


SPEC. NO.	PRELIMINARY
ISSUED DATE	2007.08.21

Product Specification

NVK-160SC002F-S-0100


Note : This product specification is subject to change without any notice.

Prepared by : Advanced Technology Team

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1. Features


- Display Format : 128(W) x R.G.B. x 160(H) dots
- Display Color : 262K colors
- Driver Element : passive matrix OLED(Organic Light Emitting Diode)
- Interface : 18/16/9/8/6 bit parallel data with MPU(8080-series MPU)
- Multiplexing Ratio : 1/160 Duty
- Control IC / Drive IC : LD7222 (Manufacturer : LDT)
- Without Polarizer
- Applications : Display terminal for Mobile phone, MP3 player

2. Mechanical Data

Item	Specification	Unit	Note
Outline Dimension	37.79(W) x 60.65(H) x 1.20(T)	mm	(1)
Number of dots	128(W) x(R.G.B) x 160(H)	dot	
Viewing area	32.465(W) x 40.336(H)	mm	
Active area	31.465(W) x 39.336(H)	mm	
Pixel pitch	0.246(W) x 0.246(H)	mm	
Dot pitch	0.082(W) x 0.246(H)	mm	
Dot size	0.059(W) x 0.222(H)	mm	
Weight	3.0 Max.	g	
Front Glass thickness	0.7 ±0.05	mm	
Rear Glass thickness	0.5 ±0.05	mm	

Note (1) : TCP unfolded

Refer to the Outline Dimension at the page 18.

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3. Absolute Maximum Ratings

(Ta=23±5°C, Vss=GND=0)

Item		Symbol	Min.	Max.	Unit	Note
Supply Voltage	Logic	VDD	-0.3	4	V	
		VIF	-0.3	4	V	(2)
	OLED	VCC	-0.3	20	V	(2)
Input Voltage		VIN	-0.3	VDD+0.3	V	
Operating Temp.		TOPT	-20	70	°C	
Storage Temp.		TSTG	-30	80	°C	
Humidity		-	-	90	%RH	(3)

Note (2) : Voltage relationship VCC > VDD > VSS must always be satisfied.

Note (3) : Wet bulb temperature should be 29°C max. and no condensation of water.

4. Electrical Characteristics

(Ta=23±5°C, Vss=GND=0)

Item		Symbol	Min.	Typ.	Max.	Unit	Note
Supply Voltage	Logic	VDD	2.25	2.8	3.3	V	
		VIF	2.25	2.8	3.3	V	
	OLED	VCC	8	16	18	V	
Input Voltage	High	VIH	0.7*VDD	-	VDD	V	
	Low	VIL	0	-	0.3*VDD	V	
Current Consumption	Logic	IDD		0.7		mA	
	OLED	ICC		31		mA	(4) (5)

Note (4) : VDD=2.8[V], VCC=16[V], 100[cd/m²]

Frame frequency : 105Hz

Note (5) : 100% White Pattern

5. Electro-optical Characteristics

(Ta=23±5°C, Vss=GND=0)

Item		Symbol	Min.	Typ.	Max.	Unit	Note
Luminance	White	Lw	-	100	-	cd/m ²	(7) (8) (10)
Color Chromaticity (CIE1931)	White	CIEWx	0.236	0.286	0.336		(7) (8) (10)
		CIEWy	0.314	0.364	0.414		(7) (8) (10)
	Red	CIERx	0.575	0.625	0.675		(7) (8) (10)
		CIERy	0.321	0.371	0.421		(7) (8) (10)
	Green	CIEGx	0.227	0.277	0.327		(7) (8) (10)
		CIEGy	0.597	0.647	0.697		(7) (8) (10)
	Blue	CIEBx	0.112	0.162	0.212		(7) (8) (10)
		CIEBy	0.143	0.193	0.243		(7) (8) (10)
Area in CIE diagram			60			%	(7) (8) (10)
LifeTime	White	LFw(1)	TBD		-	Hr	(7) (8) (9) (10)

Note (7) : VDD=2.8[V], VCC=16[V], 100[cd/m²]

Frame frequency : 105Hz

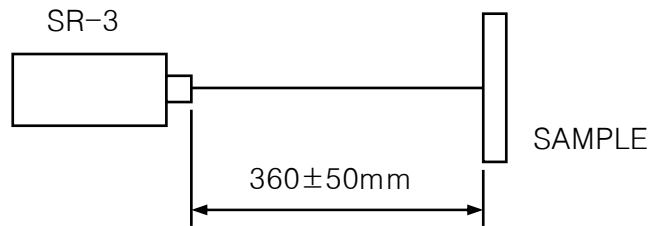
Note (8) : 100% White Pattern

Note (9) : Half value of initial luminance

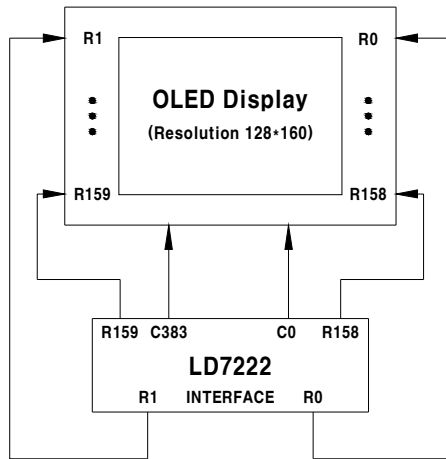
Note (10) : Measurement System

Measuring Instrument : SR-3

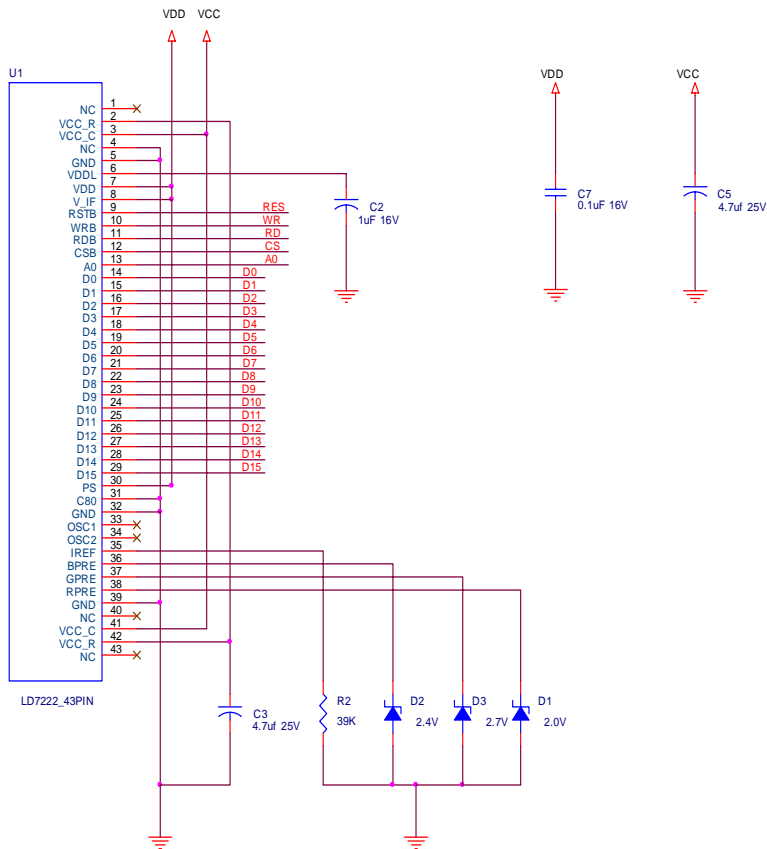
Environment : Inside a darkroom



6. Circuit Block Diagram



7. Application Circuit





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8. Instruction Description (Refer to the data sheet of LD7222)

Reg. Name	W/R	A0	D7	D6	D5	D4	D3	D2	D1	D0	Description
INDEX	W	L	ID7	ID6	ID5	ID4	ID3	ID2	ID1	ID0	Set Index Register value.
SOFTRES	W	L	0	0	0	0	0	0	0	1	Software Reset
	W	H			0	0	0	0	0	P0	
DDISP ON/OFF	W	L	0	0	0	0	0	0	1	0	Display ON/OFF SET
											0:Dot Matrix Display OFF
											1:Dot Matrix Display ON
DSTBY ON/OFF	W	L	0	0	0	0	0	0	1	1	Standby Mode Set
	W	H			0	0	0	0	0	P0	0:Standby OFF
											1:Standby ON
DFRAME	W	L	0	0	0	0	0	1	0	0	Set Frame Frequency
	W	H			0	0	0	F2	F1	F0	000 : 60Hz, 001 : 75Hz, 010 : 90Hz
											011 : 105Hz, 100 : 120Hz, 101 : 135Hz
											110 : 150Hz
WriteDirection	W	L	0	0	0	0	0	1	0	1	Sets GRAM Writing Direction
	W	H			0	0	D3	VH	D1	D0	D3=0 : Write Memory Cell RGB-order
											D3=1 : Write Memory Cell BGR-order
ScanDirection	W	L	0	0	0	0	0	1	1	0	Row Scan Direction
	W	H			0	0	0	0	0	P0	
DispSize	W	L	0	0	0	0	0	1	1	1	Display Size Set
	W	H			0	0	0	FX6	FX5	FX4	Start Column Output
	W	H			0	0	FX3	FX2	FX1	FX0	
	W	H			0	0	0	TX6	TX5	TX4	End Column Output
	W	H			0	0	TX3	TX2	TX1	TX0	
	W	H			0	0	0	FY6	FY5	FY4	Start Row Output
	W	H			0	0	FY3	FY2	FY1	FY0	
	W	H			0	0	0	TY6	TY5	TY4	End Row Output
	W	H			0	0	TY3	TY2	TY1	TY0	
I/F Bus Sel	W	L	0	0	0	0	1	0	0	0	Interface bus Select
	W	H			0	0	0	P2	P1	P0	0 : 6bit interface bus.
											1 : 8bit interface bus.
											2 : 9bit interface bus.
											3 : 16bit interface bus.
											4 : 18bit interface bus.
Data Masking	W	L	0	0	0	0	1	0	0	1	Masking Data
	W	H				RV		R	G	B	Data Masking
MBOXSize	W	L	0	0	0	0	1	0	1	0	Data Reading/Writing Box
	W	H			0	0	0	XS6	XS5	XS4	Writing Box Column Start Address
	W	H			0	0	XS3	XS2	XS1	XS0	
	W	H			0	0	0	XE6	XE5	XE4	Writing Box Column End Address
	W	H			0	0	XE3	XE2	XE1	XE0	
	W	H			0	0	0	YS6	YS5	YS4	Writing Box Row Start Address
	W	H			0	0	YS3	YS2	YS1	YS0	
	W	H			0	0	0	YE6	YE5	YE4	Writing Box Row End Address
	W	H			0	0	YE3	YE2	YE1	YE0	



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Reg. Name	W/R	A0	D7	D6	D5	D4	D3	D2	D1	D0	Description
INDEX	W	L	ID7	ID6	ID5	ID4	ID3	ID2	ID1	ID0	Set Index Register value.
DISPStart	W	L	0	0	0	0	1	0	1	1	Display Start Address
	W	H						DX6	DX5	DX4	DX6-DX0:X axis Reading Start address(Range:00h~7Fh)
	W	H						DX3	DX2	DX1	
	W	H						DY7	DY6	DY5	DY7-DX0:Y axis Reading Start address(Range:00h~9Fh)
	W	H						DY3	DY2		
DataWrite	W	L			0	0	1	1	0	0	Reading/Write Dot matrix Display Data
READREG	W	L			0	0	1	1	0	1	Read Register Status
Parameter	W	H			D5	D4	D3	D2	D1	D0	
:											
Parameter	W	H			D5	D4	D3	D2	D1	D0	
DotCurrent	W	L			0	0	1	1	1	0	Set Dot Marix Current Level
	W	H			0	0	IR7	IR6	IR5	IR4	Current Level Set R(0u~255u)
	W	H			0	0	IR3	IR2	IR1	IR0	
	W	H			0	0	IG7	IG6	IG5	IG4	Current Level Set R(0u~255u)
	W	H			0	0	IG3	IG2	IG1	IG0	
	W	H			0	0	IB7	IB6	IB5	IB4	Current Level Set R(0u~255u)
	W	H			0	0	IB3	IB2	IB1	IB0	
DotPeakCurrent	W	L			0	0	1	1	1	1	Set Dot Marix Peak Current Level
	W	H			PR5	PR4	PR3	PR2	PR1	PR0	1st Parameter
	W	H			PG5	PG4	PG3	PG2	PG1	PG0	2nd Parameter
	W	H			PB5	PB4	PB3	PB2	PB1	PB0	3rd Parameter
PreC_Width	W	L			0	1	1	1	0	0	Sets Precharge pulse width
	W	H			0	0	T3	T2	T1	T0	0~255us, 1us step
PeakWidth	W	L			0	1	1	1	0	1	Set Peak Pulse Width
	W	H			W5	W4	W3	W2	W1	W0	for Red
	W	H			W5	W4	W3	W2	W1	W0	for Green
	W	H			W5	W4	W3	W2	W1	W0	for Blue
PeakDelay	W	L			0	1	1	1	1	0	Sets Peak Pulse Delay(0u~63u)
	W	H			W5	W4	W3	W2	W1	W0	
Row_Scan	W	L			0	1	1	1	1	1	Set Row Scan Operation
	W	H			D5	D4	D3	-	D1	D0	0 : Nomal Row Scan
											1 : All Row in Gnd
I/F_SEL	W	L			1	0	1	1	0	1	Set Interface Mode
	W	H			-	RA	-	-	-	-	RA=0, All the data for display is written to the internal RAM via System interface.
											RA=0, All the data for display is written to the internal RAM via RGB interface.
RGB I/F_CTRL	W	L			1	0	1	1	1	0	RGB I/F Control
	W	H					BP3	BP2	BP1	BP0	
	W	H					FP3	FP2	FP1	FP0	
RGB I/F_POL	W	L			1	0	1	1	1	1	Set RGB I/F Polarity
	W	H					VPL	HPL	DPL	EPL	




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Reg. Name	W/R	A0	D7	D6	D5	D4	D3	D2	D1	D0	Description
INDEX	W	L	ID7	ID6	ID5	ID4	ID3	ID2	ID1	ID0	Set Index Register value.
VCC_R_SEL	W	L			1	1	0	0	0	0	Set Internal Regulator for Row Scan
	W	H				D4	D3	D2	D1	D0	
XTALK_Mode	W	L			1	1	0	0	0	1	Set XTALK Condition Setting
	W	H			RS5	RS4	RS3	RS2	RS1	RS0	
	W	H			-	-	RD3	RD2	RD1	RD0	
	W	H			GS5	GS4	GS3	GS2	GS1	GS0	
	W	H			-	-	GD3	GD2	GD1	GD0	
	W	H			BS5	BS4	BS3	BS2	BS1	BS0	
	W	H			-	-	BD3	BD2	BD1	BD0	
XTALK_EN	W	L			1	1	0	0	1	0	Set XTALK Enable
	W	H			-	-	-	M2	M1	M0	
AGING_EN	W	L			1	1	0	1	0	1	Set AGING Mode
	W	H								P0	
Gamma Tune	W	L			1	1	1	0	1	0	Set Gamma Correction Table Set
R_PW0	W	H			-	-	-	16	15	14	
	W	H			-	-	13	12	11	10	
R_PW1	W	H			-	-	-	16	15	14	
	W	H			-	-	13	12	11	10	
	:										
	:										
R_PW62	W	H			-	-	-	16	15	14	
	W	H			-	-	13	12	11	10	
R_PW63	W	H			-	-	-	16	15	14	
	W	H			-	-	13	12	11	10	
G_PW0	W	H			-	-	-	16	15	14	
	W	H			-	-	13	12	11	10	
G_PW1	W	H			-	-	-	16	15	14	
	W	H			-	-	13	12	11	10	
	:										
	:										
G_PW62	W	H			-	-	-	16	15	14	
	W	H			-	-	13	12	11	10	
G_PW63	W	H			-	-	-	16	15	14	
	W	H			-	-	13	12	11	10	
B_PW0	W	H			-	-	-	16	15	14	
	W	H			-	-	13	12	11	10	
B_PW1	W	H			-	-	-	16	15	14	
	W	H			-	-	13	12	11	10	
	:										
	:										
B_PW62	W	H			-	-	-	16	15	14	
	W	H			-	-	13	12	11	10	
B_PW63	W	H			-	-	-	16	15	14	
	W	H			-	-	13	12	11	10	
Gamma Initial	W	L			1	1	1	0	1	1	Set Gamma Correction Table Initialize

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9. DDRAM Address

C0 to C383	C0	C1	C2	C3	C4	C5	...	C381	C382	C383
COL	0			1			...	127		
ROW	R[5:0]	G[5:0]	B[5:0]	R[5:0]	G[5:0]	B[5:0]	...	R[5:0]	G[5:0]	B[5:0]
1							...			
2							...			
3							...			
4							...			
:	:	:	:	:	:	:	:	:	:	:
:	:	:	:	:	:	:	:	:	:	:
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157							...			
158							...			
159							...			
160							...			



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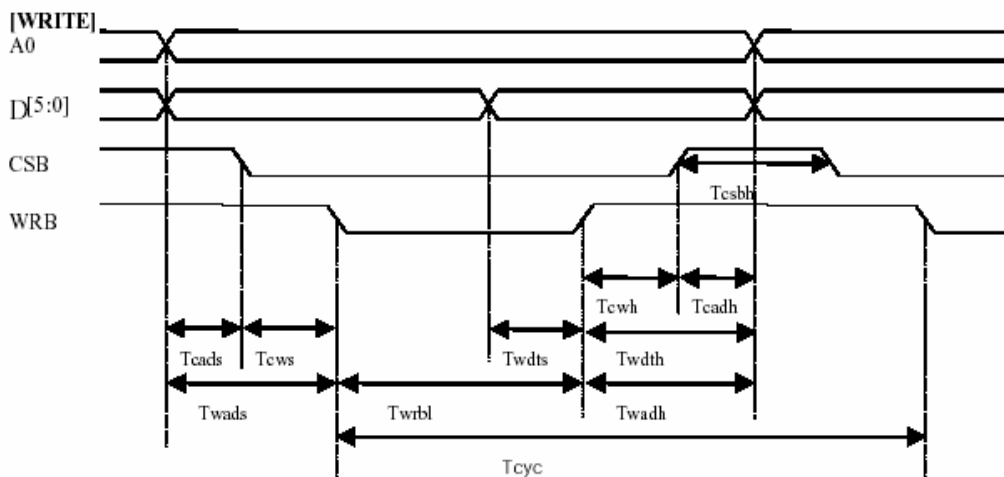
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10. Pin Connections

Pin No	Symbol	I/O	Description	Remark
1	NC	-	NC	
2	VCC_R	P	OLED Dot Matrix Power Supply for Row Driver	
3	VCC_C	P	OLED Dot Matrix Power Supply for Column Driver	
4	NC	-	NC	
5	GND	P	GND	
6	VDDL	P	Logic Power Supply	
7	VDD	P	Logic Power Supply	
8	V_IF		IO buffer block Power Source	
9	RSTB	I	Reset(Active Low)	
10	WRB	I	Write (Active Low, 80 interface)	
11	RDB	I	Read(Active Low, 80 Interface) , Enable (68 Interface)	
12	CSB	I	Chip Select (Active Low)	
13	A0	I	Address (L: Command, H: Parameter)	
14	D0	I/O	16/9/8/6-bit bi-directional data bus	
15	D1	I/O	16/9/8/6-bit bi-directional data bus	
16	D2	I/O	16/9/8/6-bit bi-directional data bus	
17	D3	I/O	16/9/8/6-bit bi-directional data bus	
18	D4	I/O	16/9/8/6-bit bi-directional data bus	
19	D5	I/O	16/9/8/6-bit bi-directional data bus	
20	D6	I/O	16/9/8/6-bit bi-directional data bus	
21	D7	I/O	16/9/8/6-bit bi-directional data bus	
22	D8	I/O	16/9/8/6-bit bi-directional data bus	
23	D9	I/O	16/9/8/6-bit bi-directional data bus	
24	D10	I/O	16/9/8/6-bit bi-directional data bus	
25	D11	I/O	16/9/8/6-bit bi-directional data bus	
26	D12	I/O	16/9/8/6-bit bi-directional data bus	
27	D13	I/O	16/9/8/6-bit bi-directional data bus	
28	D14	I/O	16/9/8/6-bit bi-directional data bus	
29	D15	I/O	16/9/8/6-bit bi-directional data bus	
32	PS	I	H: Parallel L:Serial	
33	C80	I	H: 68CPU L: 80CPU	
34	OSCA1	I	Oscillator1	
35	OSCA2	O	Oscillator2	
36	IREF	I/O	Current Setting	
37	BPRE	I/O	Pre-charge Voltage for Blue	
38	GPRE	I/O	Pre-charge Voltage for Green	
39	RPRE	I/O	Pre-charge Voltage for Red	
40	GND	P	GND	
41	VCC_C	P	OLED Dot Matrix Power Supply for Row Driver	
42	VCC_R	P	OLED Dot Matrix Power Supply for Column Driver	
43	AGND	P	Analog GND	

11. AC Characteristics

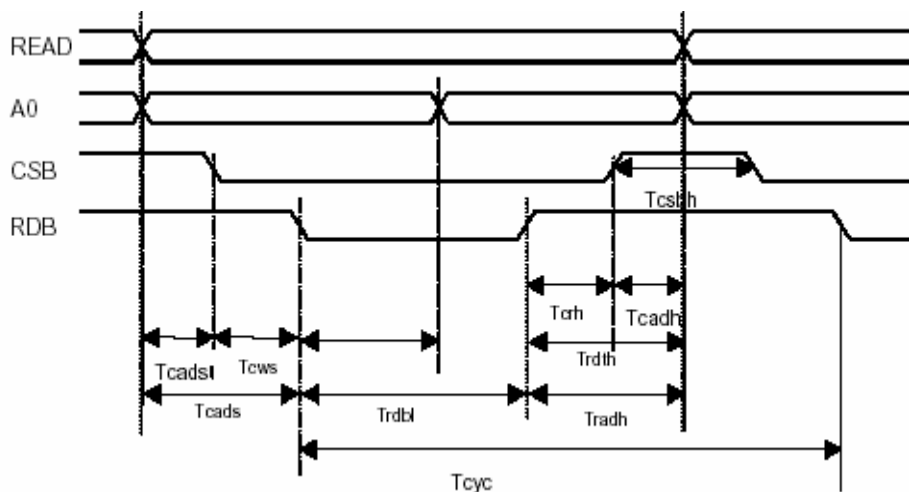
11-1 Write Input Timing



(VDD = 2.25~3.3V, Ta = -40~85°C)


Items	Signal	Symbol	Min.	Typ.	Max.	Unit
Write cycle time	WRB/RW	Tcyc	100	—	—	ns
Address and Select setup time	CSB,A0	Tcads	0	—	—	ns
Address and Select hold time		Tcadh	0	—	—	ns
Address setup time	A0	Twads	50	—	—	ns
Address hold time		Twadh	20	—	—	ns
Select setup time	CSB	Tcws	10	—	—	ns
Select hold time		Tcwh	10	—	—	ns
Write Low pulse width	WRB/RW	Twrbl	30	—	—	ns
Select High pulse width	CSB	Tcsbh	10	—	—	ns
Data setup time (CL=100 pF)	D17 to D0	Twdts	10	—	—	ns
Data hold time (CL=100 pF)		Twdth	20	—	—	ns

11-2 Read Input Timing



(VDD= 2.25~3.3V, Ta= -40~85℃)

Items	Signal	Symbol	Min.	Typ.	Max.	Unit
Read cycle time	RDB/E	Tcyc	500	—	—	ns
Address and Select setup time	CSB,A0	Tcadst	0	—	—	ns
Address and Select hold time	CSB,A0	Teadh	0	—	—	ns
Address setup time	A0	Twads	50	—	—	ns
Address hold time	A0	Twadh	20	—	—	ns
Select setup time	CSB	Tews	10	—	—	ns
Select hold time	CSB	Tewh	10	—	—	ns
Read Low pulse width	RDB/E	Twrbl	250	—	—	ns
Select High pulse width	CSB	Tcsbh	10	—	—	ns
Data setup time (CL=100 pF)	D17 toD0	Twds	—	—	200	ns
Data hold time (CL=100 pF)	D17 toD0	Twdh	5	—	—	ns

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12. Reliability

12-1 Test Items and Conditions


Item	Test Condition	Criteria for Pass/Fail
High Temp. Operation	60 ± 2℃, 96hrs	(10) (11)
Low Temp. Operation	-20 ± 2℃, 96hrs	(10) (11)
High Temp. Storage	80 ± 2℃, 96hrs	(10)
Low Temp. Storage	-30 ± 2℃, 96hrs	(10)
High Temp. & High Humi. Storage	60 ± 2℃, 90 ± 2%RH, 96hrs	(10)
Temperature Cycle	25℃(0.5h) → -20℃(3h) → 25℃(1h) → 60℃(3h) → 25℃(0.5h), 10cycles	(10)
Thermal Shock	25℃(5m) → -30℃(30m) → 25℃(5m) → 80℃(30m), 20cycles	(10)
Vibration Test	Acceleration:1G vibrating frequency 10 to 55Hz one cycle 20 minute to direction of X,Y,Z(total 1.0hrs) and after removing vibration.(Non-Operation State)	(10)
Shock Test (Drop Test)	To be measured after dropping from 70cm high onto steel board of 15mm thick and from 3 direction X,Y,Z each one time.(Non-Operation State)	(10)

Note(10) After the above reliability test, the samples should be left under room temperature for 2 hours and then should be inspected for normal operation.

Note(11) The conditions for driving at operation tests shall be the same as indicated on the above description except for the temperature and humidity conditions.

12-2 Criteria for Reliability Test

- (1) There shall be no abnormality in the functions and the display.
- (2) No irregularities shall be found for the appearance and structure.
- (3) The luminance change should be within 50% of initial value(based on white).

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13. Quality Specifications

13-1 Acceptance Quality Level(AQL)

Inspection Item	Sampling Procedures	AQL
Major	KS A 3109 Inspection level II	0.65
	Normal inspection Single sampling plan	
Minor	KS A 3109 Inspection level II	1.5
	Normal inspection Single sampling plan	

(1) Major defect :

Defects which influence display function or reliability issues.

(2) Minor defect :

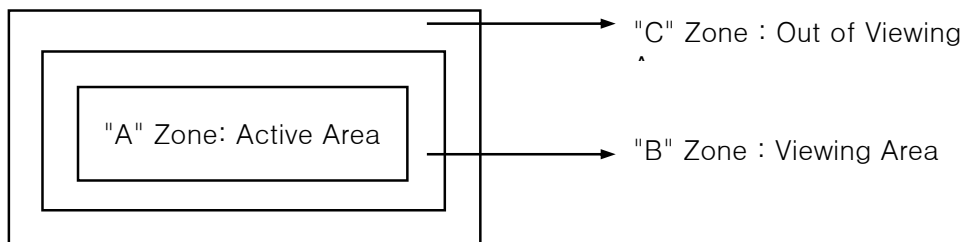
Defects which satisfy all functions, but no impact to reliability issues.


13-2 Inspection Conditions

The environmental conditions for inspection shall be as follows,

- Room Temperature : $23 \pm 5^{\circ}\text{C}$ - Brightness : 300~500 [lux]
- Humidity : $60 \pm 20\% \text{RH}$

13-3 Definition of Area



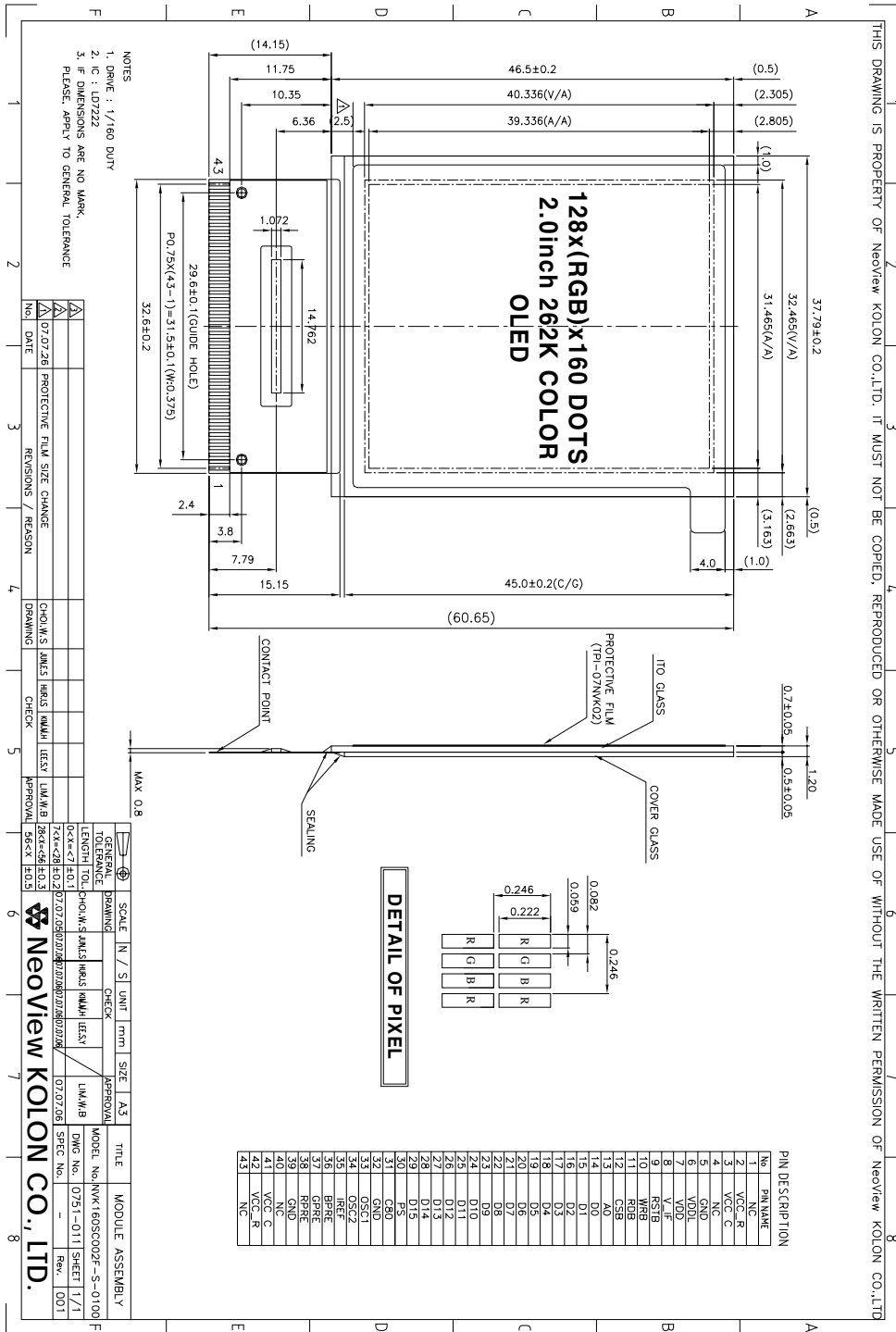
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13-4 Inspection Standards

Items	Criteria of defects	Defect type										
Display on inspection	1) No display 2) Abnormal Operation 3) Vertical Line defects 4) Horizontal line defects 5) Cross line defects 6) Short Circuit 7) Pattern Open	Major										
Bright/Dark spot	<table border="1"> <thead> <tr> <th>Size Φ(mm)</th> <th>Acceptable number</th> </tr> </thead> <tbody> <tr> <td>$\Phi \leq 0.15$</td> <td>Ignore</td> </tr> <tr> <td>$0.15 < \Phi \leq 0.25$</td> <td>4</td> </tr> <tr> <td>$0.25 < \Phi \leq 0.30$</td> <td>2</td> </tr> <tr> <td>$\Phi > 0.30$</td> <td>0</td> </tr> </tbody> </table>	Size Φ (mm)	Acceptable number	$\Phi \leq 0.15$	Ignore	$0.15 < \Phi \leq 0.25$	4	$0.25 < \Phi \leq 0.30$	2	$\Phi > 0.30$	0	Minor
Size Φ (mm)	Acceptable number											
$\Phi \leq 0.15$	Ignore											
$0.15 < \Phi \leq 0.25$	4											
$0.25 < \Phi \leq 0.30$	2											
$\Phi > 0.30$	0											
Glass Contamination	<table border="1"> <thead> <tr> <th>Size Φ(mm)</th> <th>Acceptable number</th> </tr> </thead> <tbody> <tr> <td>$\Phi \leq 0.10$</td> <td>Ignore</td> </tr> <tr> <td>$0.10 < \Phi \leq 0.15$</td> <td>1</td> </tr> <tr> <td>$\Phi > 0.15$</td> <td>0</td> </tr> </tbody> </table>	Size Φ (mm)	Acceptable number	$\Phi \leq 0.10$	Ignore	$0.10 < \Phi \leq 0.15$	1	$\Phi > 0.15$	0	Minor		
Size Φ (mm)	Acceptable number											
$\Phi \leq 0.10$	Ignore											
$0.10 < \Phi \leq 0.15$	1											
$\Phi > 0.15$	0											
Polarizer bubble	<table border="1"> <thead> <tr> <th>Size Φ(mm)</th> <th>Acceptable number</th> </tr> </thead> <tbody> <tr> <td>$\Phi \leq 0.20$</td> <td>Ignore</td> </tr> <tr> <td>$0.20 < \Phi \leq 0.50$</td> <td>3</td> </tr> <tr> <td>$0.50 < \Phi \leq 0.80$</td> <td>2</td> </tr> <tr> <td>$\Phi > 0.80$</td> <td>0</td> </tr> </tbody> </table>	Size Φ (mm)	Acceptable number	$\Phi \leq 0.20$	Ignore	$0.20 < \Phi \leq 0.50$	3	$0.50 < \Phi \leq 0.80$	2	$\Phi > 0.80$	0	Minor
Size Φ (mm)	Acceptable number											
$\Phi \leq 0.20$	Ignore											
$0.20 < \Phi \leq 0.50$	3											
$0.50 < \Phi \leq 0.80$	2											
$\Phi > 0.80$	0											
Dents	<table border="1"> <thead> <tr> <th>Size (mm)</th> <th>Acceptable number</th> </tr> </thead> <tbody> <tr> <td>$L \leq 0.15, W \leq 0.15$</td> <td>3</td> </tr> <tr> <td>$L > 0.15, W > 0.15$</td> <td>0</td> </tr> </tbody> </table>	Size (mm)	Acceptable number	$L \leq 0.15, W \leq 0.15$	3	$L > 0.15, W > 0.15$	0	Minor				
Size (mm)	Acceptable number											
$L \leq 0.15, W \leq 0.15$	3											
$L > 0.15, W > 0.15$	0											
Pin holes	<table border="1"> <thead> <tr> <th>Size (mm)</th> <th>Acceptable number</th> </tr> </thead> <tbody> <tr> <td>$\Phi \leq 0.2$</td> <td>3</td> </tr> <tr> <td>$\Phi > 0.2$</td> <td>0</td> </tr> </tbody> </table>	Size (mm)	Acceptable number	$\Phi \leq 0.2$	3	$\Phi > 0.2$	0	Minor				
Size (mm)	Acceptable number											
$\Phi \leq 0.2$	3											
$\Phi > 0.2$	0											

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14. Outline Dimension



NOTES
 1. PAPER : 1/160 DUTY
 2. C : 0.0222
 3. F : DIMENSIONS ARE NO MARK
 FLANGE APPLY TO GENERAL TOLERANCE


No.	DATE	REVISIONS / REASON	CHECK	APPROVAL
1	07.07.26	PROTECTIVE FILM SIZE CHANGE	CHOI W S, JAMES HAN S, JIMMY LEE S Y	LIU M / B
2		DRAWING		

SCALE	N / S UNIT	mm	SIZE	A3
DRAWING	CHECK			
TOLERANCE				
LENGTH TOL.	CHOI W S, JAMES HAN S, JIMMY LEE S Y			
0.5x<=L<=1.0				
1.0x<=L<=2.0				
2.0x<=L<=5.0				
5.0x<=L<=10.0				
10.0x<=L<=30.0				
30.0x<=L<=100.0				
100.0x<=L<=300.0				
300.0x<=L<=1000.0				
1000.0x<=L<=3000.0				
3000.0x<=L<=10000.0				
10000.0x<=L<=30000.0				
30000.0x<=L<=100000.0				
100000.0x<=L<=300000.0				
300000.0x<=L<=1000000.0				
1000000.0x<=L<=3000000.0				
3000000.0x<=L<=10000000.0				
10000000.0x<=L<=30000000.0				
30000000.0x<=L<=100000000.0				
100000000.0x<=L<=300000000.0				
300000000.0x<=L<=1000000000.0				
1000000000.0x<=L<=3000000000.0				
3000000000.0x<=L<=10000000000.0				
10000000000.0x<=L<=30000000000.0				
30000000000.0x<=L<=100000000000.0				
100000000000.0x<=L<=300000000000.0				
300000000000.0x<=L<=1000000000000.0				
1000000000000.0x<=L<=3000000000000.0				
3000000000000.0x<=L<=10000000000000.0				
10000000000000.0x<=L<=30000000000000.0				
30000000000000.0x<=L<=100000000000000.0				
100000000000000.0x<=L<=300000000000000.0				
300000000000000.0x<=L<=1000000000000000.0				
1000000000000000.0x<=L<=3000000000000000.0				
3000000000000000.0x<=L<=10000000000000000.0				
10000000000000000.0x<=L<=30000000000000000.0				
30000000000000000.0x<=L<=100000000000000000.0				
100000000000000000.0x<=L<=300000000000000000.0				
300000000000000000.0x<=L<=1000000000000000000.0				
1000000000000000000.0x<=L<=3000000000000000000.0				
3000000000000000000.0x<=L<=10000000000000000000.0				
10000000000000000000.0x<=L<=30000000000000000000.0				
30000000000000000000.0x<=L<=100000000000000000000.0				
100000000000000000000.0x<=L<=300000000000000000000.0				
300000000000000000000.0x<=L<=1000000000000000000000.0				
1000000000000000000000.0x<=L<=3000000000000000000000.0				
3000000000000000000000.0x<=L<=10000000000000000000000.0				
10000000000000000000000.0x<=L<=30000000000000000000000.0				
30000000000000000000000.0x<=L<=100000000000000000000000.0				
100000000000000000000000.0x<=L<=300000000000000000000000.0				
300000000000000000000000.0x<=L<=1000000000000000000000000.0				
1000000000000000000000000.0x<=L<=3000000000000000000000000.0				
3000000000000000000000000.0x<=L<=10000000000000000000000000.0				
10000000000000000000000000.0x<=L<=30000000000000000000000000.0				
30000000000000000000000000.0x<=L<=100000000000000000000000000.0				
100000000000000000000000000.0x<=L<=300000000000000000000000000.0				
300000000000000000000000000.0x<=L<=1000000000000000000000000000.0				
1000000000000000000000000000.0x<=L<=3000000000000000000000000000.0				
3000000000000000000000000000.0x<=L<=10000000000000000000000000000.0				
10000000000000000000000000000.0x<=L<=30000000000000000000000000000.0				
30000000000000000000000000000.0x<=L<=100000000000000000000000000000.0				
100000000000000000000000000000.0x<=L<=300000000000000000000000000000.0				
300000000000000000000000000000.0x<=L<=1000000000000000000000000000000.0				
1000000000000000000000000000000.0x<=L<=3000000000000000000000000000000.0				
3000000000000000000000000000000.0x<=L<=10000000000000000000000000000000.0				
10000000000000000000000000000000.0x<=L<=30000000000000000000000000000000.0				
30000000000000000000000000000000.0x<=L<=100000000000000000000000000000000.0				
100000000000000000000000000000000.0x<=L<=300000000000000000000000000000000.0				
300000000000000000000000000000000.0x<=L<=1000000000000000000000000000000000.0				
1000000000000000000000000000000000.0x<=L<=3000000000000000000000000000000000.0				
3000000000000000000000000000000000.0x<=L<=10000000000000000000000000000000000.0				
10000000000000000000000000000000000.0x<=L<=30000000000000000000000000000000000.0				
30000000000000000000000000000000000.0x<=L<=100000000000000000000000000000000000.0				
100000000000000000000000000000000000.0x<=L<=300000000000000000000000000000000000.0				
300000000000000000000000000000000000.0x<=L<=1000000000000000000000000000000000000.0				
1000000000000000000000000000000000000.0x<=L<=3000000000000000000000000000000000000.0				
3000000000000000000000000000000000000.0x<=L<=10000000000000000000000000000000000000.0				
10000000000000000000000000000000000000.0x<=L<=30000000000000000000000000000000000000.0				
30000000000000000000000000000000000000.0x<=L<=100000000000000000000000000000000000000.0				
100000000000000000000000000000000000000.0x<=L<=300000000000000000000000000000000000000.0				
300000000000000000000000000000000000000.0x<=L<=1000000000000000000000000000000000000000.0				
1000000000000000000000000000000000000000.0x<=L<=3000000000000000000000000000000000000000.0				
3000000000000000000000000000000000000000.0x<=L<=100.0				
100.0x<=L<=300.0				
300.0x<=L<=1000.0				
1000.0x<=L<=3000.0				
3000.0x<=L<=100.0				
100.0x<=L<=300.0				
300.0x<=L<=1000.0				
1000.0x<=L<=3000.0				
3000.0x<=L<=100.0				
100.0x<=L<=300.0				
300.0x<=L<=1000.0				
1000.0x<=L<=3000.0				
3000.0x<=L<=100.0				
100.0x<=L<=300.0				
300.0x<=L<=1000.0				
1000.0x<=L<=3000.0				
3000.0x<=L<=100.0				
100.0x<=L<=300.0				
300.0x<=L<=1000.0				
1000.0x<=L<=3000.0				
3000.0x<=L<=100.0				
100.0x<=L<=300.0				
300.0x<=L<=1000.0				
1000.0x<=L<=3000.0				
3000.0x<=L<=1000.0				
100.0x<=L<=3000.0				
300				

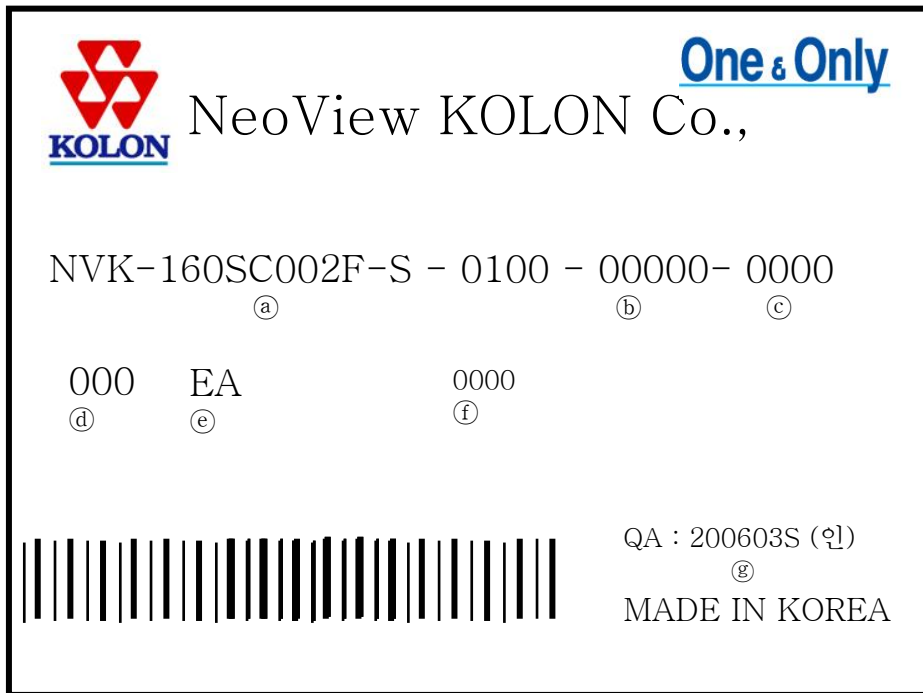
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15. Packing

T.B.D


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16. Marking & Others



※Label(138x95mm) description


- (a) : Product name
- (b) : Manufacture date
- (c) : Serial number of box
- (d) : Quantity
- (e) : Unit
- (f) : Customer
- (g) : Inspector signature

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17. General Precautions

17-1 Handling

- (1) When the module is assembled, it should be attached to the system firmly.
Be careful not to twist and bend the module.
- (2) Refrain from strong mechanical shock and / or any force to the module. Do not twist and bend because it may cause improper operation or damage to the module.
- (3) Note that polarizers are very fragile and can be easily damaged. Do not press or scratch the surface more than a B pencil lead.
- (4) Wipe off water droplets or oil immediately. If you leave the droplets for a long time, staining and discoloration may occur.
- (5) If the surface of the polarizer is dirty, clean it with some absorbent cotton or soft cloth.
- (6) The desirable cleaner is water, IPA(Isopropyl Alcohol) or Hexane.
Do not use Ketone type materials(ex, Acetone), Ethyl alcohol, Toluene, Ethyl acid or Methyl chloride. It can cause permanent damage to the polarizer due to chemical reaction.
- (7) Protect the module from electro-static, otherwise it may damage to the C-MOS LSI.
- (8) Use finger-stalls with soft gloves in order to keep clean display during the incoming inspection and assembly process.
- (9) Do not disassemble the module.
- (10) Protection film for polarizer on the module shall be slowly peeled off just before use so that the electrostatic charge can be minimized.
- (11) Pins of I/F connector shall not be touched directly with bare hands.

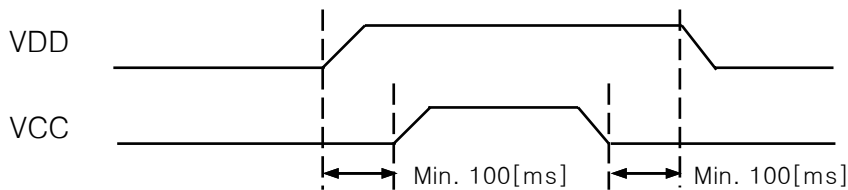
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17-2 Storage

- (1) Do not leave the panel under high temperature, and high humidity for a long time. It is recommended to store the module at 0 to 35°C of temperature and less than 70% of relative humidity.
- (2) Do not store the OLED module under direct sunlight.
- (3) The module shall be stored in a dark place. It is prohibited to apply to sunlight or fluorescent light during the storage.

17-3 Operation

- (1) Do not connect, disconnect the module under the "Power On" condition.
- (2) Power supply should always be turned on/off by the following diagram.



17-4 Caution

- (1) The OLED is deteriorated by ultraviolet, therefore do not leave it under direct sunlight and strong ultraviolet ray for a long time.
- (2) If the panel displays the same pattern continuously for a long period of time, it can be attributed to the image "Sticks" to screen.

17-5 Others

- (1) Avoid condensation of water because it may result in improper operation or disconnection of electrode.
- (2) Do not exceed the absolute maximum rating value(the supply voltage variation, input voltage variation, variation in part contents and environmental temperature, and so on). Otherwise, the panel may be damaged.