

# SPECIFICATION

Product Type : EPD

Model Number : GDEB0090A1

Description : Screen Size: 0.9"  
Color: Blake and White  
Qty of Segments: 43

Prepared : Li Lanxi  
Checked : Wen Xin  
Approved : Jian Yongcheng  
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**DALIAN GOOD DISPLAY CO., LTD.**

*Good Display*

No.17 Gonghua Street, Shahekou District, Dalian 116021 China

Tel: +86-411-84619565 Fax: +86-411-84619585-810

Email: [info@good-display.com](mailto:info@good-display.com)

Website: [www.good-display.com](http://www.good-display.com)



Version	Content	Date	Producer
1.0	New Release	2015/04/02	



## 1. GENERAL DESCRIPTION

This is a segmental E-paper display module, it is able to display segmental content under preset program.

## 2. FEATURES

- ◆ Ultra wide viewing angle
- ◆ Ultra low power consumption
- ◆ Pure reflective mode
- ◆ Display active size: 22.2\*4.92mm
- ◆ Contrast Ratio above 8:1

## 3. APPLICATION

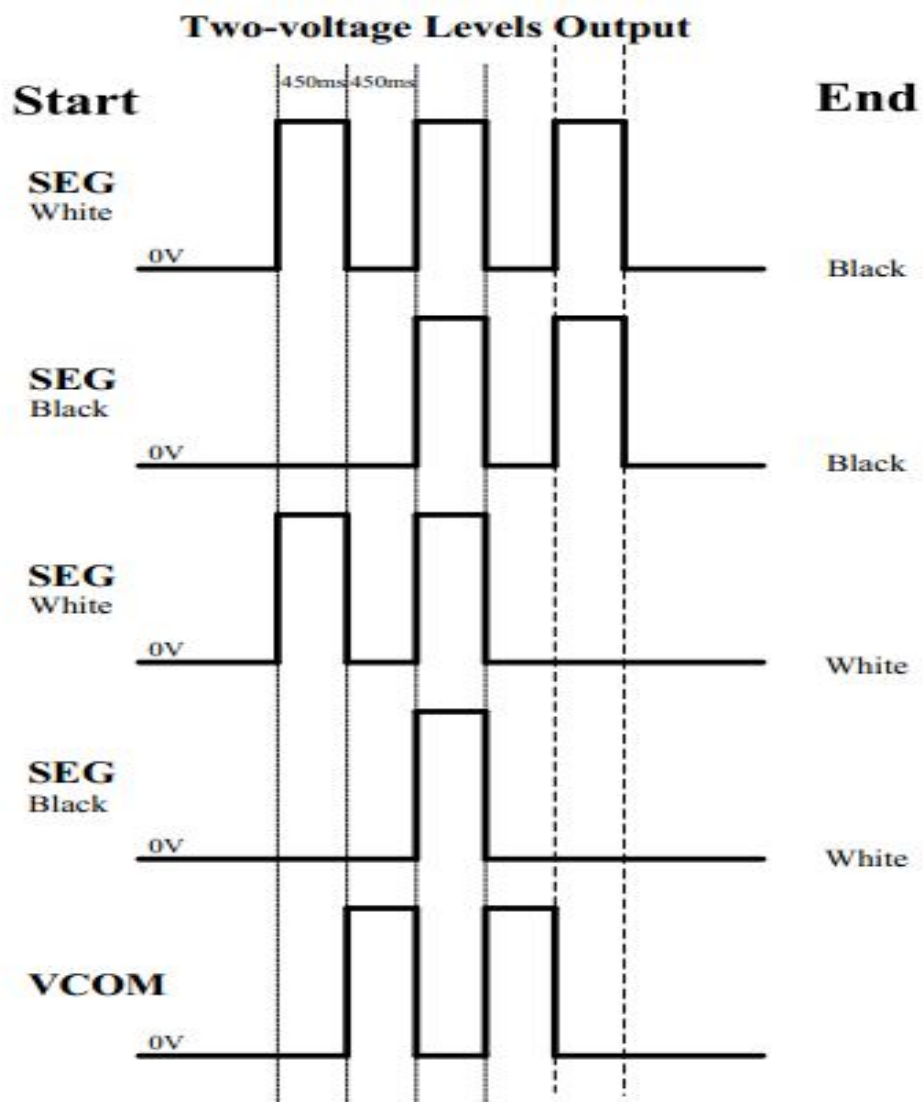
- ◆ SMARTCARD

## 4. General Specification

PARAMETER	VALUE	UNIT	Remark
Active Size	22.2*4.92	mm	
Outline Size	29*12.42	mm	
Qty of Segments	43	-	
Material of substrate	FPC		
Driver IC	TT30120	Pcs	COF
Weight	-	-	-

## 5. ELECTRICAL CHARACTERISTICS

### 5.1 Waveform



### 5.2 Panel DC characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Signal ground	VSS		-	0	-	V
Logic Voltage supply	VDD		3.0	3.3	3.6	V
	IVDD	VDD=3.3V		1.2	2	mA

## 6. MECHANICAL DATA; PIN ASSIGNMENT

台帐号	TYD-B023-02-A1	更改标志	数量	文件号	签名	日期
		01				

**真值表**

SEG	SEG	SEG	SEG	SEG	SEG	SEG	SEG	SEG	SEG	SEG	SEG	SEG	SEG
a1	Y1	b1	Y9	c1	Y41	d1	Y57	e1	Y73	f1	Y105	VCOM	Y121
a2	Y2	b2	Y10	c2	Y42	d2	Y58	e2	Y74	f2	Y106	BG	Y122
a3	Y3	b3	Y11	c3	Y43	d3	Y59	e3	Y75	f3	Y107		Y80
a4	Y4	b4	Y12	c4	Y44	d4	Y60	e4	Y76	f4	Y108		
a5	Y5	b5	Y13	c5	Y45	d5	Y61	e5	Y77	f5	Y109		
a6	Y6	b6	Y14	c6	Y46	d6	Y62	e6	Y78	f6	Y110		
a7	Y7	b7	Y15	c7	Y47	d7	Y63	e7	Y79	f7	Y111		

编号	材料	厚度
1	铝箔	0.08
2	FPC	0.09
3	FPL	0.2
4	透明防水膜	0.08
5	模组	0.45

版本信息	DALIAN GOOD DISPLAY CO., LTD.				
设计	TJ		Tolerance: Decimal	项目名称	GDEB0090A1
审核			× ± 1.0	材料	
标准化			.× ± .20	重量	部件名称
			.×× ± .05		P/N
			Ang. ± 0.5°		
批准			单位: mm	比例	页码 1/1

NOTE:

## 8. OPTICAL DATA

### 8.1 Optical characteristics

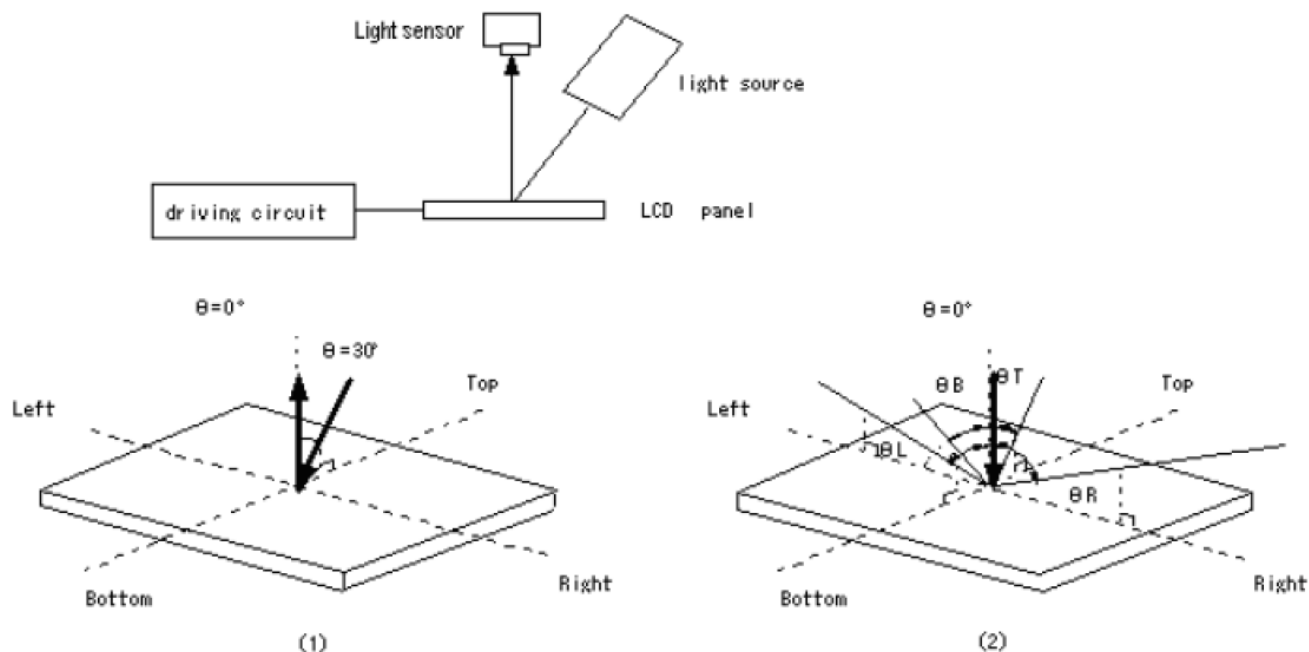
$T_{amb}=25^{\circ}C$ ; supply voltage module is 3.3V. Measurements are made with Eye-One Pro Spectrophotometer.

<u>Optical Performance</u>		
Color	Black and White	
White Reflectivity	35%	
Contrast Ratio (CR)	8:1	
Grayscale Capability	/	
Rspnse Time:	500ms	
Viewing Angle	>179	

### 8.2 Definition of contrast ratio

The contrast ratio(CR) is the ratio between the reflectance in a full white area( $R_I$ ) and the reflectance in a dark area( $R_d$ ):

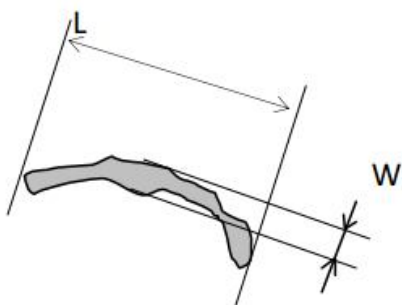
$$CR = R_I/R_d$$



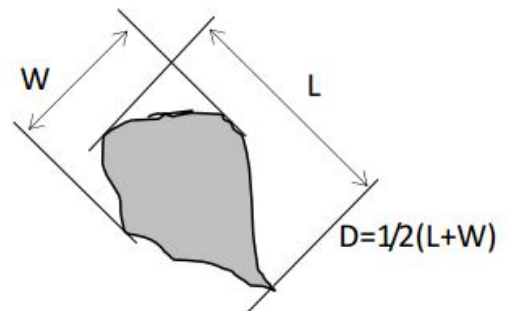
### 9. The Defects Specifications

Appearance Inspection Environment	Temperature and Humidity	Environmental Luminance	Inspection Distance	Inspection Voltage
	20°C -25 °C /40%RH-55%RH	$\geq 500$ Lux	200mm-300mm	
Appearance Inspection Specification	Defect Type	Inspection Methods	Accepted Specifications	
	Dot-like defects:contaminants/stain/hump/dent(non-switching)	Eye/Sector	$D \leq 0.25$ mm	Ignore
			$0.25\text{mm} < D \leq 0.5$ mm	$N \leq 1$
			$D > 0.5$ mm	0
	Line defects:contaminants/stain/hump/dent(non-switching)	Eye/Sector	$L \leq 0.5$ mm	Ignore
			$0.5\text{mm} < L \leq 3\text{mm} \& W \leq 0.3$ mm	$N \leq 1$
$L > 3.0$ mm or $W > 0.3$ mm			0	
1. Appearance defects should not cause other defects or functional failure. 2. Appearance defects should not enlarge from the original dimension.				

#### 9.1 Measuring and Calculating Methods of Line Defects & Dot-Like Defects



(a. Line Defect)



(b. Dot-Like Defect)

#### 9.2 Judgment Criteria of Line Defects and Dot-Like Defects

When the length of line L is less than or equal to 0.5 mm, proceed as the dot-like specification.

When the length of line L is less than 4 W, proceed as the dot-like specification.



## 10. Reliability test

	TEST	CONDITION	METHOD	REMARK
1	High-Temperature Operation	T = +50°C, RH = 30% for 240 hrs	IEC 60 068-2-2Bp	At the end of the test, electric, mechanical, and optical specifications shall be satisfied.
2	Low-Temperature Operation	T = 0°C for 240 hrs	IEC 60 068-2-2Ab	At the end of the test, electric, mechanical, and optical specifications shall be satisfied.
3	High-Temperature Storage	T = +70°C, RH=23% for 240 hrs	IEC 60 068-2-2Bp	At the end of the test, electric, mechanical, and optical specifications shall be satisfied.
4	Low-Temperature Storage	T = -25°C for 240 hrs	IEC 60 068-2-1Ab	At the end of the test, electric, mechanical, and optical specifications shall be satisfied.
5	High-Temperature, High-Humidity Operation	T = +40°C, RH = 90% for 240 hrs	IEC 60 068-2-3CA	At the end of the test, electric, mechanical, and optical specifications shall be satisfied.
6	High Temperature, High- Humidity Storage	T = +60°C, RH=80% for 240hrs	IEC 60 068-2-3CA	At the end of the test, electric, mechanical, and optical specifications shall be satisfied.
7	Temperature Cycle	1 cycle:[-25°C 30min]→ [+70°C 30 min] : 100 cycles	IEC 60 068-2-14	At the end of the test, electric, mechanical, and optical specifications shall be satisfied.
8	Package Vibration	1.04G, Frequency: 10~500Hz Direction: X,Y,Z Duration: 1 hours in each direction	Full packed for shipment	At the end of the test, electric, mechanical, and optical specifications shall be satisfied.
9	Package Drop Impact	Drop from height of 122 cm on concrete surface. Drop sequence: 1 corner, 3 edges, 6 faces One drop for each	full packed for shipment	At the end of the test, electric, mechanical, and optical specifications shall be satisfied.
10	Electrostatic Effect (non-operating)	Machine model +/- 250V, 0Ω, 100pF	IEC 62179, IEC 62180	At the end of the test, electric, mechanical, and optical specifications shall be satisfied.