Doc. Number:

☒ Tentative Specification
☐ Preliminary Specification
☐ Approval Specification

MODEL NO.: F02812-01U

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
KJ Cheng	Jacky Wu	Jerry Huang

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REVISION HISTORY

Version	Date	Page (New)	Section	Description
Ver 1.0	2011/2/15	All	All	The product specification was first issued.
Ver 1.1	2011/4/22	8~11	3-1	Add HX8347H pin out name.
Ver 1.2	2011/5/12	16	6	Update Optical Chromaticity simulation data.
Ver 1.3	2011/5/18	17	6	Update Note(3) drawing of Definition of Viewing Angle
Ver 1.4	2011/11/29	8	3.1	Update EE pin define.
Ver 1.5	2012/7/3	20	8	Packing drawing for dense pack.

1.PURPOSE

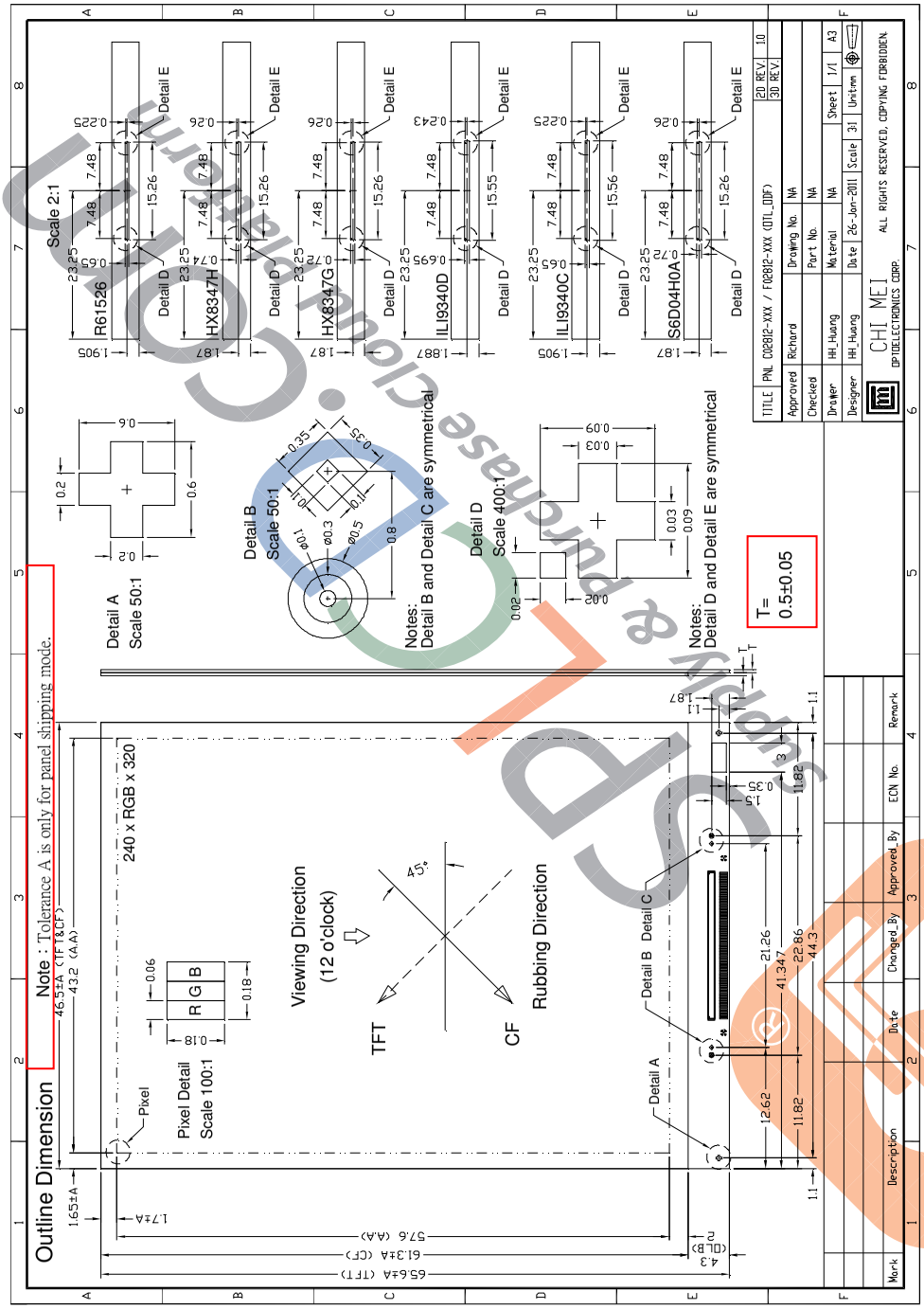
The specification F02812-01U is a 2.8" TFT Liquid Crystal Display ODF cut. The ODF cut has been designed by CMO, and manufactured by CMO under the agreement of customer. The TFT-LCD cell will be applied to a high transmittance mode TFT-LCD product.

2.GENERAL SPECIFICATION OF SINGLE PANEL

Item		Specification	unit
Glass thickness	TFT	0.5	mm
	CF	0.5	
Shipping mode		ODF cut	-
Shipping size		426 (H) x 540 (V) x 1.0 (D)	mm
Panel outline dimension		46.5 (H) x 65.6 (V) x 1.0 (D)	mm
Active screen size		2.8" Diagonal	inch
Resolution		240 RGB x 320	pixel
Pixel size		180 x 180	um
Pixel arrangement		RGB-Strip	--
Pixel driving element		a-Si TFT	-
Viewing Direction		12 o'clock	--
Driver IC		ILI9340D/ILI9341(ILI9340C) HX8347-G/ HX8347-H S6D04H0A/ R61526	--
Cell gap		3.85 ± 0.3	um
Weight (cut)		566±10%	g

2.1 DIMENSION

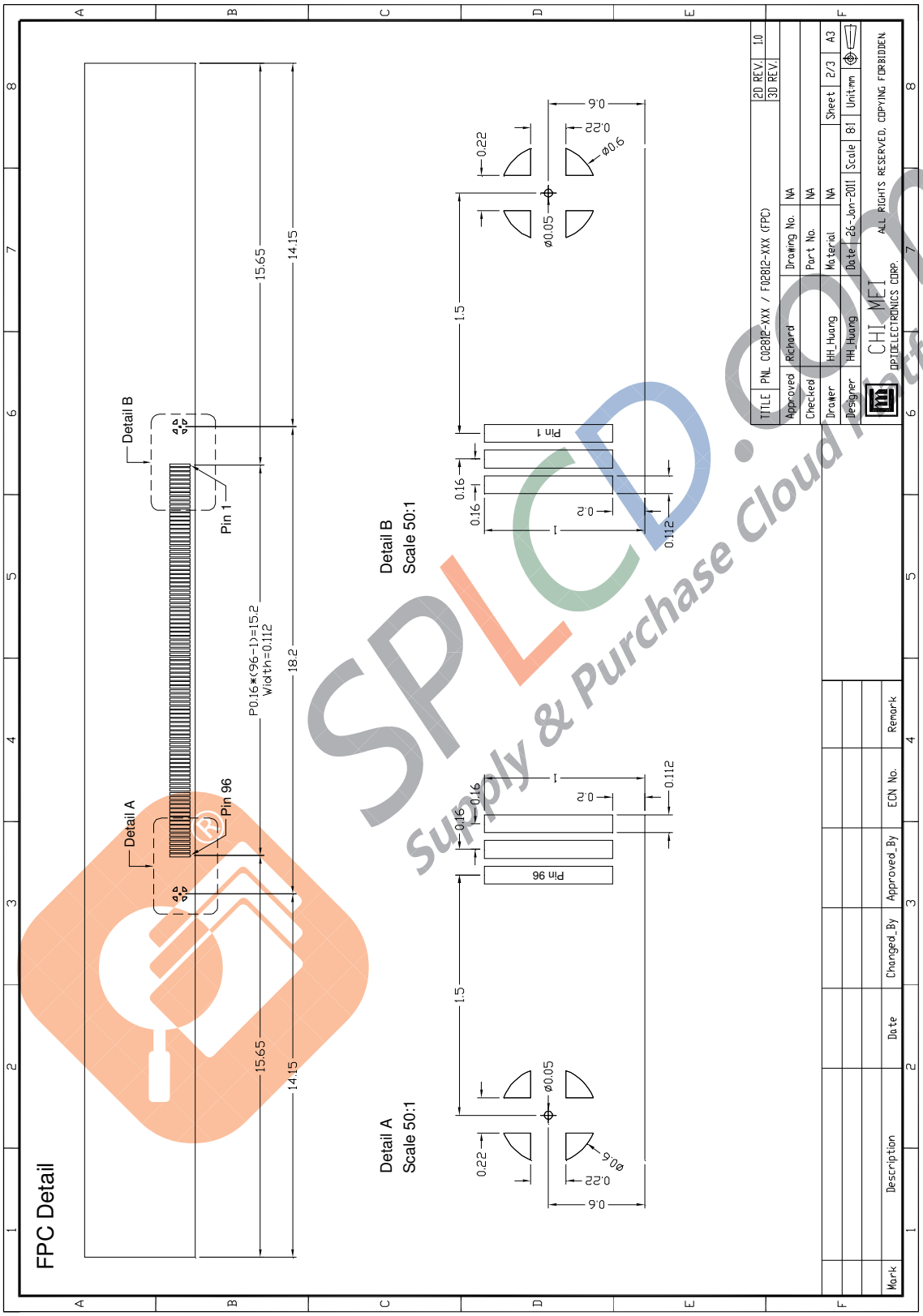
2.1.1 OUTLINE DIMENSION



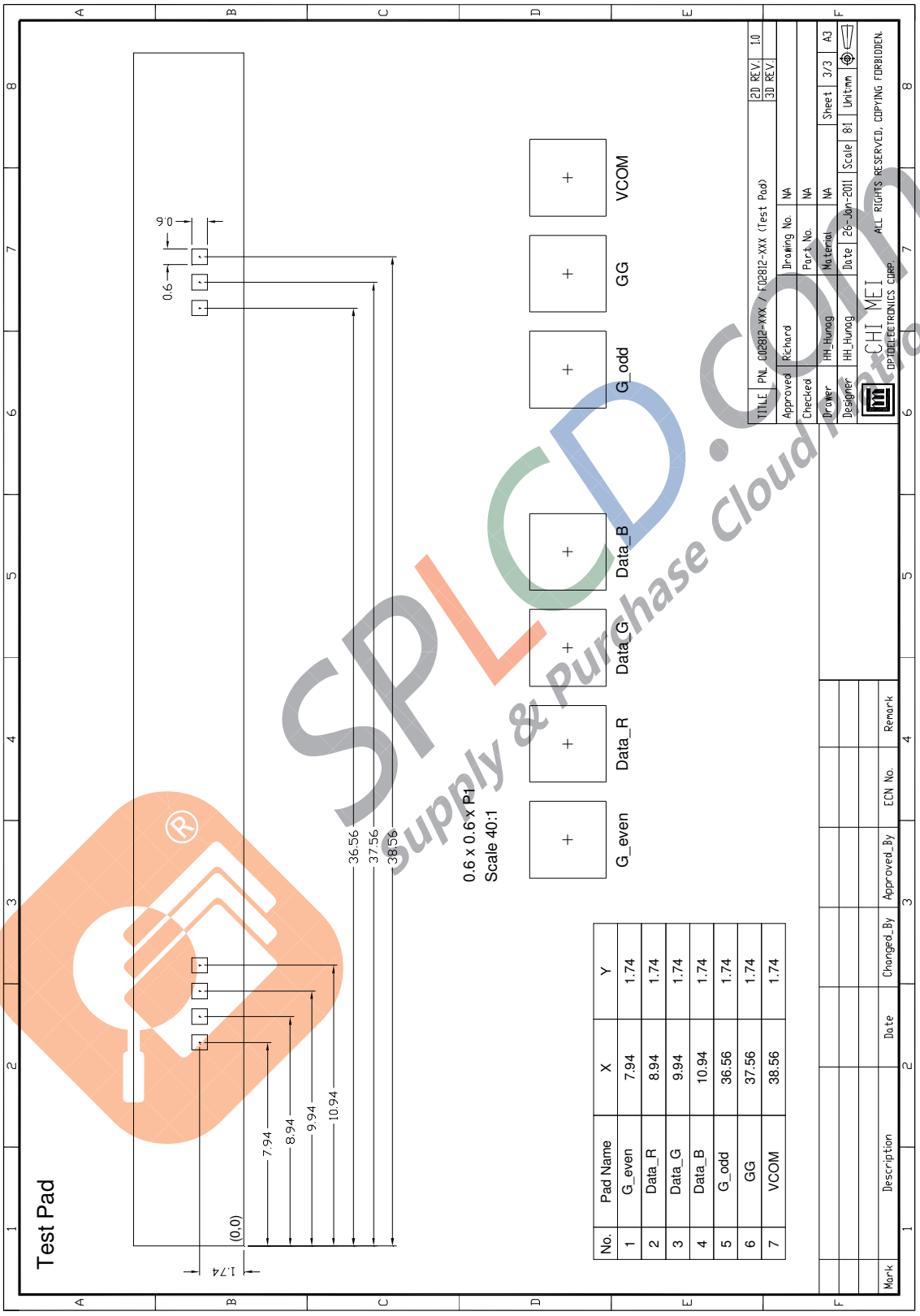
Note: (1) panel outline dimension tolerance ±0.2 mm

(2) View direction for normal TN is the same as direction of gray inversion

2.1.2 FPC DETAIL



2.1.3 TEST PAD



3. PIN ASSIGNMENT

3.1 FPC/IC PIN ASSIGNMENT TABLE

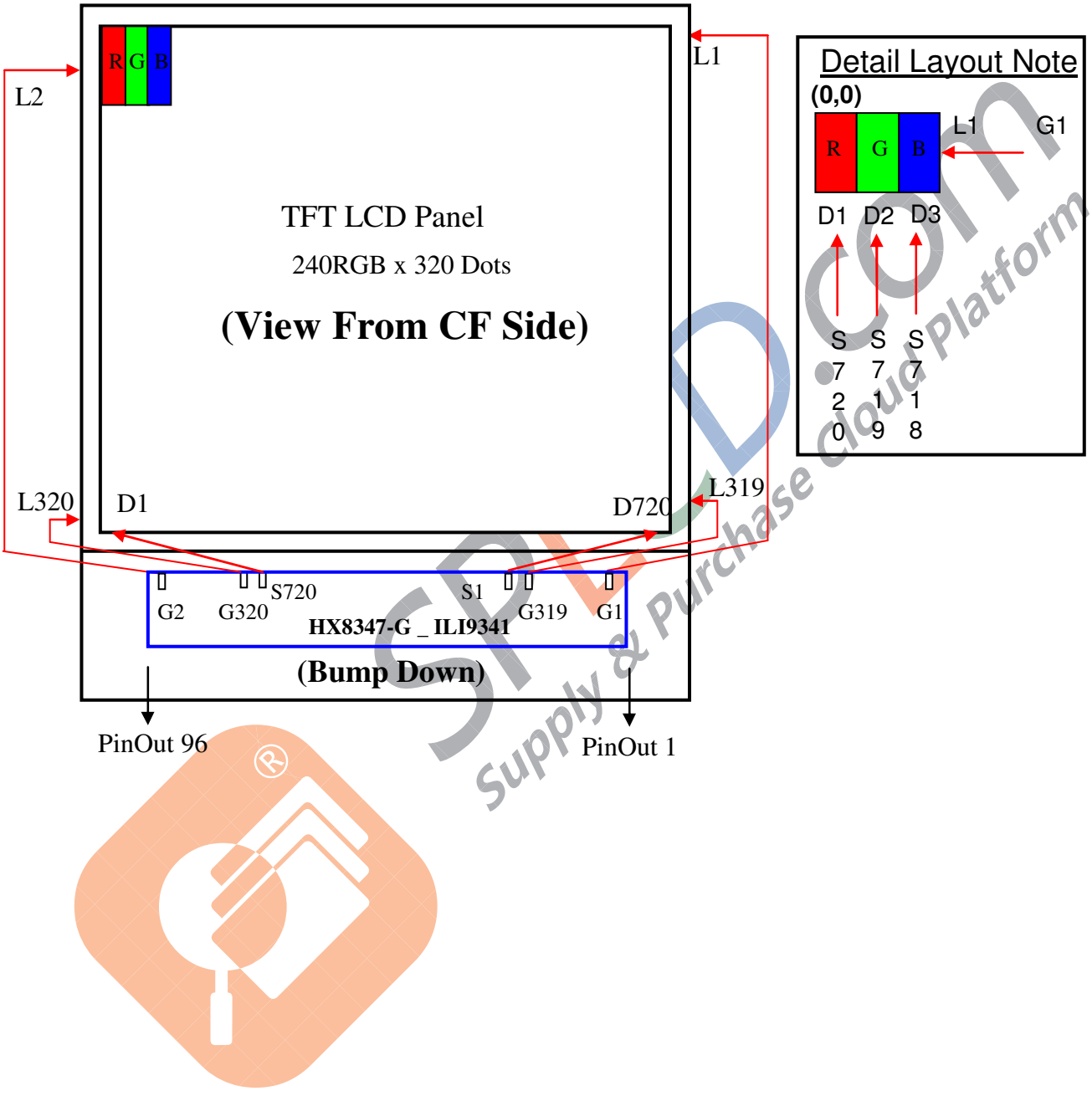
IC								FPC			
Pad No	HX8347-G	HX8347-H	ILI9341(ILI9347C)	R61526	ILI9340D	S6D04H0A	Connect to	ILI9340 PinOut Name	HX8347G PinOut Name	HX8347H PinOut Name	FPC PinOut NumBer
								DUMMY	DUMMY	DUMMY	1
1	VTEST	VTEST	DUMMY	AGNDDUM	DUMMY	DUMMY	—				
2	DUMMY1	DUMMY1	DUMMY	AGNDDUM	DUMMY	DUMMY	—				
3	VCOM	VCOM	VCOM	VCOM	DUMMY	VCOM	FPC Quick_VCOM Panel_Vcom(A.A) Panel_Vcom(CF)	VCOM	VCOM	VCOM	2
4	VCOM	VCOM	VCOM	VCOM	DUMMY	VCOM					
5	VCOM	VCOM	VCOM	VCOM	DUMMY	VCOM					
6	VCOM	VCOM	VCOM	VCOM	DUMMY	VCOM					
7	VCOM	VCOM	VCOM	VCOM	DUMMY	VCOM					
8	VCOM	VCOM	VCOM	VCOM	DUMMY	VCOM					3
9	VCOM	VCOM	VCOM	VCOM	DUMMY	VCOM					
10	VCOM	VCOM	VCOM	VCOM	DUMMY	VCOM					
11	DUMMY2	DUMMY2	DUMMY	AGNDDUM	DUMMY	DUMMY					
12	C22P	DUMMY2	C22P	C22P	C21P	C22P	FPC	C22P	C22P	DUMMY2	4
13	C22P	DUMMY2	C22P	C22P	C21P	C22P					
14	C22N	DUMMY2	C22M	C22M	C21P	C22M	FPC	C22M	C22N		5
15	C22N	DUMMY2	C22M	C22M	C21P	C22M					
16	C21P	DUMMY_C21P	C21P	C21P	C21N	C21P	FPC	C21P	C21P	DUMMY_C21P	6
17	C21P	DUMMY_C21P	C21P	C21P	C21N	C21P					
18	C21N	DUMMY_C21P	C21M	C21M	C21N	C21M	FPC	C21M	C21N		7
19	C21N	DUMMY_C21P	C21M	C21M	C21N	C21M					
20	VGH	VGH	VGH	VGH	VGH	VGH	FPC	VGH	VGH	VGH	8
21	VGH	VGH	VGH	VGH	VGH	VGH					
22	VGH	VGH	VGH	VGH	VGH	VGH					
23	VGH	VGH	VGH	VGH	VGH	VGH					9
24	VGH	VGH	VGH	VGH	VGH	VGH					
							DUMMY	DUMMY	DUMMY	DUMMY	10
25	DUMMY3	DUMMY3	DUMMY	VPP1	DUMMY	DUMMY					
26	VGL	VGL	VGL	VGL	VGL	VGL	FPC Quick_GG	VGL	VGL	VGL	11
27	VGL	VGL	VGL	VGL	VGL	VGL					
28	VGL	VGL	VGL	VGL	VGL	VGL					
29	VGL	VGL	VGL	VGL	VGL	VGL					12
30	VGL	VGL	VGL	VGL	VGL	VGL					
31	VGL	VGL	VGL	VGL	VGL	VGL					
							DUMMY	DUMMY	DUMMY	DUMMY	13
32	DDVDH	VSP	AVDD	DDVDH	DUMMY	AVDD	FPC	DUMMY	DDVDH	VSP	14
33	DDVDH	VSP	AVDD	DDVDH	DUMMY	AVDD					
34	DDVDH	VSP	AVDD	DDVDH	DUMMY	AVDD					
35	DDVDH	VSP	AVDD	DDVDH	DUMMY	AVDD					
36	DDVDH	VSP	AVDD	DDVDH	DUMMY	AVDD					15
37	DDVDH	VSP	AVDD	DDVDH	DUMMY	AVDD					
38	DDVDH	VSP	AVDD	DDVDH	DUMMY	AVDD					
39	C12P	C12P	C12P	C12P	C12P	C12P	FPC	C12P	C13P	C14P	16
40	C12P	C12P	C12P	C12P	C12P	C12P					
41	C12P	C12P	C12P	C12P	C12P	C12P					
42	C12P	C12P	C12P	C12P	C12P	C12P					
43	C12P	C12P	C12P	C12P	C12P	C12P					17
44	C12P	C12P	C12P	C12P	C12P	C12P					
45	C12P	C12P	C12P	C12P	C12P	C12P					
46	C12N	C12N	C12M	C12M	C12N	C12M	FPC	C12N	C13N	C14N	18
47	C12N	C12N	C12M	C12M	C12N	C12M					
48	C12N	C12N	C12M	C12M	C12N	C12M					
49	C12N	C12N	C12M	C12M	C12N	C12M					
50	C12N	C12N	C12M	C12M	C12N	C12M					19
51	C12N	C12N	C12M	C12M	C12N	C12M					
52	C12N	C12N	C12M	C12M	C12N	C12M					
53	C11P	C11P	C11P	C11P	C11P	C11P	FPC	C11P	C12P	C13P	20
54	C11P	C11P	C11P	C11P	C11P	C11P					
55	C11P	C11P	C11P	C11P	C11P	C11P					
56	C11P	C11P	C11P	C11P	C11P	C11P					
57	C11P	C11P	C11P	C11P	C11P	C11P					21

58	C11P	C11P	C11P	C11P	C11P	C11P					
59	C11P	C11P	C11P	C11P	C11P	C11P					
60	C11N	C11N	C11M	C11M	C11N	C11M	FPC	C11N	C12N	C13N	22
61	C11N	C11N	C11M	C11M	C11N	C11M					
62	C11N	C11N	C11M	C11M	C11N	C11M					
63	C11N	C11N	C11M	C11M	C11N	C11M					
64	C11N	C11N	C11M	C11M	C11N	C11M					23
65	C11N	C11N	C11M	C11M	C11N	C11M					
66	C11N	C11N	C11M	C11M	C11N	C11M					
67	VPP_OTP	VPP_OTP_DUMMY	(GND)	AGNDDUM	DDVDH	VCI1	FPC	VCI1	VPP_OTP	VPP_OTP_DUMMY	24
68	VPP_OTP	VPP_OTP_DUMMY	(GND)	AGNDDUM	DDVDH	VCI1					
69	VPP_OTP	VPP_OTP_DUMMY	(GND)	AGNDDUM	DDVDH	VCI1					
70	VPP_OTP	VPP_OTP_DUMMY	(GND)	AGNDDUM	DDVDH	VCI1					
71	VPP_OTP	VPP_OTP_DUMMY	(GND)	AGNDDUM	DDVDH	VCI1					
72	VPP_OTP	VPP_OTP_DUMMY	(GND)	AGNDDUM	DDVDH	VCI1					
73	VPP_OTP	VPP_OTP_DUMMY	(GND)	AGNDDUM	DDVDH	VCI1					
74	VCI	VCI	VCI	VCI	VCI	VCI	FPC	VCI	VCI	VCI	25
75	VCI	VCI	VCI	VCI	VCI	VCI					
76	VCI	VCI	VCI	VCI	VCI	VCI					
77	VCI	VCI	VCI	VCI	VCI	VCI					
78	VCI	VCI	VCI	VCI	VCI	VCI					26
79	VCI	VCI	VCI	VCI	VCI	VCI					
80	VCI	VCI	VCI	VCI	VCI	VCI					
81	VCI	VCI	VCI	VCI	VCI	VCI					
82	VSSD	VSSD	VSS3	AGND	AGND	VSS3	FPC	VSS3	VSSD	VSSD	27
83	VSSD	VSSD	VSS3	AGND	AGND	VSS3					
84	VSSD	VSSD	VSS3	AGND	AGND	VSS3					
85	VSSD	VSSD	VSS	AGND	AGND	VSS	FPC	VSS			28
86	VSSD	VSSD	VSS	AGND	AGND	VSS					
87	VSSD	VSSD	VSS	AGND	AGND	VSS					
88	VSSD	VSSD	VSS	AGND	AGND	VSS					
89	VSSD	VSSD	VSS	AGND	AGND	VSS					
90	VSSD	VSSD	VSS	AGND	AGND	VSS					
91	VSSD	VSSD	VSSC	GND	AGND	VSSC	FPC	VSSC			29
92	VSSD	VSSD	VSSC	GND	AGND	VSSC					
93	VSSD	VSSD	VSSC	GND	AGND	VSSC					
94	VSSD	VSSD	VSSC	GND	AGND	VSSC					
95	VSSD	VSSD	VSSC	GND	AGND	VSSC					
96	VSSD	VSSD	VSSC	GND	AGND	VSSC					
97	VSSD	VSSD	VSSC	GND	AGND	VSSC					
98	VSSA	VSSA	VSSA	GND	DGND	VSSA	FPC	VSSA	VSSA	VSSA	30
99	VSSA	VSSA	VSSA	GND	DGND	VSSA					
100	VSSA	VSSA	VSSA	GND	DGND	VSSA					
101	VSSA	VSSA	VSSA	GND	DGND	VSSA					
102	VSSA	VSSA	VSSA	GND	DGND	VSSA					31
103	VSSA	VSSA	VSSA	GND	DGND	VSSA					
104	VSSA	VSSA	VSSA	GND	DGND	VSSA					
105	VSSA	VSSA	VSSA	GND	DGND	VSSA					
106	TEST1	TEST1	DUMMY	VMONI	DUMMY	TREGB	FPC	DUMMY	TEST1	TEST1	32
107	DUMMY4	DUMMY4	VGS	VGS	VGS	VGS	FPC	VGS	DUMMY4	DUMMY4	33
108	DUMMY4	DUMMY4	VGS	VGS	VGS	VGS					
109	IFSEL	IFSEL	EXTC	DUMMY	EXTC	EXTC	FPC	EXTC	IFSEL	IFSEL	34
110	IM3	IM3	IM<3>	IM<3>	IM3	IM<3>	FPC	IM<3>	IM3	IM3	35
111	IM2	IM2	IM<2>	IM<2>	IM2	IM<2>	FPC	IM<2>	IM2	IM2	36
112	IM1	IM1	IM<1>	IM<1>	IM1	IM<1>	FPC	IM<1>	IM1	IM1	37
113	IM0	IM0	IM<0>	IM<0>	IM0	IM<0>	FPC	IM<0>	IM0	IM0	38
114	NRESET	NRESET	RESX	RESX	RESX	RESX	FPC	RESX	NRESET	NRESET	39
115	NCS	NCS	CSX	CSX	CSX	CSX	FPC	CSX	NCS	NCS	40
116	DNC_SCL	DNC_SCL	DCX	DCX	DCX	DCX	FPC	DCX	DNC_SCL	DNC_SCL	41
117	NWR_SCL	NWR_SCL	WRX	WRX	WRX	WRX	FPC	WRX	NWR_SCL	NWR_SCL	42
118	NRD	NRD	RDX	RDX	RDX	RDX	FPC	RDX	NRD	NRD	43
119	TEST2	TEST2	DUMMY	GNDDUM	TEST8	DUMMY					
120	VSYNC	VSYNC	VSYNC	VSYNC	VSYNC	VSYNC	FPC	VSYNC	VSYNC	VSYNC	44
121	HSYNC	HSYNC	HSYNC	HSYNC	HSYNC	HSYNC	FPC	HSYNC	HSYNC	HSYNC	45
122	DE	DE	ENABL	ENABLE	ENABLE	ENABLE	FPC	ENABL	DE	DE	46
123	DOTCLK	DOTCLK	DOTCLK	DOTCLK	DOTCLK	DOTCLK	FPC	DOTCLK	DOTCLK	DOTCLK	47
124	DUMMY6	DUMMY6	DUMMY	GNDDUM	TEST7	DUMMY	FPC				
125	SDA	SDA	SDA	SDA	SDA	SDA	FPC	SDA	SDA	SDA	48
126	DB0	DB0	DB[0]	DB<0>	DB[0]	DB<0>	FPC	DB[0]	DB0	DB0	49
127	DB1	DB1	DB[1]	DB<1>	DB[1]	DB<1>	FPC	DB[1]	DB1	DB1	50
128	DB2	DB2	DB[2]	DB<2>	DB[2]	DB<2>	FPC	DB[2]	DB2	DB2	51
129	DB3	DB3	DB[3]	DB<3>	DB[3]	DB<3>	FPC	DB[3]	DB3	DB3	52
130	DUMMY7	DUMMY7	DUMMY	GNDDUM	DUMMY	DUMMY	FPC				

131	DB4	DB4	DB[4]	DB<4>	DB[4]	DB<4>	FPC	DB[4]	DB4	DB4	53
132	DB5	DB5	DB[5]	DB<5>	DB[5]	DB<5>	FPC	DB[5]	DB5	DB5	54
133	DB6	DB6	DB[6]	DB<6>	DB[6]	DB<6>	FPC	DB[6]	DB6	DB6	55
134	DB7	DB7	DB[7]	DB<7>	DB[7]	DB<7>	FPC	DB[7]	DB7	DB7	56
135	DUMMY8	DUMMY8	DUMMY	TEST1	TEST6	DUMMY	FPC				
136	DB8	DB8	DB[8]	DB<8>	DB[8]	DB<8>	FPC	DB[8]	DB8	DB8	57
137	DB9	DB9	DB[9]	DB<9>	DB[9]	DB<9>	FPC	DB[9]	DB9	DB9	58
138	DB10	DB10	DB[10]	DB<10>	DB[10]	DB<10>	FPC	DB[10]	DB10	DB10	59
139	DB11	DB11	DB[11]	DB<11>	DB[11]	DB<11>	FPC	DB[11]	DB11	DB11	60
140	DUMMY9	DUMMY9	DUMMY	TEST2	TEST5	DUMMY	FPC				
141	DB12	DB12	DB[12]	DB<12>	DB[12]	DB<12>	FPC	DB[12]	DB12	DB12	61
142	DB13	DB13	DB[13]	DB<13>	DB[13]	DB<13>	FPC	DB[13]	DB13	DB13	62
143	DB14	DB14	DB[14]	DB<14>	DB[14]	DB<14>	FPC	DB[14]	DB14	DB14	63
144	DB15	DB15	DB[15]	DB<15>	DB[15]	DB<15>	FPC	DB[15]	DB15	DB15	64
145	DUMMY10	DUMMY10	DUMMY	TEST3	TEST4	DUMMY	FPC				
146	DB16	DB16	DB[16]	DB<16>	DB[16]	DB<16>	FPC	DB[16]	DB16	DB16	65
147	DB17	DB17	DB[17]	DB<17>	DB[17]	DB<17>	FPC	DB[17]	DB17	DB17	66
148	OSC	OSC	DUMMY	TSC	TEST3	DUMMY	FPC	DUMMY	OSC	OSC	67
149	TE	TE	TE	TE	TE	TE	FPC	TE	TE	TE	68
150	TEST3	TEST3	SDO	SD0	SDO	SD0	FPC	SDO	TEST3	TEST3	69
151	CABC_PWM_OUT	CABC_PWM_OUT	LEDPWM	LEDPWM	LEDPWM	BC	FPC	LEDPWM	CABC_PWM_OUT	CABC_PWM_OUT	70
152	BC_CTRL	BC_CTRL	LEDON	LEDPWM	LEDON	BC_CTRL	FPC	LEDON	BC_CTRL	BC_CTRL	71
153	DUMMY11	DUMMY11	VDDI_LED	IOVCC2	VDDI_LED	VDD3_P	FPC	VDDI_LED	DUMMY1	DUMMY1	72
154	DUMMY11	DUMMY11	VDDI_LED	IOVCC2	VDDI_LED	VDD3_P					
155	TEST4	TEST4	DB[18]_Dummy	VCIDUM	TEST2	DB18_DUMMY	FPC	DB[18]_Dummy	TEST4	TEST4	73
156	TEST5	TEST5	DB[19]_Dummy	VCIDUM	TEST1	DB19_DUMMY	FPC	DB[19]_Dummy	TEST5	TEST5	74
157	TEST6	TEST6	DB[20]_Dummy	VREFD	TEST0	DB20_DUMMY	FPC	DB[20]_Dummy	TEST6	TEST6	75
158	TEST7	TEST7	DB[21]_Dummy	VREF	TESTOSC	DB21_DUMMY	FPC	DB[21]_Dummy	TEST7	TEST7	76
159	TEST8	TEST8	DB[22]_Dummy	VREFC	TEST_EN	DB22_DUMMY	FPC	DB[22]_Dummy	TEST8	TEST8	77
160	TEST9	TEST9	DB[23]_Dummy	VDDTEST	DUMMY	DB23_DUMMY	FPC	DB[23]_Dummy	TEST9	TEST9	78
161	TEST10	TEST10	DUMMY	GNDDUM	DUMMY	DUMMY					
162	IOVCC	IOVCC	VDDI	IOVCC1	IOVCC	VDD3	FPC	VDDI	IOVCC	IOVCC	79
163	IOVCC	IOVCC	VDDI	IOVCC1	IOVCC	VDD3					
164	IOVCC	IOVCC	VDDI	IOVCC1	IOVCC	VDD3					
165	IOVCC	IOVCC	VDDI	IOVCC1	IOVCC	VDD3					
166	IOVCC	IOVCC	VDDI	IOVCC1	IOVCC	VDD3					80
167	IOVCC	IOVCC	VDDI	IOVCC1	IOVCC	VDD3					
168	IOVCC	IOVCC	VDDI	IOVCC1	IOVCC	VDD3					
169	VDDD	VDDD	Vcore	VDD	VCORE	VDD	FPC	VCORE	VDDD	VDDD	81
170	VDDD	VDDD	Vcore	VDD	VCORE	VDD					
171	VDDD	VDDD	Vcore	VDD	VCORE	VDD					
172	VDDD	VDDD	Vcore	VDD	VCORE	VDD					
173	VDDD	VDDD	Vcore	VDD	VCORE	VDD					
174	VDDD	VDDD	Vcore	VDD	VCORE	VDD					
175	VDDD	VDDD	Vcore	VDD	VCORE	VDD					
176	VDDD	VDDD	Vcore	VDD	VCORE	VDD					82
177	VDDD	VDDD	Vcore	VDD	VCORE	VDD					
178	VDDD	VDDD	Vcore	VDD	VCORE	VDD					
179	VDDD	VDDD	Vcore	VDD	VCORE	VDD					
180	VDDD	VDDD	Vcore	VDD	VCORE	VDD					
181	VDDD	VDDD	Vcore	VDD	VCORE	VDD					
182	VDDD	VDDD	Vcore	VDD	VCORE	VDD					
183	DUMMY13	DUMMY13	DUMMY	VGSDUM	DUMMY	DUMMY					
184	VREG1	VSPROUT	GVDD	VREG	VREG1OUT	GVDD	FPC	GVDD	VREG1	VSPROUT	83
185	VREG1	VSPROUT	GVDD	VREG	VREG1OUT	GVDD					
186	VREG1	VSPROUT	GVDD	VREG	VREG1OUT	GVDD					
187	VREG1	VSPROUT	GVDD	VREG	VREG1OUT	GVDD					
188	DUMMY14	DUMMY14	DUMMY	VGSDUM	DUMMY	DUMMY					
189	DUMMY15	DUMMY15	DUMMY	VGSDUM	DUMMY	DUMMY					
190	VCL	VSN	VCL	VCL	DDVDL	VCL	FPC	DDVDL	VCL	VSN	84
191	VCL	VSN	VCL	VCL	DDVDL	VCL					
192	VCL	VSN	VCL	VCL	DDVDL	VCL					
193	VCL	VSN	VCL	VCL	DDVDL	VCL					
194	VCL	VSN	VCL	VCL	DDVDL	VCL					85
195	VCL	VSN	VCL	VCL	DDVDL	VCL					
196	VCL	VSN	VCL	VCL	DDVDL	VCL					
197	VCL	VSN	VCL	VCL	DDVDL	VCL					
198	C31P	C31P	DUMMY	C31P	C41P	C31P	FPC	C41P	C31P	C31P	86
199	C31P	C31P	DUMMY	C31P	C41P	C31P					
200	C31P	C31P	DUMMY	C31P	C41P	C31P					
201	C31P	C31P	DUMMY	C31P	C41P	C31P					

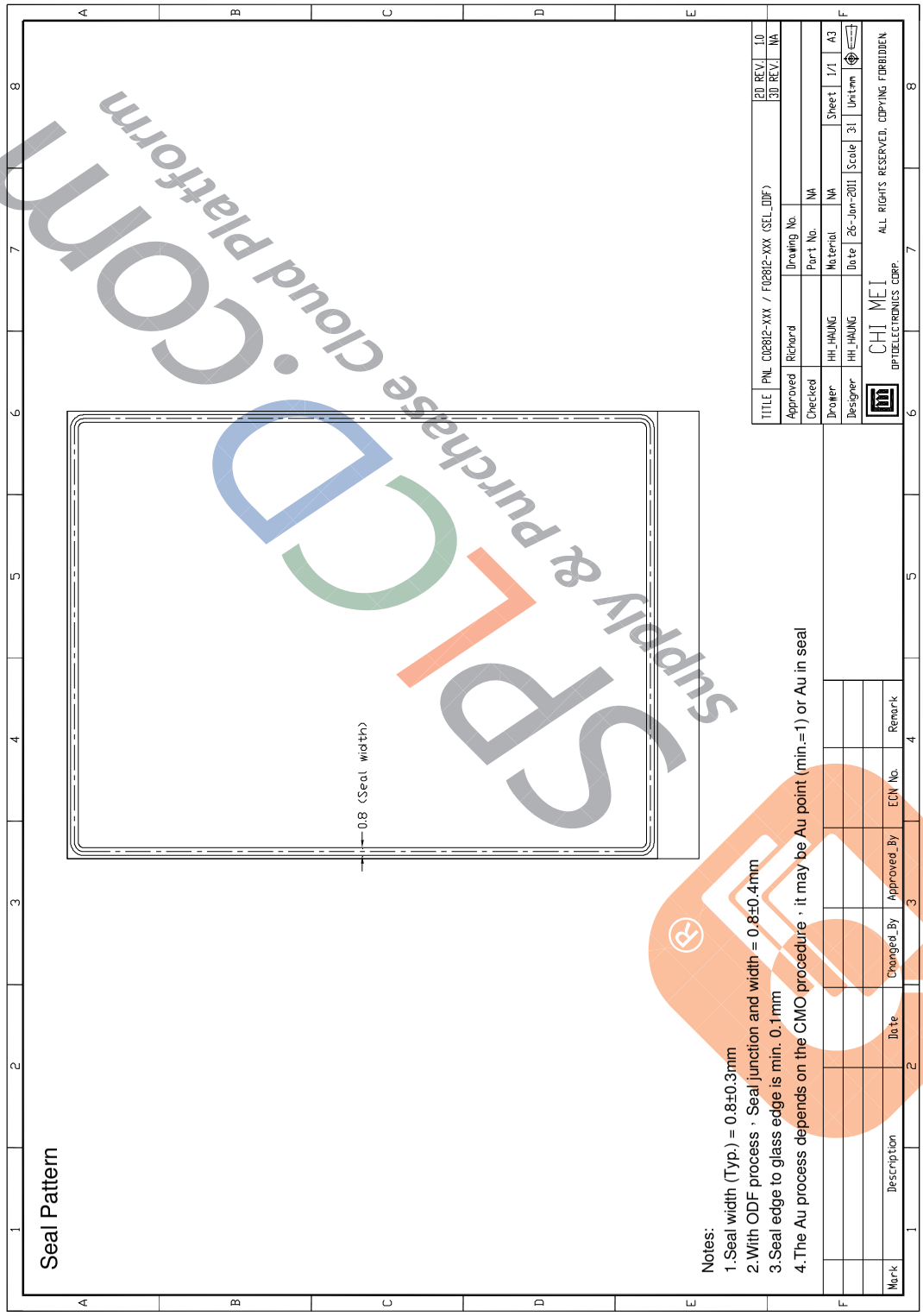
202	C31P	C31P	DUMMY	C31P	C41P	C31P					87
203	C31P	C31P	DUMMY	C31P	C41P	C31P					
204	C31P	C31P	DUMMY	C31P	C41P	C31P					
205	C31P	C31P	DUMMY	C31P	C41P	C31P					
206	C31N	C31N	(GND)	C31M	C41N	C31M	FPC	C41N	C31N	C31N	88
207	C31N	C31N	(GND)	C31M	C41N	C31M					
208	C31N	C31N	(GND)	C31M	C41N	C31M					
209	C31N	C31N	(GND)	C31M	C41N	C31M					
210	C31N	C31N	(GND)	C31M	C41N	C31M					89
211	C31N	C31N	(GND)	C31M	C41N	C31M					
212	C31N	C31N	(GND)	C31M	C41N	C31M					
213	C31N	C31N	(GND)	C31M	C41N	C31M					
214	CONN	CONN	DUMMY	DUMMYR1	DUMMYR1	DUMMYR1	FPC	DUMMYR1	CONN	CONN	90
215	CONN	CONN	DUMMY	DUMMYR2	DUMMYR2	DUMMYR2	FPC	DUMMYR2	CONN	CONN	91
216	VCOML_DUMMY	VSNROUT	DUMMY	AGNDDUM	DUMMY	DUMMY	FPC	DUMMY	VCOM_DUMMY	VSNROUT	92
217	VCOML_DUMMY	VSNROUT	DUMMY	AGNDDUM	DUMMY	DUMMY					
218	VCOML_DUMMY	VSNROUT	DUMMY	AGNDDUM	DUMMY	DUMMY					
219	VCOMH_DUMMY	NVDDDOUT	DUMMY	GNDDUM	DUMMY	DUMMY				NVDDDOUT	93
220	VCOMH_DUMMY	NVDDDOUT	DUMMY	GNDDUM	DUMMY	DUMMY					
221	VCOMH_DUMMY	NVDDDOUT	DUMMY	GNDDUM	DUMMY	DUMMY					
222	DUMMY16	NVTEST	DUMMY	GNDDUM	DUMMY	DUMMY					
223	VCOM_DUMMY	VCOM_DUMMY	VCOM	VCOM	VCOM	VCOM	FPC	VCOM	VCOM_DUMMY	VCOM_DUMMY	94
224	VCOM_DUMMY	VCOM_DUMMY	VCOM	VCOM	VCOM	VCOM					
225	VCOM_DUMMY	VCOM_DUMMY	VCOM	VCOM	VCOM	VCOM					
226	VCOM_DUMMY	VCOM_DUMMY	VCOM	VCOM	VCOM	VCOM					
227	VCOM_DUMMY	VCOM_DUMMY	VCOM	VCOM	VCOM	VCOM					95
228	VCOM_DUMMY	VCOM_DUMMY	VCOM	VCOM	VCOM	VCOM					
229	VCOM_DUMMY	VCOM_DUMMY	VCOM	VCOM	VCOM	VCOM					
230	VCOM_DUMMY	VCOM_DUMMY	VCOM	VCOM	VCOM	VCOM					
231	DUMMY17	DUMMY17	DUMMY	AGNDDUM	DUMMY	DUMMY					
232	DUMMY18	DUMMY18	DUMMY	AGNDDUM	DUMMY	DUMMY					
233	DUMMY19	DUMMY19	DUMMY	DUMMY	DUMMY						
234	DUMMY20	DUMMY20	DUMMY	DUMMY	DUMMY						
235	DUMMY21	DUMMY21	DUMMY	DUMMY	DUMMY						
								DUMMY	DUMMY	DUMMY	96

3.2 SCHEMATIC PANEL LAYOUT

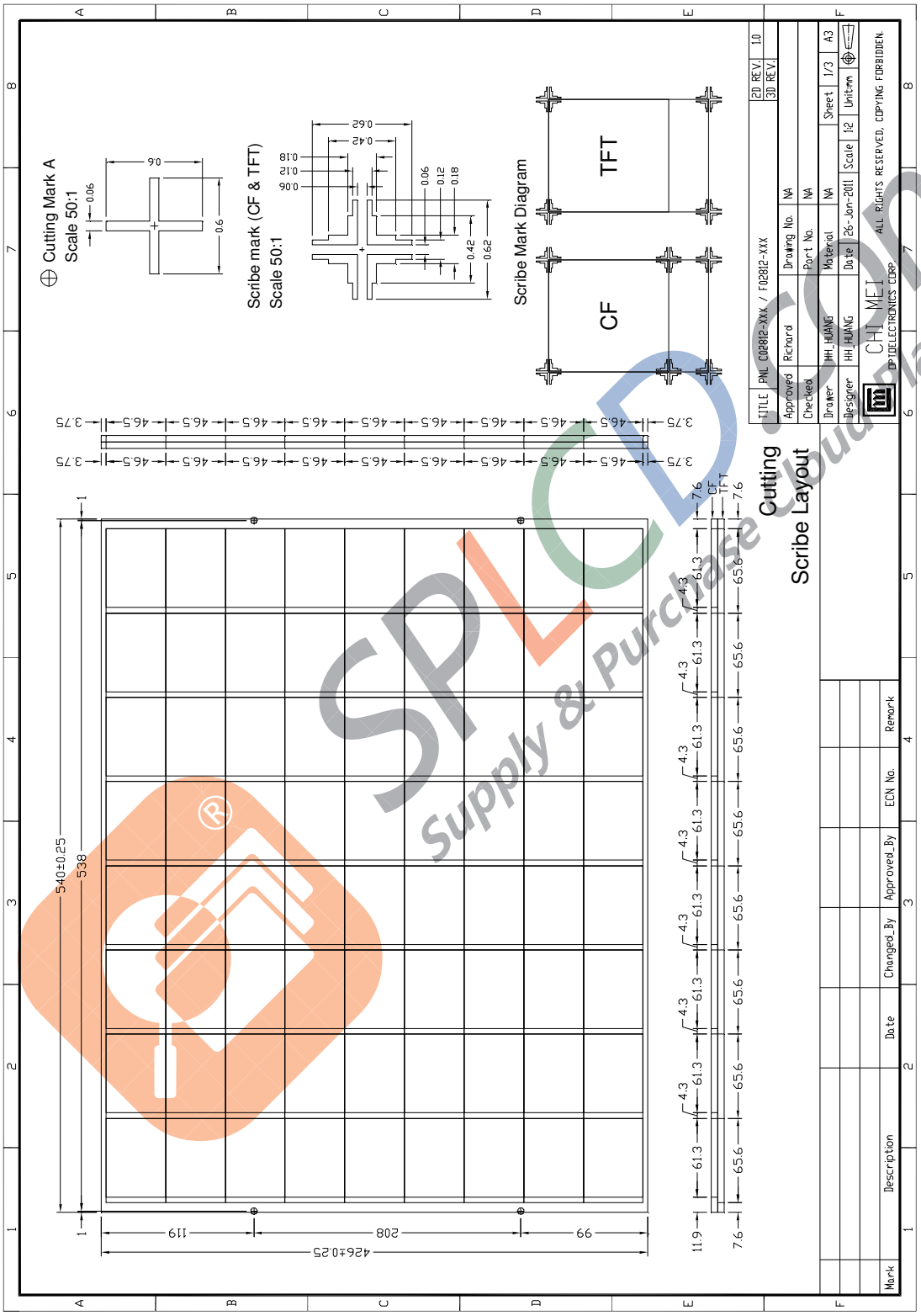


4. CELL PROCESS RULE

4.1 SEAL PATTERN



4.2 CELL SCRIBE LAYOUT



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	VcomH	+2.5	-	+4.5	V
	VcomL	-2.5	-	0	

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℃

6. OPTICAL SPECIFICATION

(Simulation reference only)

Item		Symbol	Conditions	Specifications	Unit	Note
Transmittance		T%	Viewing normal angle $\theta_X = \theta_Y = 0°$	6.0	%	All left side data are based on CMO's following condition – 1.CG : NTSC 60% 2.LC : TN 3.Light Source : CMI LED BLU 4.Film : Nitto Linear Polarizer 5.Machine : DMS
Contrast Ratio		CR		300	--	
Response Time (by Quick)		Ton+ Toff		30	ms	
Viewing Angle	Hor.	θ_{X+}	Center CR>10	45	deg.	
		θ_{X-}		45		
	Ver.	θ_{Y+}		45		
		θ_{Y-}		20		
CF only Chromaticity	Red	X_R	Viewing normal angle $\theta_X = \theta_Y = 0°$	0.635	--	Under C light Simulation
		Y_R		0.317	--	
	Green	X_G		0.298	--	
		Y_G		0.564	--	
	Blue	X_B		0.136	--	
		Y_B		0.116	--	
	White	X_W		0.298	--	
		Y_W		0.328		

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

The contrast ratio can be calculated by the following expression.

Contrast Ratio (CR) = L63 / L0

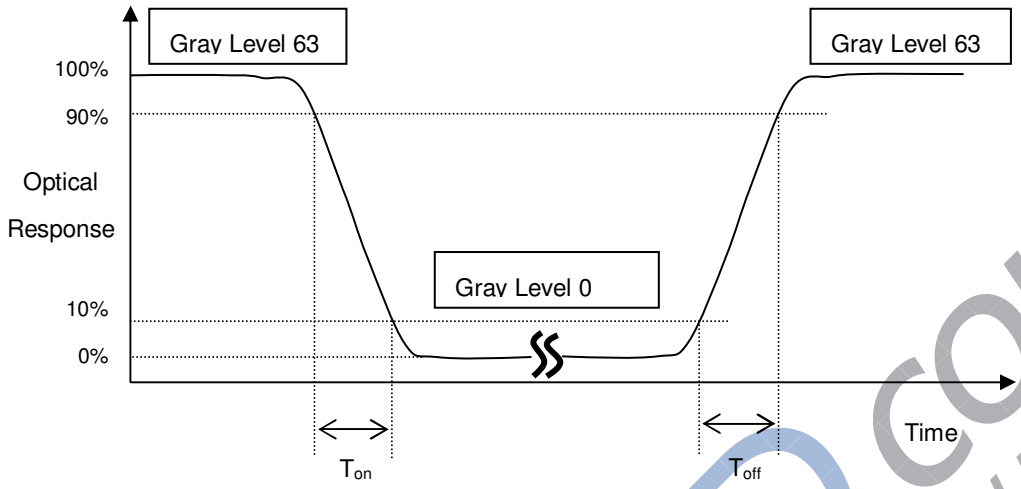
L63: Luminance of gray level 63

L 0: Luminance of gray level 0

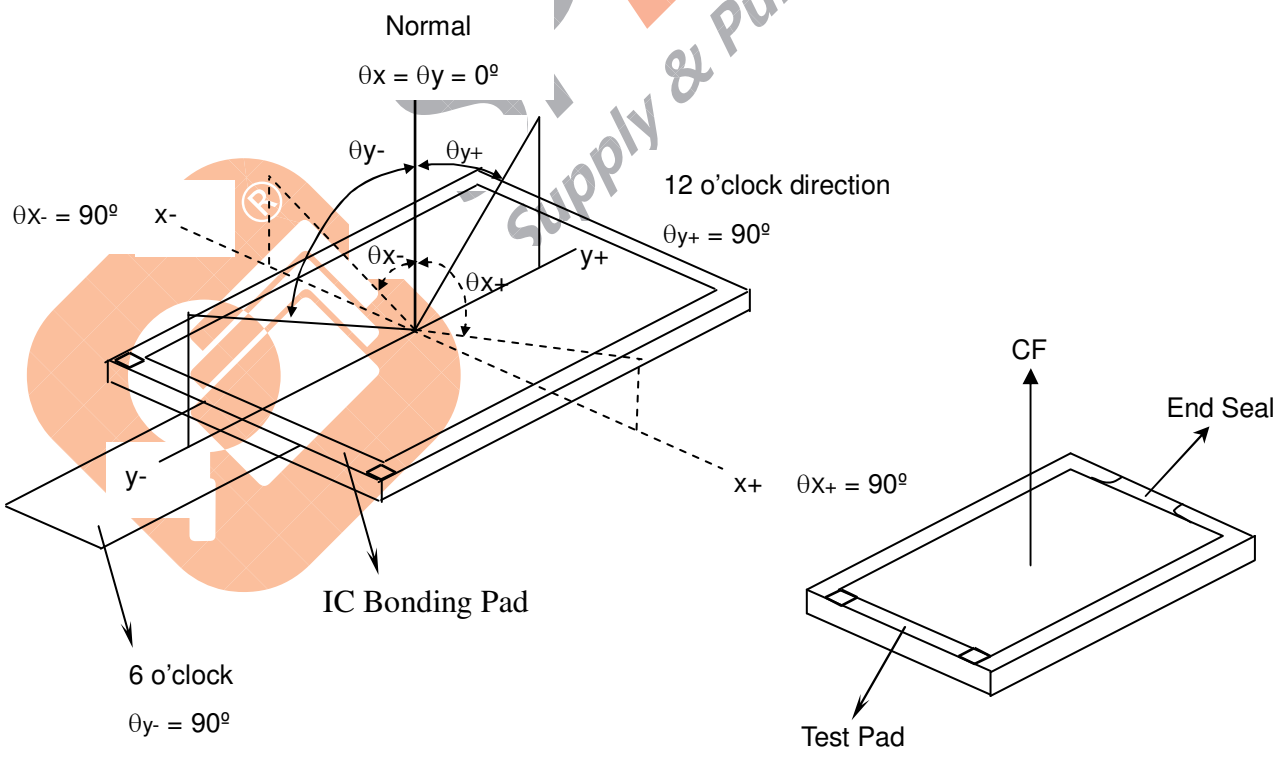
CR = CR (10)

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}):

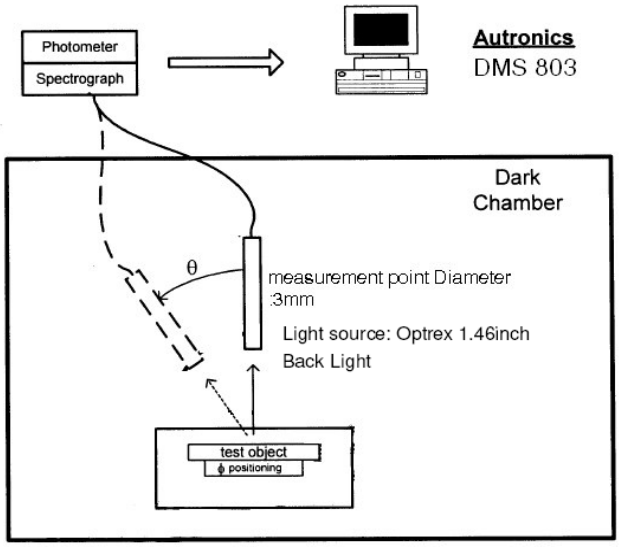


*Note(3) Definition of Viewing Angle

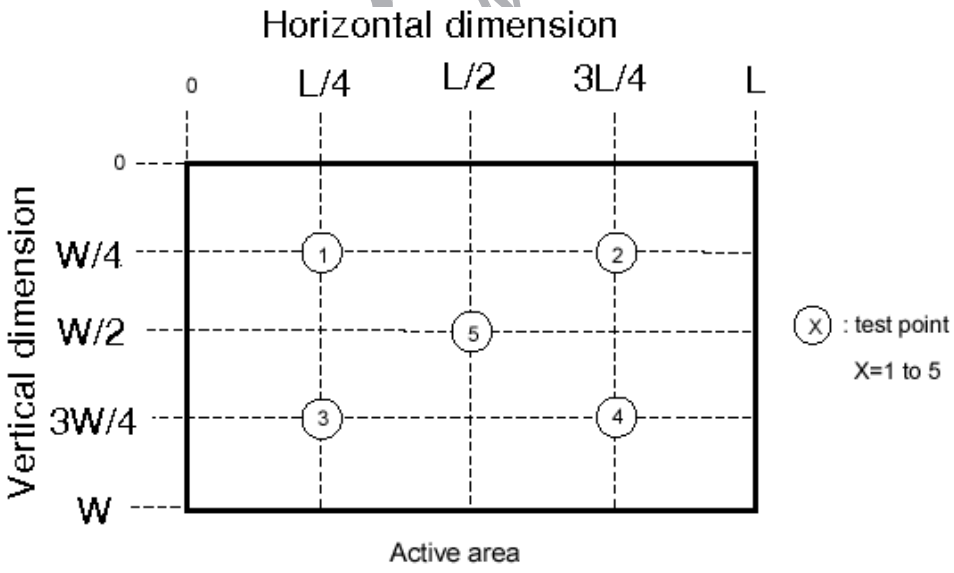


*Note (4) Measurement Set-Up:

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= 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%RH	240 hrs

Note:(1) Ta : Ambient temperature

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

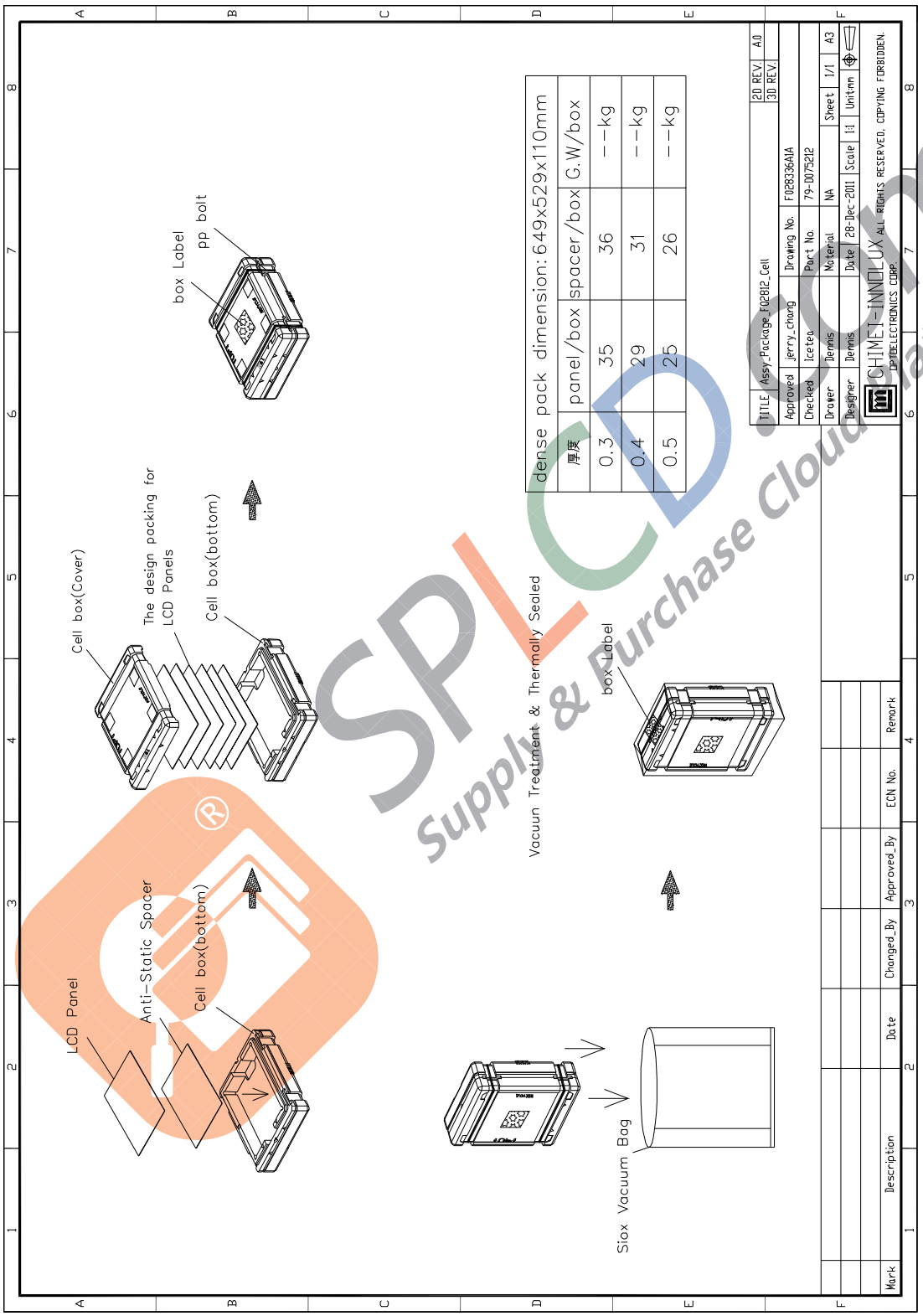
(3) Display function should be no change under normal operating condition.

(4)Under no condensation of dew

(5)*CMO only guarantee the above 5 test items. CMO wouldn't guarantee the others not shown as the above ones.

8. PACKAGE FORM

8.1 CUT PACKAGE



8.2 SHIPPING