INNOLUX 群創光電

Doc. Number:

■ Tentative Specification
☐ Preliminary Specification
☐ Approval Specification

MODEL NO : HE080IA-06B

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

- CONTENTS -

INNOLUX 群創光電

REVISION HISTORY

Version	Date	Page (New)	Section	Description
Ver. 0.0	2016/03/09	All	All	Product spec was first issued for LCD cut.

1.PURPOSE

The specification HE080IA-06B is a 8” a-Si TFT Liquid Crystal Display ODF cell. The ODF 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 black mode a-Si TFT-LCD product.

2.GENERAL RULES OF SINGLE PANEL

2.1 GENERAL SPECIFICATION

	Item		Specification	unit
1	Glass thickness	TFT	0.4	mm
		CF	0.4	
2	Shipping mode		Cut	-
3	Shipping size		365.862 x 363.6 x 0.8	mm
4	Panel outline dimension		112.64(H) x 181.8(V) x 0.8(D)	mm
5	Active screen size		107.64(H) x 172.224(V)	mm
6	Resolution		800 x RGB x 1280	pixel
7	Pixel driving element		a-Si TFT	-
8	Sub pixel size		44.85 x 134.55	um
9	Pixel arrangement		RGB-stripe	-
10	View direction (Gray inversion)		Free	-
11	Cell gap		3.2±0.3	um
12	Driver IC		NT35521 JD9367(FITI)	-
13	Weight without POL		0.257	kg
14	Scanning Method		Dual scan	-

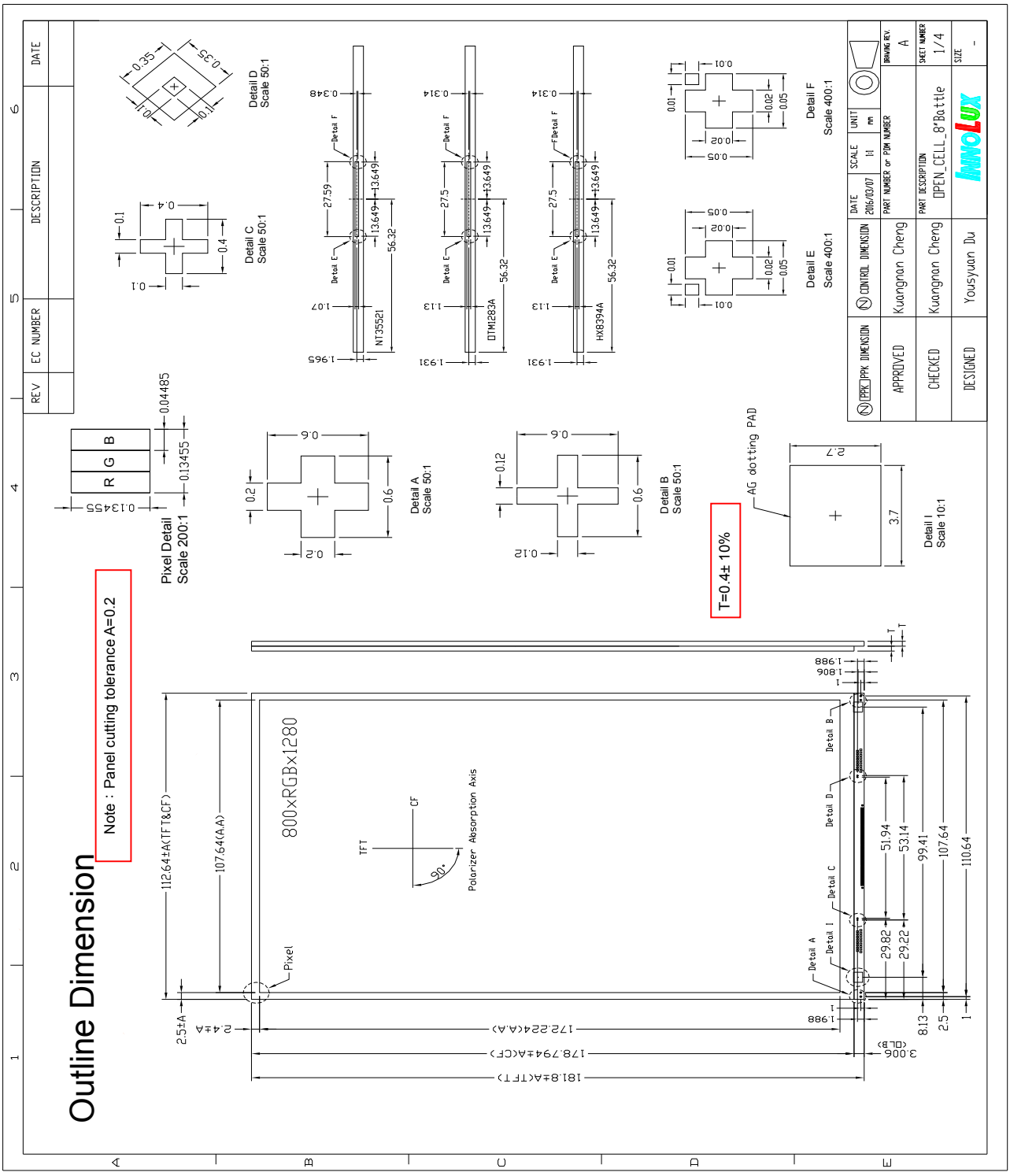
<Note> 1. Compatible IC : OTM1283A / HX8394-A / R61318 / JD9367 / ILI9881 / NT35521S / HX8394-D / ILI9881C / JD9364 / OTM1284A / OTM1287A / HX8394-F

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 with(without) bumping compensation.

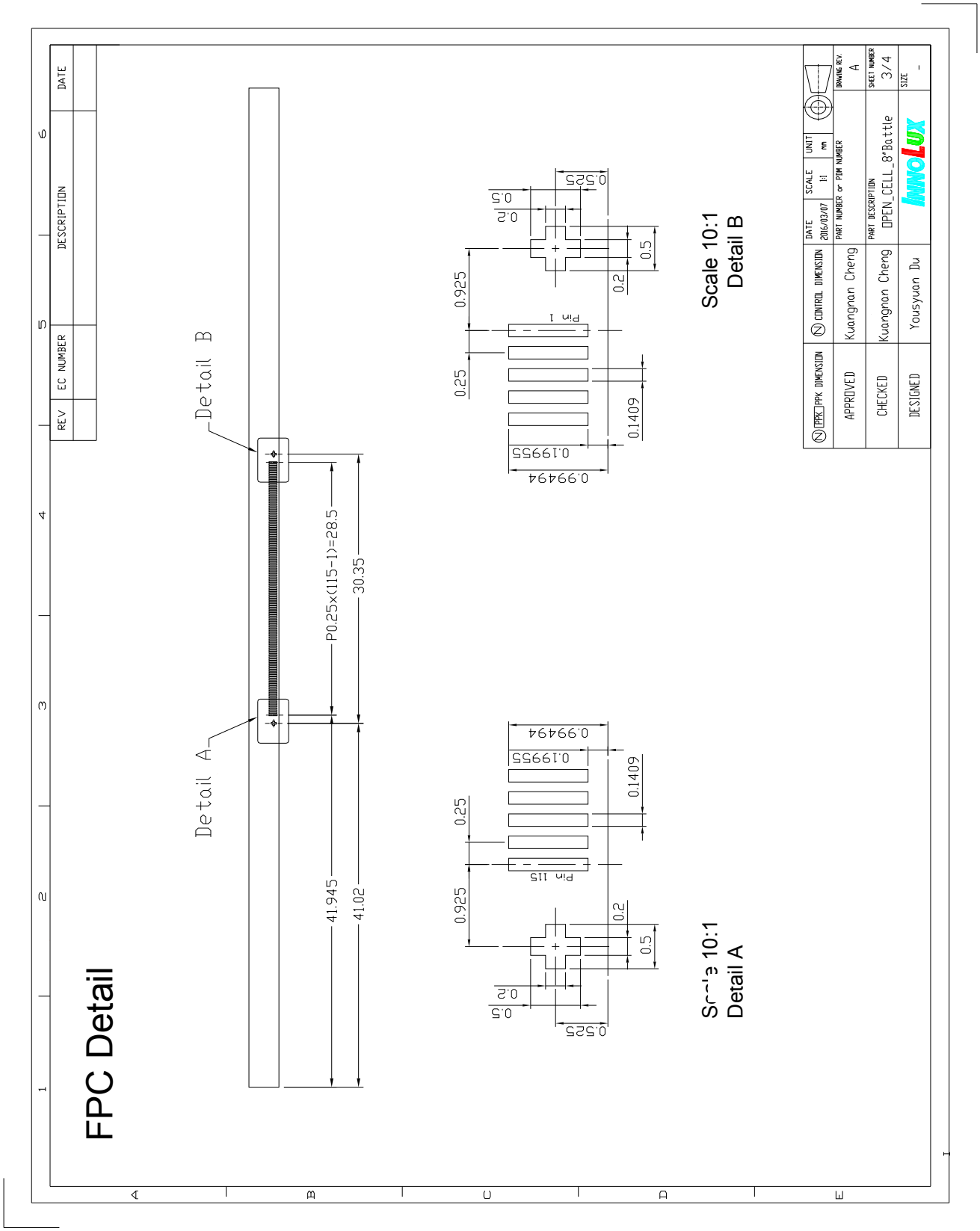
2.2 DIMENSION

2.2.1 OUTLINE DIMENSION

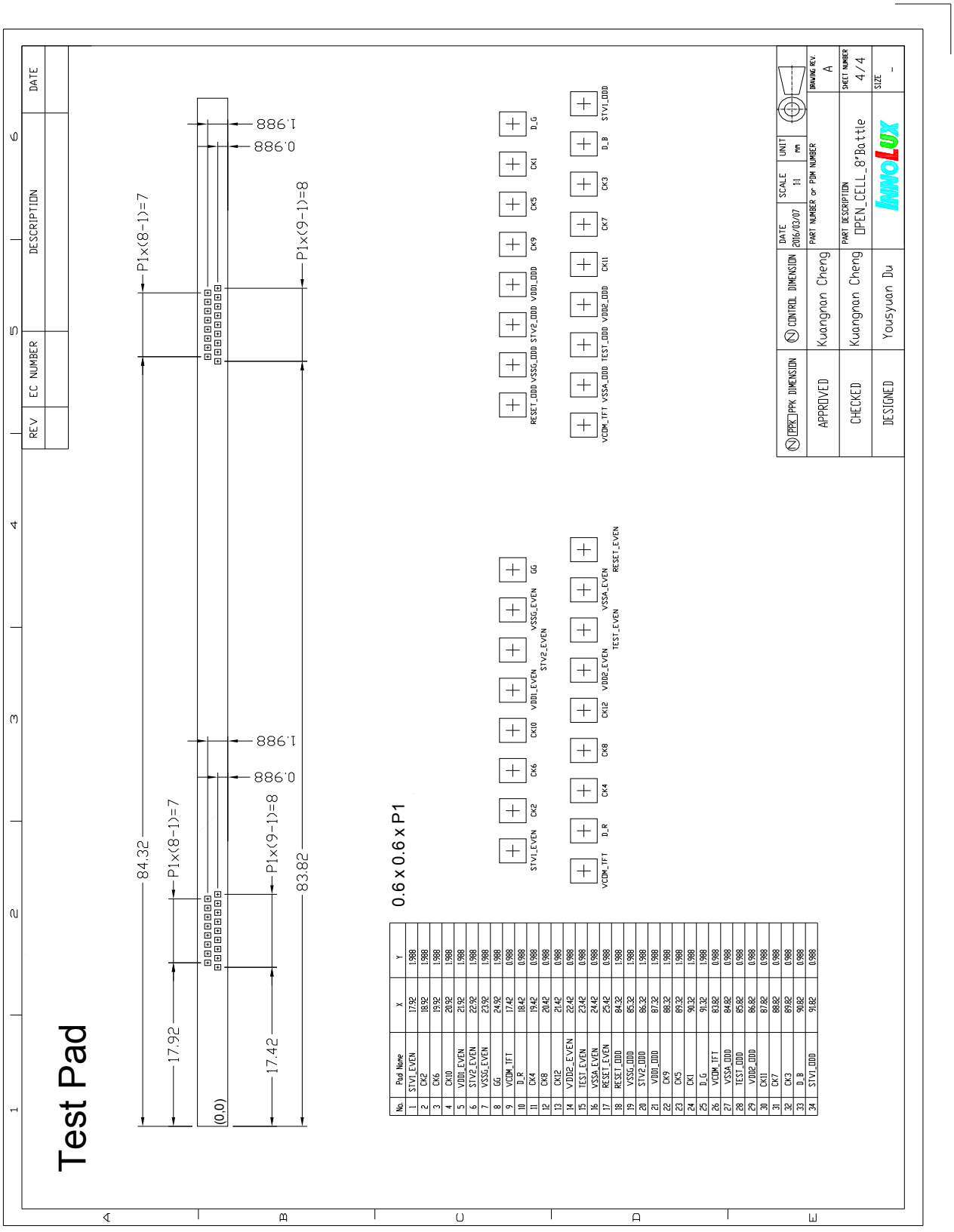


Note: (1) panel outline dimension tolerance ±0.2 mm

2.2.2 FPC DETAIL



2.2.3 TEST PAD



No.	Pad Name	X	Y
1	STV1_EVEN	17.92	1.988
2	CK2	18.92	1.988
3	CK6	19.92	1.988
4	CK10	20.92	1.988
5	VDD1_EVEN	21.92	1.988
6	STV2_EVEN	22.92	1.988
7	VSSG_EVEN	23.92	1.988
8	GG	24.92	1.988
9	VCOM_TFT	17.42	0.988
10	D_R	18.42	0.988
11	CK4	19.42	0.988
12	CK8	20.42	0.988
13	CK12	21.42	0.988
14	VDD2_EVEN	22.42	0.988
15	TEST_EVEN	23.42	0.988
16	VSSA_EVEN	24.42	0.988
17	RESET_EVEN	25.42	0.988
18	RESET_ODD	84.32	1.988
19	VSSG_ODD	85.32	1.988
20	STV2_ODD	86.32	1.988
21	VDD1_ODD	87.32	1.988
22	CK9	88.32	1.988
23	CK5	89.32	1.988
24	CK1	90.32	1.988
25	D_G	91.32	1.988
26	VCOM_TFT	83.82	0.988
27	VSSA_ODD	84.82	0.988
28	TEST_ODD	85.82	0.988
29	VDD2_ODD	86.82	0.988
30	CK11	87.82	0.988
31	CK7	88.82	0.988
32	CK3	89.82	0.988
33	D_B	90.82	0.988
34	STV1_ODD	91.82	0.988

3. PIN ASSIGNMENT

3.1 FPC/IC PIN ASSIGNMENT TABLE

NT35521				
Pad No.	Pad_Name	Connect to	FPC Pin Name	FPC Pin No.
X	X	FPC	DUMMY	1
X	X	FPC	DUMMY	2
X	X	ITO GND	IPS_GND	3
24	VCOM	Panel_VCOM FPC	VCOM	4
25	VCOM			
26	VCOM			
27	AVSS	FPC	AVSS	5
28	AVSS			
29	AVSS			
30	AVSS			
31	AVSS			
32	AVSS			
33	AVSS			
34	AVSS			
35	AVSS			
36	AVSS			
37	MVDDL	FPC	MVDDL	6
38	MVDDL			
39	VSSAM	FPC	VSSAM	7
40	HSSI_D0_N	FPC	HSSI_D0_N	8
41	HSSI_D0_N			
42	HSSI_D0_N			
43	HSSI_D0_N			
44	HSSI_D0_N			
45	HSSI_D0_N			
46	HSSI_D0_P	FPC	HSSI_D0_P	9
47	HSSI_D0_P			
48	HSSI_D0_P			
49	HSSI_D0_P			
50	HSSI_D0_P			
51	HSSI_D0_P			
52	VSSAM	FPC	VSSAM	10
53	HSSI_D1_N	FPC	HSSI_D1_N	11
54	HSSI_D1_N			
55	HSSI_D1_N			
56	HSSI_D1_N			
57	HSSI_D1_N			
58	HSSI_D1_N			
59	HSSI_D1_P	FPC	HSSI_D1_P	12
60	HSSI_D1_P			
61	HSSI_D1_P			

62	HSSI_D1_P			
63	HSSI_D1_P			
64	HSSI_D1_P			
65	VSSAM	FPC	VSSAM	13
66	HSSI_CLK_N	FPC	HSSI_CLK_N	14
67	HSSI_CLK_N			
68	HSSI_CLK_N			
69	HSSI_CLK_N			
70	HSSI_CLK_N			
71	HSSI_CLK_N			
72	HSSI_CLK_P	FPC	HSSI_CLK_P	15
73	HSSI_CLK_P			
74	HSSI_CLK_P			
75	HSSI_CLK_P			
76	HSSI_CLK_P			
77	HSSI_CLK_P			
78	VSSAM	FPC	VSSAM	16
79	HSSI_D2_N	FPC	HSSI_D2_N	17
80	HSSI_D2_N			
81	HSSI_D2_N			
82	HSSI_D2_N			
83	HSSI_D2_N			
84	HSSI_D2_N			
85	HSSI_D2_P	FPC	HSSI_D2_P	18
86	HSSI_D2_P			
87	HSSI_D2_P			
88	HSSI_D2_P			
89	HSSI_D2_P			
90	HSSI_D2_P			
91	VSSAM	FPC	VSSAM	19
92	HSSI_D3_N	FPC	HSSI_D3_N	20
93	HSSI_D3_N			
94	HSSI_D3_N			
95	HSSI_D3_N			
96	HSSI_D3_N			
97	HSSI_D3_N			
98	HSSI_D3_P	FPC	HSSI_D3_P	21
99	HSSI_D3_P			
100	HSSI_D3_P			
101	HSSI_D3_P			
102	HSSI_D3_P			
103	HSSI_D3_P			
104	VSSAM	FPC	VSSAM	22
105	VSSAM			
106	VSSAM			
107	VSSAM			

108	VSSAM			
109	VSSAM			
110	VSSAM			
111	VSSAM			
112	VSSAM			
113	VSSAM			
114	VSSAM			
115	VSSAM			
116	MVDDA	FPC	MVDDA	23
117	MVDDA			
118	MVDDA			
119	MVDDA			
120	MVDDA			
121	MVDDA			
122	MVDDA			
123	MVDDA			
124	MVDDA			
125	MVDDA			
126	MVDDA			
127	MVDDA			
128	VDDA	FPC	VDDA	24
129	VDDA			
130	VDDA			
131	VDDA			
132	VDDA			
133	VDDA			
134	VDDA			25
135	VDDA			
136	VDDA			
137	VDDA			
138	VDDA			
139	VDDA			
140	VDDI	FPC	VDDI	26
141	VDDI			
142	VDDI			
143	VDDI			
144	VDDI			
145	VDDI			
146	VDDI			
147	VDDI			27
148	VDDI			
149	VDDI			
150	VDDI			
151	VDDI			
152	VDDI			
153	VDDI			

154	VDDI			
155	DVDD	FPC	DVDD	28
156	DVDD			
157	DVDD			
158	DVDD			
159	DVDD			
160	DVDD			
161	DVDD			
162	DVDD			
163	DVDD			
164	DVDD			
165	DVDD			
166	DVDD			
167	DVDD			
168	DVDD			
169	DVDD			
170	DVSS	FPC	DVSS	29
171	DVSS			
172	DVSS			
173	DVSS			
174	DVSS			
175	DVSS			
176	DVSS			
177	DVSS			
178	DVSS			
179	DVSS			
180	DVSS			
181	DVSS			
182	DVSS			
183	DVSS			
184	DVSS			
185	OSC_MIPI			
186	OSC_MIPI			
187	VSSB	FPC	VSSB	30
188	VSSB			
189	VSSB			31
190	VSSB			
191	VSSB			32
192	VSSB			
193	VSSB			33
194	VSSB			
195	AVSS	FPC	AVSS	34
196	AVSS			
197	AVSS			35
198	AVSS			
199	AVSS			36

200	AVSS			37
201	AVSS			38
202	AVSS			
203	AVDD	FPC	AVDD	39
204	AVDD			40
205	AVDD			
206	AVDD			41
207	AVDD			
208	AVDD			42
209	AVDD			
210	AVEE	FPC	AVEE	43
211	AVEE			
212	AVEE			44
213	AVEE			
214	AVEE			45
215	AVEE			
216	C21P			
217	C21P			
218	C21P			
219	C21P			
220	C21P	FPC	C21P	46
221	C21P			
222	C21N			
223	C21N			
224	C21N			
225	C21N			
226	C21N			
227	C21N			
228	C22P			
229	C22P			
230	C22P			
231	C22P			
232	C22P			
233	C22P			
234	C22N			
235	C22N			
236	C22N			
237	C22N			
238	C22N	FPC	C21N	47
239	C22N			
240	T_D7			
241	T_D6			
242	T_D5			
243	T_D4			
244	T_D3			
245	T_D2			

246	T_D1			
247	T_D0			
248	T_HS			
249	T_VS			
250	T_DE			
251	T_PK			
252	T_IM			
253	T_IM			
254	TEST6			
255	TEST7			
256	PSWAP	FPC	PSWAP	48
257	PSWAP			
258	DSWAP0	FPC	DSWAP0	49
259	DSWAP0			
260	DSWAP1	FPC	DSWAP1	50
261	DSWAP1			
262	DSWAP2	FPC	DSWAP2	51
263	DSWAP2			
264	D/CX			
265	D/CX			
266	CSX			
267	CSX			
268	SCL			
269	SCL			
270	SDI			
271	SDI			
272	SDO			
273	SDO			
274	LEDPWM	FPC	LEDPWM	52
275	LEDPWM			
276	LEDPWM			
277	LEDPWM			
278	TE	FPC	TE	53
279	TE			
280	TE			
281	TE			
282	TE			
283	TE			
284	TE1	FPC	TE1	54
285	TE1			
286	TE1			
287	TE1			
288	TE1			
289	TE1			
290	RESX	FPC	RESX	55
291	RESX			

292	RESX			
293	RESX			
294	T_RD			
295	T_RD			
296	VDDI	FPC	VDDI	56
297	VDDI			
298	VDDI			
299	VDDI			
300	VDDI			
301	VDDI			
302	IM0	FPC	IM0	57
303	IM0			
304	IM1	FPC	IM1	58
305	IM1			
306	LANSEL0	FPC	LANSEL0	59
307	LANSEL0			
308	LANSEL1	FPC	LANSEL1	60
309	LANSEL1			
310	VGSW0	FPC	VGSW0	61
311	VGSW0			
312	VGSW1	FPC	VGSW1	62
313	VGSW1			
314	VSSI	FPC	VSSI	63
315	VSSI			
316	VSSI			
317	VSSI			
318	VGSW2	FPC	VGSW2	64
319	VGSW2			
320	VGSW3	FPC	VGSW3	65
321	VGSW3			
322	BTM0	FPC	BTM0	66
323	BTM0			
324	BTM1	FPC	BTM1	67
325	BTM1			
326	BTM2	FPC	BTM2	68
327	BTM2			
328	DVDD	FPC	DVDD	69
329	DVDD			
330	DVDD			
331	DVDD			
332	DVDD			
333	DVDD			
334	DVDD			
335	DVDD			
336	DVDD			
337	DVDD			

338	DVSS	FPC	DVSS	70
339	DVSS			
340	DVSS			
341	DVSS			
342	DVSS			
343	DVSS			
344	DVSS			
345	DVSS			
346	DVSS			
347	DVSS			
348	AVDD	FPC	AVDD	71
349	AVDD			
350	AVDD			
351	AVDD			
352	AVDD			
353	AVDD			
354	AVDD			
355	AVDD			
356	AVDD			
357	AVDD			
358	EXTP	FPC	EXTP	72
359	EXTP			
360	EXTP			
361	EXTP			
362	EXTP			
363	EXTP			
364	EXTP			
365	EXTP			
366	EXTN	FPC	EXTN	73
367	EXTN			
368	EXTN			
369	EXTN			
370	EXTN			
371	EXTN			
372	EXTN			
373	EXTN			
374	CSPN	FPC	CSPN	74
375	CSPN			
376	CSPN			
377	CSPN			
378	CSPN			
379	CSPN			
380	VGL_REG2	FPC	VGL_REG2	75
381	VGL_REG2			
382	VGL_REG	FPC	VGL_REG	76
383	VGL_REG			

384	VGL_REG			
385	VGL_REG			
386	VGL_REG			
387	VSSA	FPC	VSSA	77
388	VSSA			
389	VSSA			
390	VSSA			
391	VSSA			
392	VSSR	FPC	VSSR	78
393	VSSR			
394	VSSR			
395	VDDR	FPC	VDDR	79
396	VDDR			
397	VDDR			
398	VDDR			
399	AVEE	FPC	AVEE	80
400	AVEE			
401	AVEE			
402	AVEE			
403	AVEE			
404	AVEE			
405	AVEE			
406	VGMP	FPC	VGMP	81
407	VGMP			
408	VGMP			
409	VGMN	FPC	VGMN	82
410	VGMN			
411	VGMN			
412	VREF	FPC	VREF	83
413	VREF			
414	VREF			
415	VEQP_SD	FPC	VEQP_SD	84
416	VEQP_SD			
417	VEQP_SD			
418	VEQP_SD			
419	VEQP_SD			
420	VCL	FPC	VCL	85
421	VCL			
422	VCL			
423	VCL			
424	VCL			
425	VCL			
426	VCL			
427	VCL			
428	VEQN_SD	FPC	VEQN_SD	86
429	VEQN_SD			

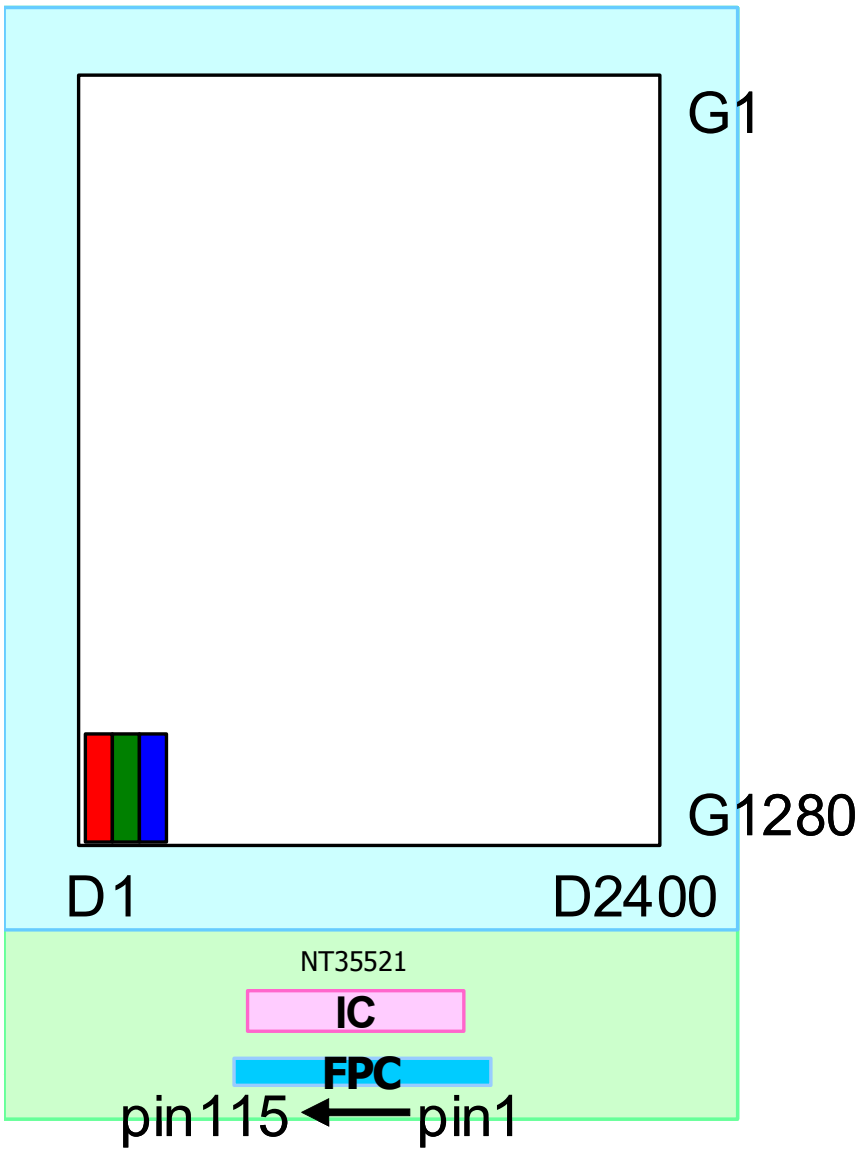
430	VEQN_SD			
431	VEQN_SD			
432	VEQN_SD			
433	C31P	FPC	C31P	87
434	C31P			
435	C31P			
436	C31P			
437	C31P			
438	C31P			
439	C31P			
440	C31N	FPC	C31N	88
441	C31N			
442	C31N			
443	C31N			
444	C31N			
445	C31N			
446	C31N			
447	C32P	FPC	C32P	89
448	C32P			
449	C32P			
450	C32P			
451	C32P			
452	C32P			
453	C32P			
454	C32N	FPC	C32N	90
455	C32N			
456	C32N			
457	C32N			
458	C32N			
459	C32N			
460	C32N			
461	VDDB	FPC	VDDB	91
462	VDDB			
463	VDDB			
464	VDDB			
465	VDDB			
466	VDDB			
467	VDDB			
468	VSSB	FPC	VSSB	92
469	VSSB			
470	VSSB			
471	VSSB			
472	VSSB			
473	VSSB			
474	VSSB			
475	C41P	FPC	C41P	93

476	C41P			
477	C41P			
478	C41P			
479	C41P			
480	C41P			
481	C41P			
482	C41N	FPC	C41N	94
483	C41N			
484	C41N			
485	C41N			
486	C41N			
487	C41N			
488	C41N			
489	C42P	FPC	C42P	95
490	C42P			
491	C42P			
492	C42P			
493	C42P			
494	C42P			
495	C42P			
496	C42N	FPC	C42N	96
497	C42N			
498	C42N			
499	C42N			
500	C42N			
501	C42N			
502	C42N			
503	VGH	FPC	VGH	97
504	VGH			
505	VGH			
506	VGH			
507	VGH			
508	VGH			
509	VRGH	FPC	VRGH	98
510	VRGH			
511	VRGH			
512	VRGH			
513	VRGH			
514	VRGH			
515	AVEE	FPC	AVEE	99
516	AVEE			
517	AVEE			
518	AVEE			
519	AVEE			
520	AVEE			
521	AVEE			

522	AVEE			
523	C51P	FPC	C51P	100
524	C51P			
525	C51P			
526	C51P			
527	C51P			
528	C51P			
529	C51P			
530	C51N	FPC	C51N	101
531	C51N			
532	C51N			
533	C51N			
534	C51N			
535	C51N			
536	C51N			
537	VGLX	FPC	VGLX	102
538	VGLX			
539	VGLX			
540	VGLX			
541	VGLX			
542	VGLX			
543	VGLX			
544	AVDD	FPC	AVDD	103
545	AVDD			
546	AVDD			
547	AVDD			
548	AVDD			
549	AVDD			
550	AVDD			
551	VDDA	FPC	VDDA	104
552	VDDA			
553	VDDA			
554	VDDA			
555	VDDA			
556	VDDA			
557	VSSB	FPC	VSSB	105
558	VSSB			
559	VSSB			
560	VSSB			
561	VSSB			
562	VSSB			
563	VSSB			
564	C11P	FPC	C11P	106
565	C11P			
566	C11P			
567	C11P			

568	C11P			
569	C11P			
570	C11P			
571	C11N	FPC	C11N	107
572	C11N			
573	C11N			
574	C11N			
575	C11N			
576	C11N			
577	MTP_PWR	FPC	MTP_PWR	108
578	MTP_PWR			
579	MTP_PWR			109
580	MTP_PWR			
581	VCOM	FPC	VCOM	110
582	VCOM			
583	VCOM			
X	X	Panel_VCOM	VCOM	111
X	X		VCOM	112
X	X		VCOM	113
X	X	ITO GND	IPS_GND	114
X	X	FPC	DUMMY	115

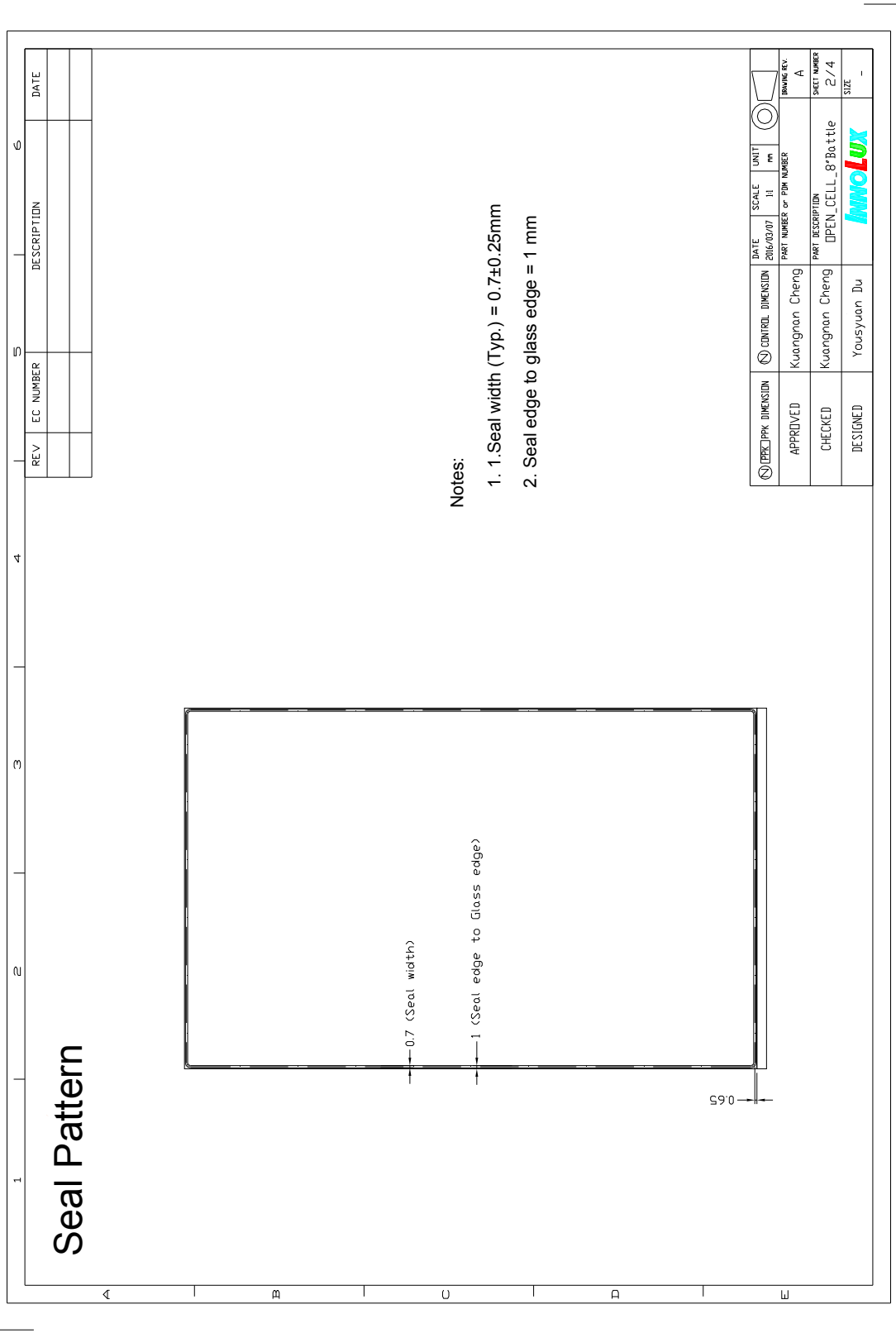
3.2 SCHEMATIC PANEL LAYOUT



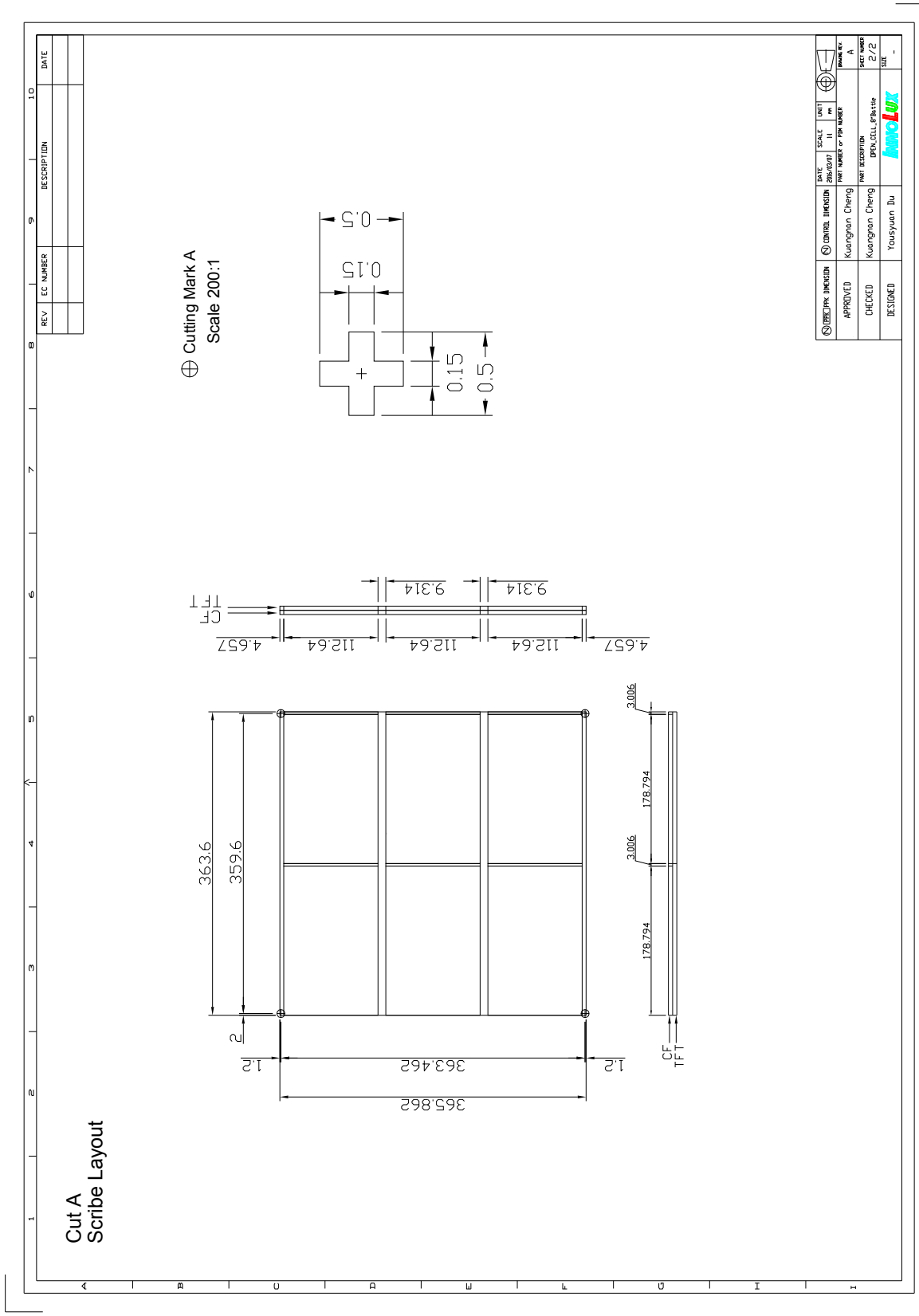
Note : GOP can support dual scan.

4. CELL PROCESS RULES

4.1 SEAL / AU PATTERN



5. CELL SCRIBE



6.ELECTRICAL SPECIFICATION

Item	Symbol	Specification			Unit
		Min.	Typ.	Max.	
TFT gate on voltage	VGH		(18)	TFT gate on voltage	V
TFT gate on voltage	VGL_GOP		-12	TFT gate on voltage	V
TFT gate on voltage	VGL_AA		-10	TFT gate on voltage	V
TFT common electrode voltage	Vcom(DC)		NA	TFT common electrode voltage	V

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

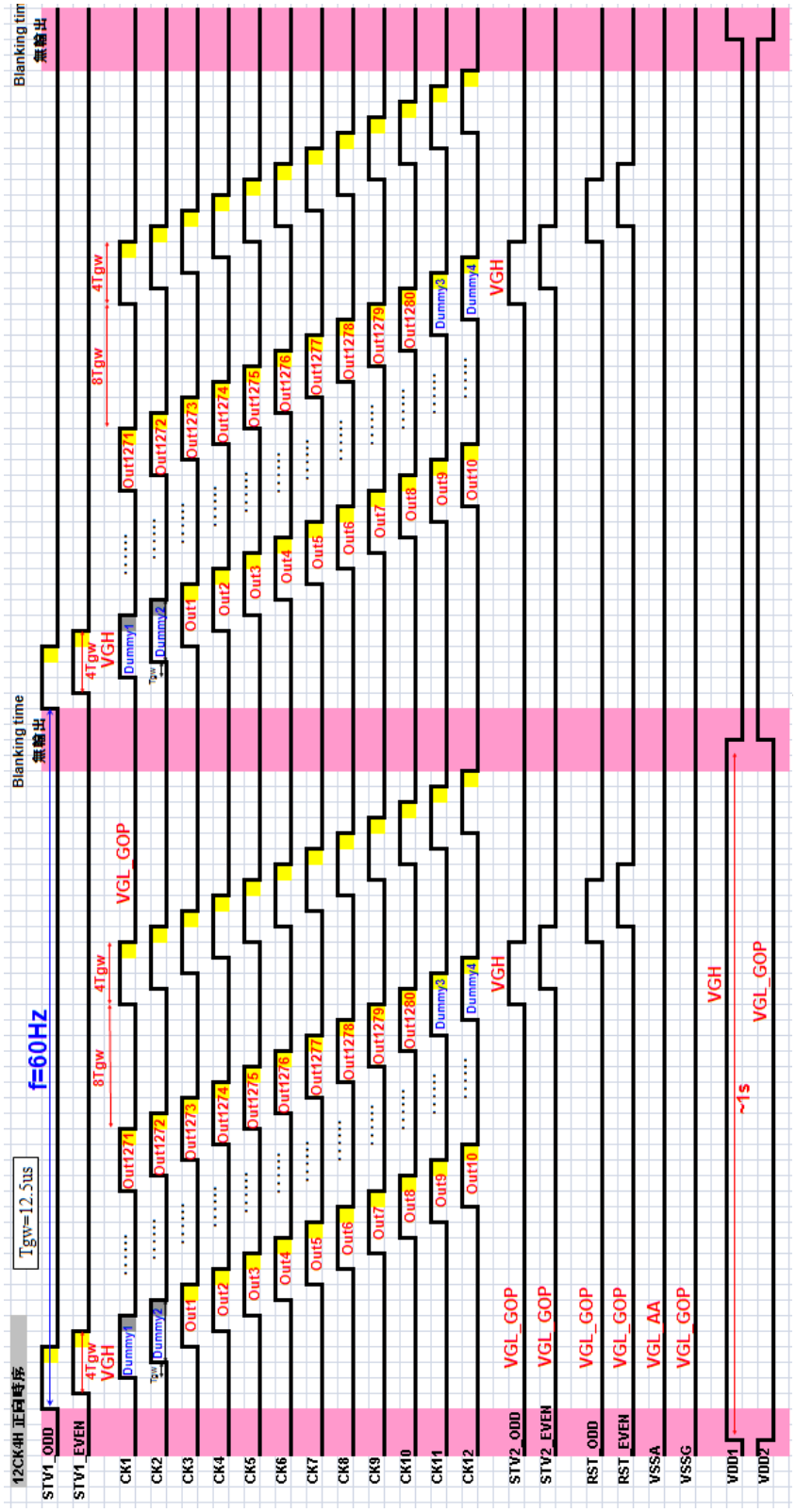
(2) VGH is TFT gate operating voltage

(3) VGL_GOP and VGL_AA are 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:



7. OPTICAL SPECIFICATION (light source: C light)

Item		Symbol	Conditions	Specifications			Unit	Note
				Min.	Typ.	Max.		
Transmittance (w/o APCF)		T%	Viewing normal angle $\theta_X = \theta_Y = 0°$	4.3	5.0	--	%	All left side data are based on Innolux's following condition – 1.LC : AAS 2.Light Source : Innolux LED (BLU film structure: Diffuser+BEF+BEF+ Diffuser_ 3.Polarizer (CF/TFT) : Sumika SRW062APN1HC5/ SRW062APN1AG6 4.Machine : DMS-803 (Eldim for ViewAngle) 5. VLC white : 4.8V, VLC dark : 0.3V
Contrast Ratio		CR		800	1000	--	--	
Response Time		$T_{on} + T_{off}$		-	25	30	ms	
Viewing Angle	Hor.	θ_{X+}	Center CR>10		85	--	deg.	
		θ_{X-}			85	--		
	Ver.	θ_{Y+}			85	--		
		θ_{Y-}			85	--		
CF only Color Chromaticity (CIE 1931)	Red	Rx	Viewing normal angle $\theta_X = \theta_Y = 0°$	Typ - 0.03	0.628	Typ + 0.03	-	Under C light (CIE 1931)
		Ry			0.332		-	
	Green	Gx			0.312		-	
		Gy			0.550		-	
	Blue	Bx			0.143		-	
		By			0.111		-	
	White	Wx			0.307		-	
		Wy			0.329		-	
	Color Gamut			50%	55%	--	%	

*Note(1) Definition of Contrast Ratio (CR):

The contrast ratio can be calculated by the following expression.

Contrast Ratio (CR) = L255 / L0

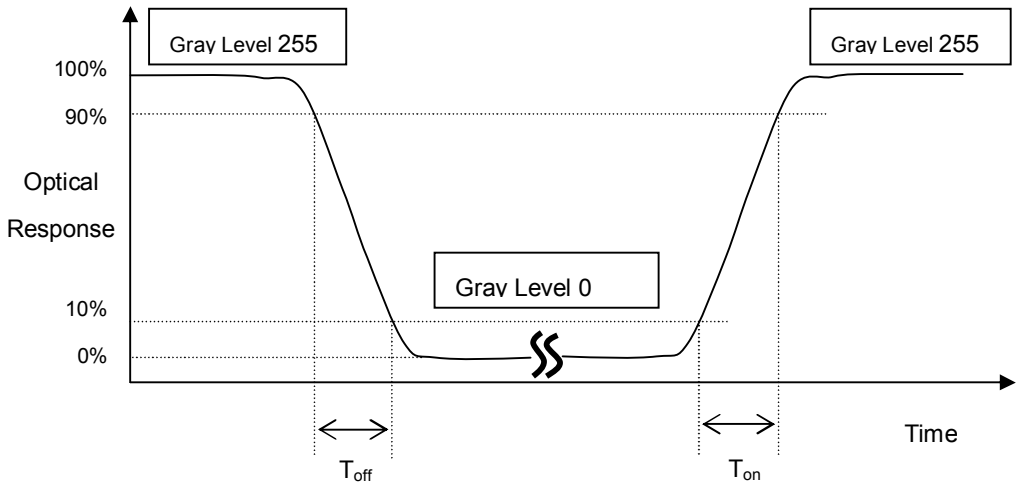
L255 : Luminance of gray level 255

L 0: Luminance of gray level 0

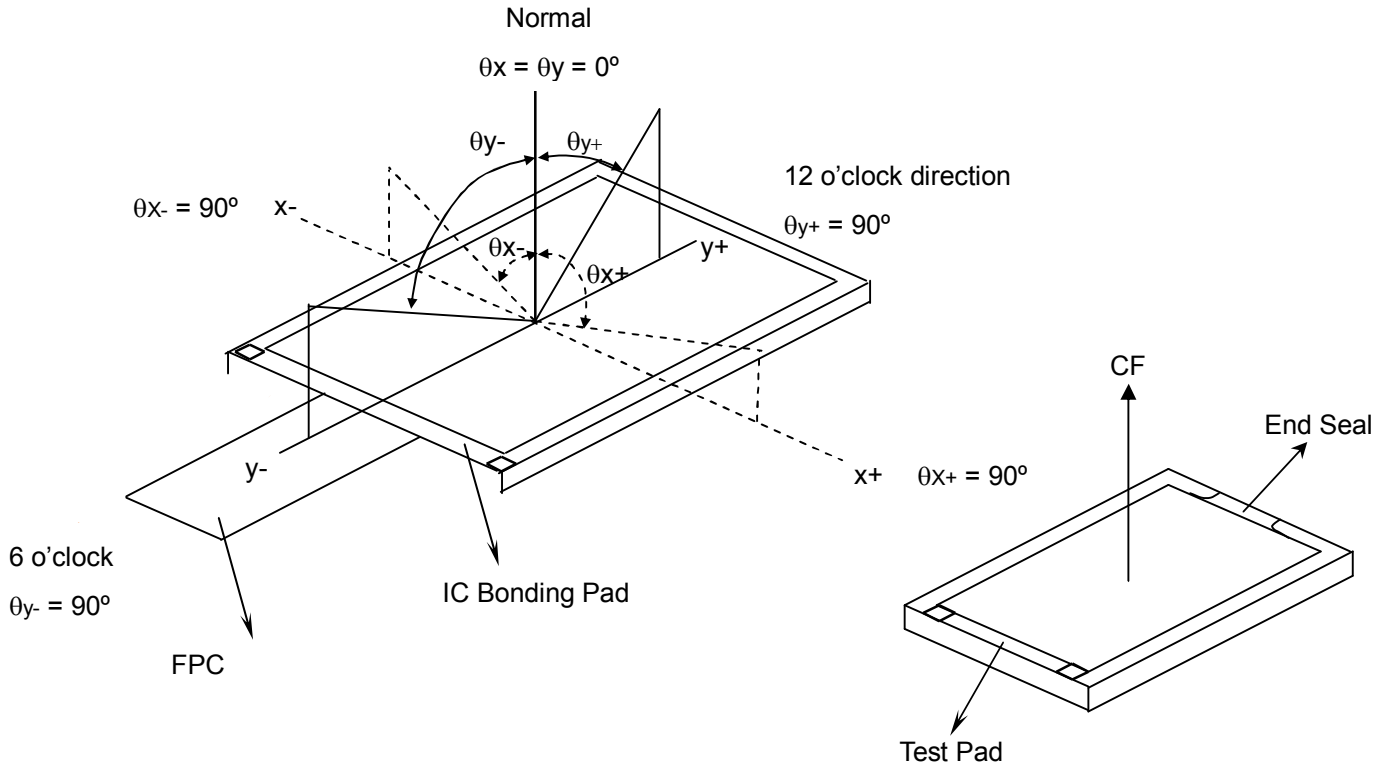
CR = CR (5)

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}):

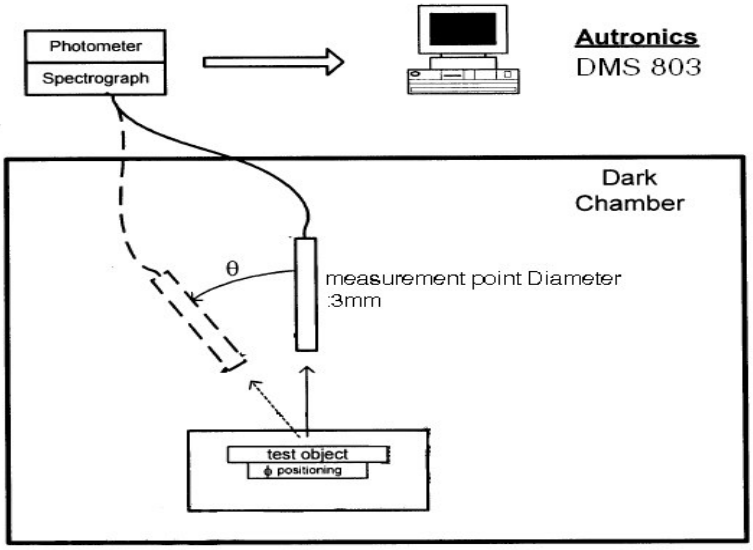


*Note(3) Definition of Viewing Angle

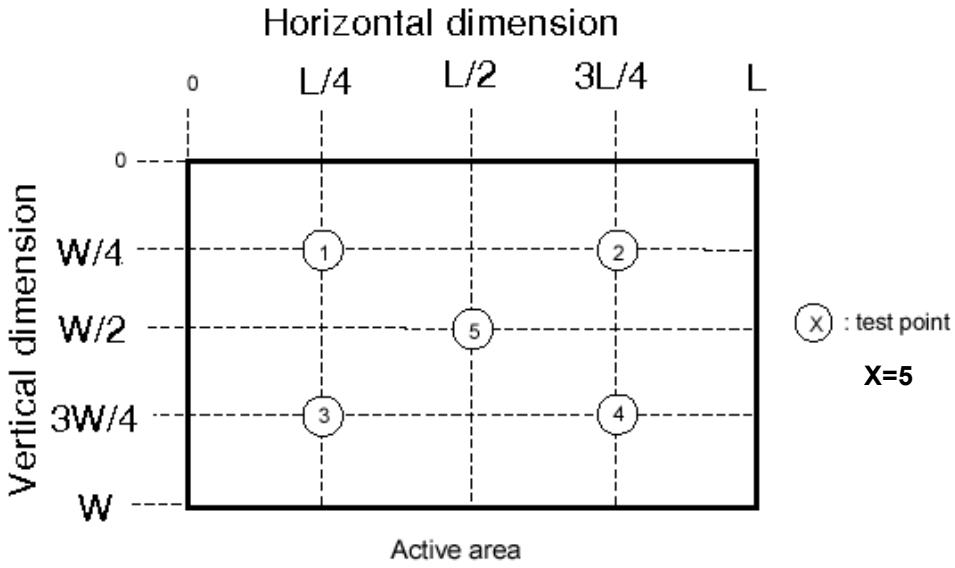


*Note (4) Measurement Set-Up:

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)



8. RELIABILITY SPECIFICATION

No.	Test Item	Test Condition	Check Time
1	High Temp Storage	Ta= 80℃	240 hrs
2	Low Temp Storage	Ta= -30℃	240 hrs
3	High Temp Operation	Ta= 70℃	240 hrs
4	Low Temp Operation	Ta= -20℃	240 hrs
5	High Temp & High Humidity Operation	Ta=60℃ H=90%	240 hrs

Note:(1) Ta : Ambient temperature

(2) All judgments of display are performed after temp of panel returns to room temperature

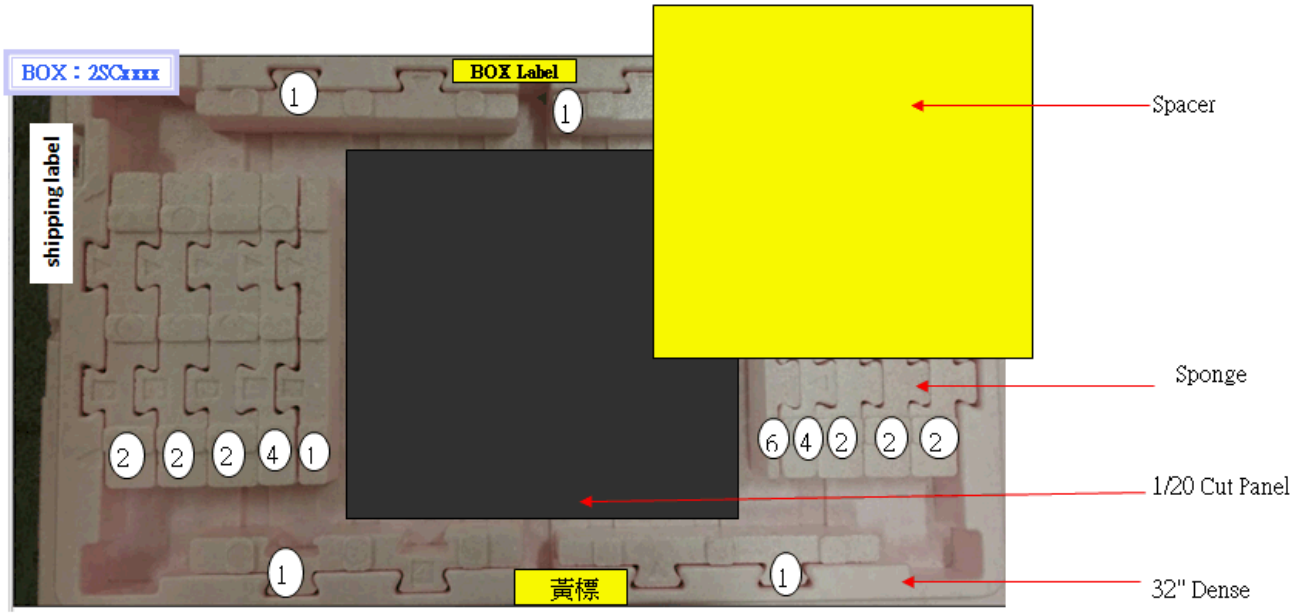
(3) Display function should be no change under normal operating condition.

(4)Under no condensation of dew

9. PACKAGE FORM

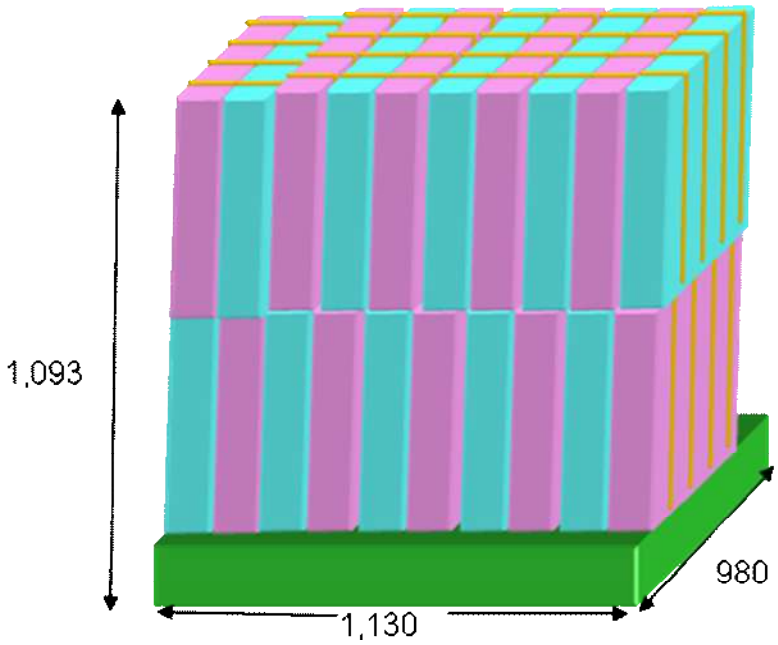
9.1 CELL PACKAGE

8.0" 1/20 CUT

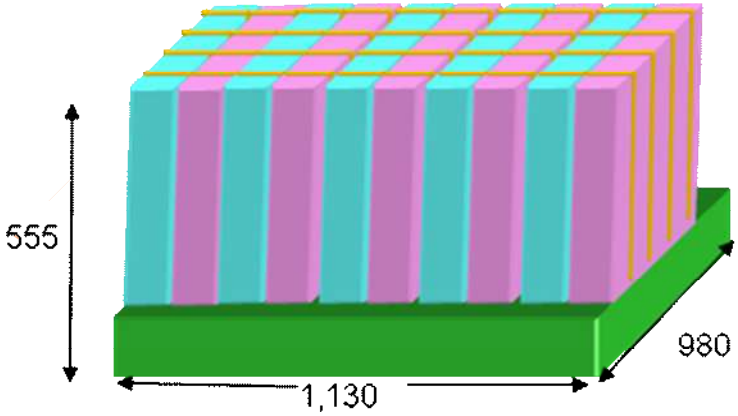


No.	Item	Mateial No.	Dimension(mm)	Unit	Weight	Qunaty	Remark
1	8" 1/20 Cut	2420M0802A01H	365.862*363.6*0.8	CUT	0.257	30	
2	32" Dense	D30301250	851*538*115	EA	1.78	1	
3	G6 8" 1/20 Cut Pad	8301B001LX000	365*367*0.5	Pcs	0.041	31	
4	No.1 Sponge	D51400770	25.5*280*55	EA	0.02105	5	
5	No.2 Sponge	D51400780	43*280*56	EA	0.0292	6	
6	No.4 Sponge	D51401130	33*280*46	EA	0.0245	2	
7	No.6 Sponge	D51402880	10*55*280	EA	0.0245	1	
8	Box ID Label	R16020101WB0	90*50	Pcs	NA		
9	Shipping Label	R1602101WD0	90*50	Pcs	NA		

9.2 PALLET PACKAGE



單層堆疊	堆疊層數	總堆疊箱數
10	2	20



單層堆疊	堆疊層數	總堆疊箱數
10	1	10