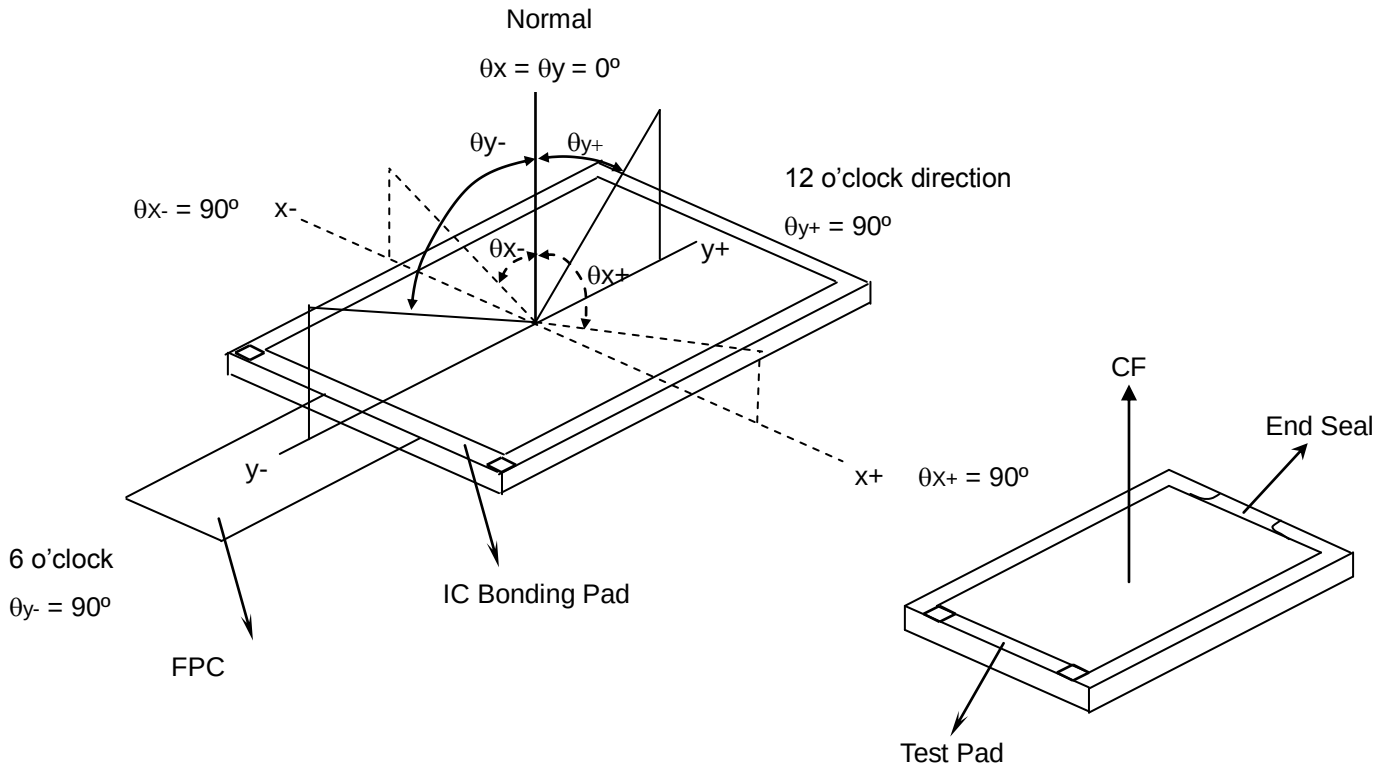
Item		Symbol	Conditions	Specifications			Unit	Note
				Min.	Typ.	Max.		
Transmittance (w/o APCF)		T%	Viewing normal angle $\theta_X = \theta_Y = 0°$	4.60	5.41	--	%	C-light
Contrast Ratio		CR		300	500	--	--	The left side data are based on INX's following condition – 1.LC : TN 2.Light Source :C light 3.Polarizer : CF NWF-LR-SEGAGS1(霧面) TFT NWF-LR-SEGAGS1(霧面) 4.Machine : DMS 803 5. VLC dark = 4.6V, VLC white = 0.5V
Response Time		$T_{on} + T_{off}$		--	25	50	ms	
Viewing Angle	Hor.	θ_{X+}	Center CR>10	60	70	--	deg.	
		θ_{X-}		60	70	--		
	Ver.	θ_{Y+}		40	50	--		
		θ_{Y-}		50	60	--		
CF only Color Chromaticity (CIE 1931)	Red	Rx	Viewing normal angle $\theta_X = \theta_Y = 0°$	0.588	0.618	0.648	-	Light Source :C-Light
		Ry		0.313	0.343	0.373	-	
	Green	Gx		0.276	0.306	0.336	-	
		Gy		0.497	0.527	0.557	-	
	Blue	Bx		0.109	0.139	0.169	-	
		By		0.068	0.098	0.128	-	
	White	Wx		0.283	0.313	0.343	-	
		Wy		0.293	0.323	0.353	-	
	Color Gamut			--	52	--	%	

CR (X) is corresponding to the Contrast Ratio of the point X at Figure in Note (5).

*Note (2) Definition of Response Time (T_{on}, T_{off}):

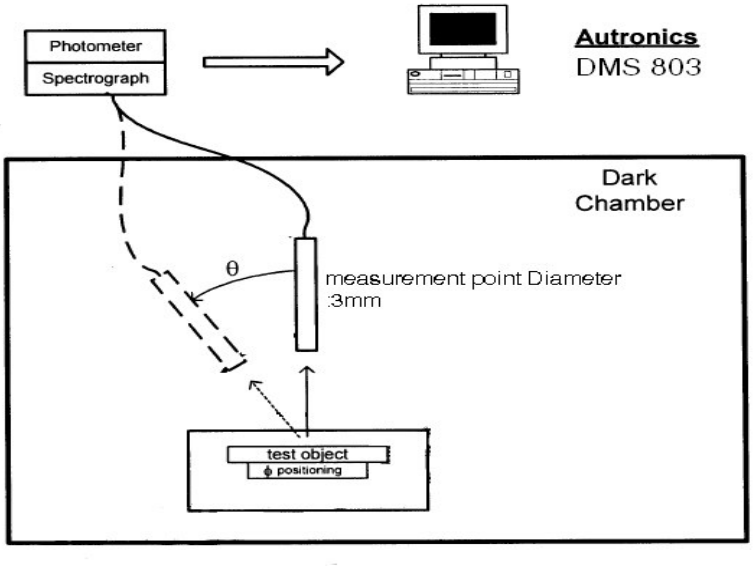


*Note(3) Definition of Viewing Angle

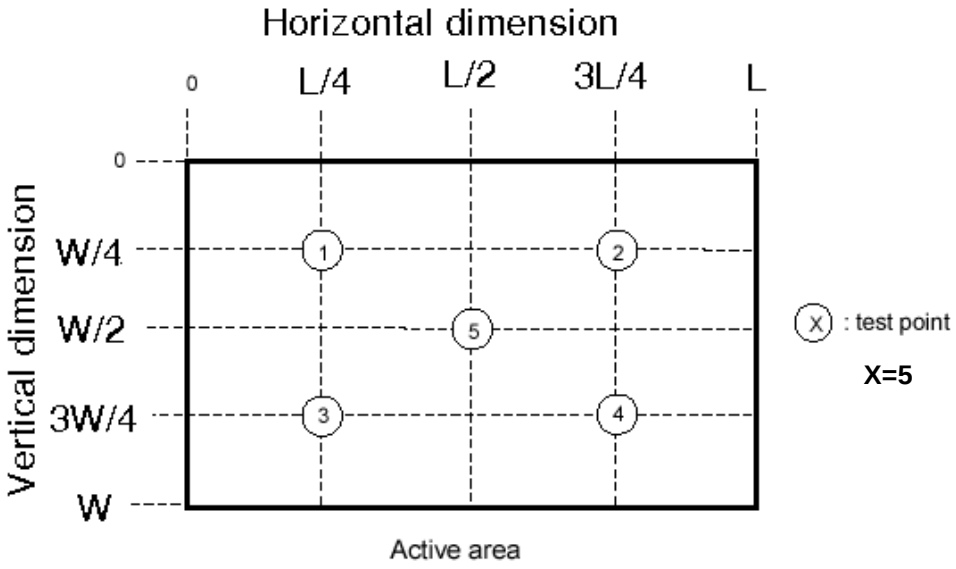


*Note (4) Measurement Set-Up:

The LCD module should be stabilized at a given temperature for 20 minutes to avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting Backlight for 20 minutes in a windless room.



*Note (5)



7. RELIABILITY SPECIFICATION

No.	Test Item	Test Condition	Check Time
1	High Temp Storage	Ta= 90℃	240 hrs
2	Low Temp Storage	Ta= -40℃	240 hrs
3	High Temp Operation	Ta= 85℃	240 hrs
4	Low Temp Operation	Ta= -30℃	240 hrs
5	High Temp & High Humidity Operation	Ta=60℃ H=90%RH	240 hrs

Note:

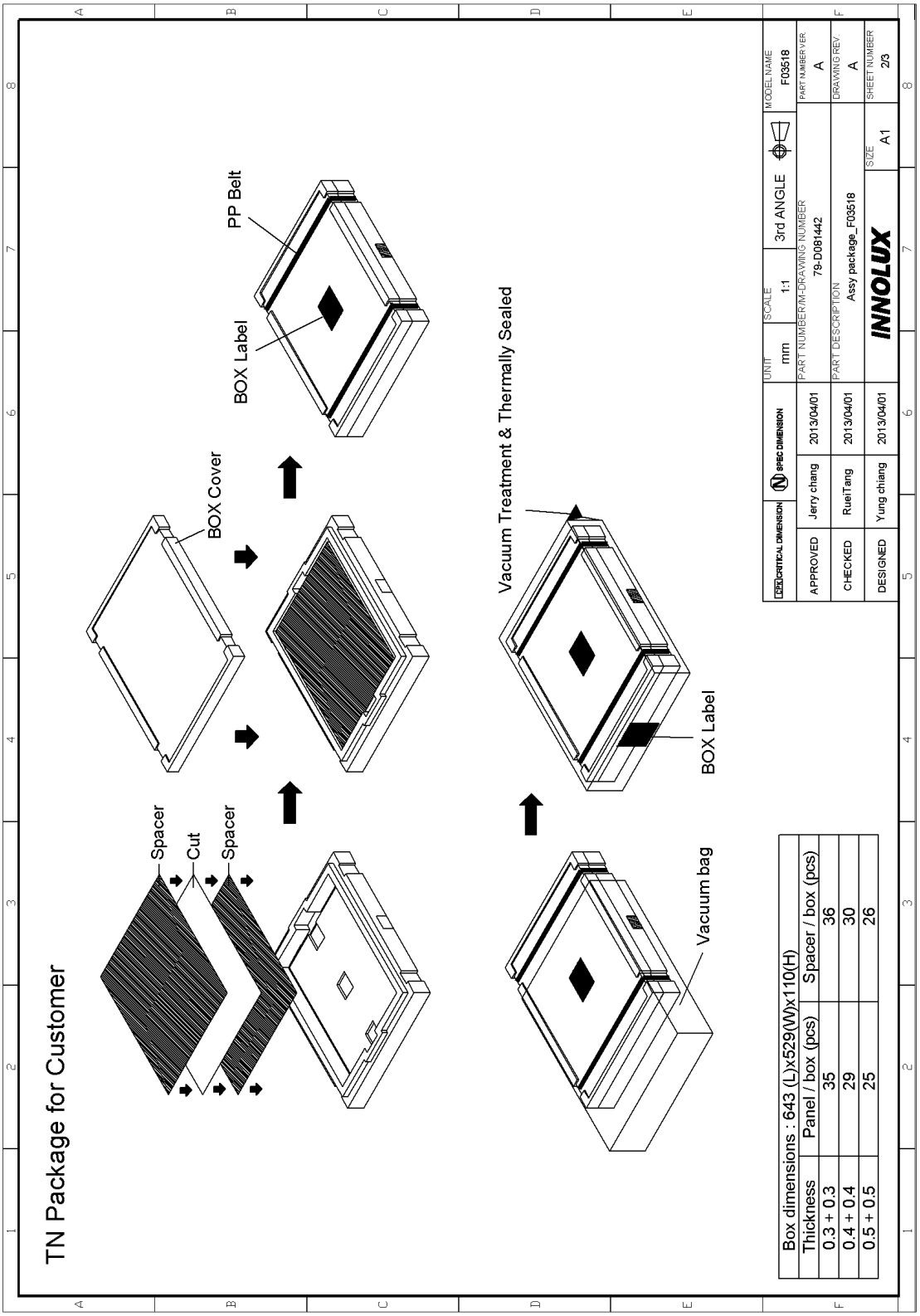
(1)The test samples have recovery time need more than 2 hours at room temperature before the function check. In the standard conditions , there is no abnormal display function occurred .

(2)After the reliability test , the product only guarantees operational function , but don't guarantee all of the cosmetic specification.

(3)Under no condensation of dew.

8. PACKAGE FORM

8.1 PACKAGE



8.2 PALLET