



Twinwill Optronics Inc.

Product Numbers : TL084S02

Suitable Model : B084SN02

Rev. & Date		Content of change
1.0	2003.08.18	
Approved by		Check by
		Prepare by

SPEC. NUMBER
MD002-3002

PRODUCT NUMBERS
TL084S02

Rev.
1.0

ISSUE DATE
2003.08.18

PAGE OF
1 / 12



Twinwill Optronics Inc.

Specification for Approval

Contents

NO	ITEM	Page
1.0	General Description	3
2.0	Display Characteristics	4
3.0	Absolute Maximum Ratings	6
4.0	Module Signal Interface	7
5.0	Backlight Signal Interface	10
6.0	Optical Characteristic	11
7.0	Mechanical Outline Dimension	12

SPEC. NUMBER
MD002-3002

PRODUCT NUMBERS
TL084S02

Rev.
1.0

ISSUE DATE
2003.08.18

PAGE OF
2 / 12



Twinwill Optronics Inc.

Specification for Approval

1.0 General Description

1.1 Overview

- 1.1.1 This specification applies to the 8.4 inch Color TFT-LCD Module B084SN02[Note].
- 1.1.2 The display supports the SVGA (800(H) x 600(V)) screen format and 262,144 colors (RGB 6-bits data).
- 1.1.3 All input signals are 1 Channel LVDS interface compatible.
- 1.1.4 This module does not contain an inverter card for backlight.

1.2 Features

- 1.2.1 SVGA 800(H) x 600(V) resolution
- 1.2.2 2 CCFLs (Cold cathode Fluorescent Lamp)
- 1.2.3 High brightness

1.3 Application

- 1.3.1 Measuring instruments
- 1.3.2 Banking terminals
- 1.3.3 OA equipments

[Note] B084SN02 is production of AU Optronics.

SPEC. NUMBER
MD002-3002

PRODUCT NUMBERS
TL084S02

Rev.
1.0

ISSUE DATE
2003.08.18

PAGE OF
3 / 12



Twinwill Optronics Inc.

Specification for Approval

2.0 Display Characteristics

The following items are characteristics summary on the table under 25 °C condition:

ITEMS	Unit	SPECIFICATIONS
Screen diagonal	[mm]	213.3 (8.4")
Outline dimension	[mm]	202(W) x 141.5(H) x 6.0(D).
Display Area	[mm]	170.4 (H) x 127.8(V)(21cm diagonal)
Resolution		800(R,G,B x 3) x 600
Pixel Pitch	[mm]	0.213(H) x 0.213(V)
Pixel Arrangement		R.G.B. Vertical Stripe
Display Mode		Normally White
Typical white Luminance.	[cd/m ²]	350nit (typ) @5.0mA 【Note 1】
Brightness uniformity		80% typ.
Contrast Ratio		350 : 1 typ.
Support Colors		262,144 colors (6-bit for R,G,B)
Chromaticity(CIE)		
White-x		0.299
White-y		0.328
Viewing angle		60(left), 60(right), 40(up), 40(down)
Response Time	[msec]	35 typ.
Nominal Input Voltage VDD	[Volt]	+3.3 V
Electrical Interface		LVDS 1 port
Weight	[Grams]	220±20.
Temperature Range		
Operating	[°C]	0 to + 50
Storage (Shipping)	[°C]	-20 to + 70

SPEC. NUMBER
MD002-3002

PRODUCT NUMBERS
TL084S02

Rev.
1.0

ISSUE DATE
2003.08.18

PAGE OF
4 / 12

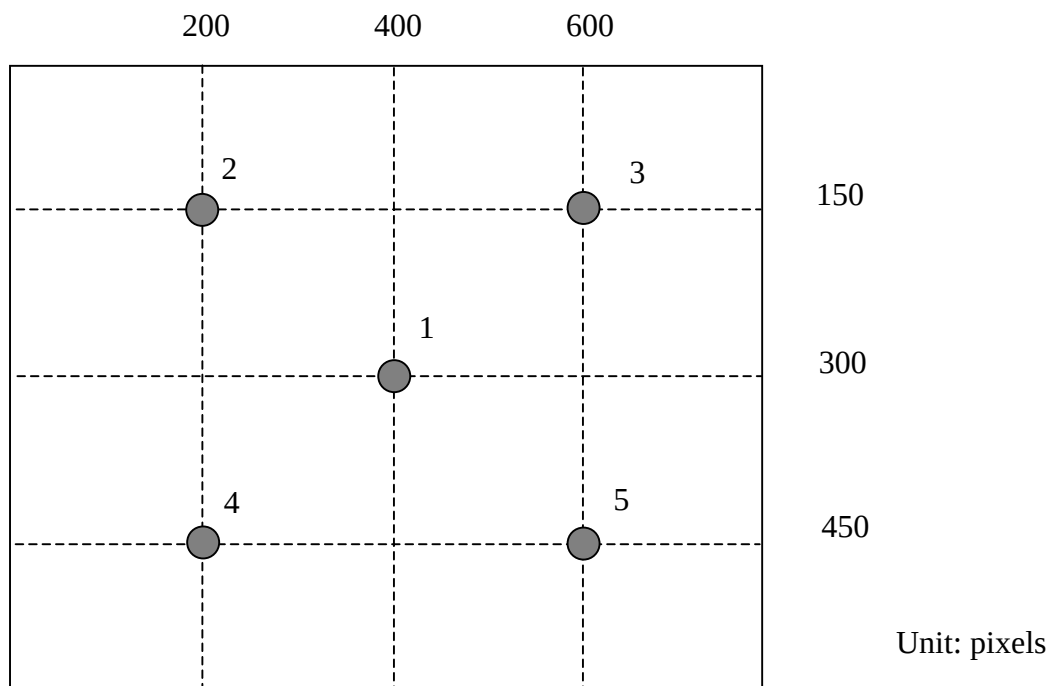


Twinwill Optronics Inc.

Specification for Approval

【Note 1】：

(1)



(2)

Brightness is measured at the center point of brightness value at center location 1 with all pixels displaying white.

SPEC. NUMBER
MD002-3002

PRODUCT NUMBERS
TL084S02

Rev.
1.0

ISSUE DATE
2003.08.18

PAGE OF
5 / 12



Twinwill Optronics Inc.

Specification for Approval

3.0 Absolute Maximum Ratings

Parameter	Symbol	Condition	Ratings	Unit	Remark
Input voltage	V_i	$T_a=25^{\circ}\text{C}$	-0.3 $V_{cc}+0.3$	V	
Power voltage	V_{cc}	$T_a=25^{\circ}\text{C}$	0 4	V	—
Storage temperature	T_{stg}	—	-20 +70	$^{\circ}\text{C}$	【Note1】
Operating temperature	T_{opa}	—	0 + 50	$^{\circ}\text{C}$	

【Note1】 Humidity : 90%RH Max. at $T_a \leq 40^{\circ}\text{C}$.

Maximum wet-bulb temperature at 39°C or less at $T_a > 40^{\circ}\text{C}$.

No condensation.

SPEC. NUMBER
MD002-3002

PRODUCT NUMBERS
TL084S02

Rev.
1.0

ISSUE DATE
2003.08.18

PAGE OF
6 / 12



Twinwill Optronics Inc.

Specification for Approval

4.0 Module Signal Interface

4.1 Module Interface Connectors

CONNECTOR : HRS DF 19K- 20P-1H

MATING CONNECTOR : HRS DF19G-20S-1C (DISCRETE WIRE TYPE)

HRS DF19G-20S-1F(FPC TYPE)

4.2 Module Connector Pin Configuration

Don't use connector except corresponding connector.

Pin No.	Symbol	Description
1	VCC	+3.3V Power Supply
2	VCC	+3.3V Power Supply
3	GND	Ground
4	GND	Ground
5	RxIN0-	LVDS receiver signal channel 0
6	RxIN0+	
7	GND	Ground
8	RxIN1-	LVDS receiver signal channel 1
9	RxIN1+	
10	GND	Ground
11	RxIN2-	LVDS receiver signal channel 2
12	RxIN2+	
13	GND	Ground
14	CKIN-	LVDS receiver signal clock
15	CKIN+	
16	GND	Ground
17	NC	No Connection
18	NC	No Connection
19	GND	Ground
20	GND	Ground

SPEC. NUMBER
MD002-3002

PRODUCT NUMBERS
TL084S02

Rev.
1.0

ISSUE DATE
2003.08.18

PAGE OF
7 / 12



Twinwill Optronics Inc.

Specification for Approval

4.3 Signal Electrical Characteristics

Ta=25°C

Parameter		Symbol	Min.	Typ.	Max.	Unit	Remark
+3.3v	Supply voltage	VCC	+3.0	+3.3	+3.6	V	
	Current dissipation	ICC	—	310	—	mA	
Permissive input ripple voltage		VRF	—	—	100	mVp-p	
Input voltage (Low)		VIL	0	—	0.3VCC	V	
Input voltage (High)		VIH	0.7 VCC	—	—	V	

4.4 Interface Timings Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Remarks
CLK	Frequency	1/Tc	38	40	42	MHz	25 ns (Typ.)
Hsync	Period	Th	—	26.4	—	ns	37.878 kHz (Typ.)
			—	1056	—	CLK	
	Display period	Thd	800			CLK	—
	Front-porch	Thf	—	1	—	μs	
	Pulse width	Thp	—	3.2	—	μs	
	Back-porch	Thb	—	2.2	—	μs	
	Blank time	Thbl	—	6.4	—	μs	
Vsync	Period	Tv	—	16.579	—	ms	60.31 Hz (Typ.)
			—	628	—	H	
	Display period	Tvd	600			H	—
	Front-porch	Tvf	—	0.026	—	ms	
	Pulse width	Tvp	—	0.106	—	ms	
	Back-porch	Tvb	—	0.607	—	ms	

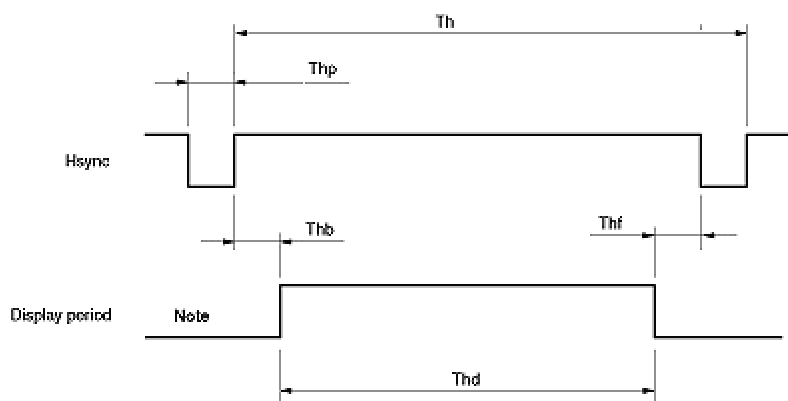
All of parameters should be kept in the specified range.

SPEC. NUMBER	PRODUCT NUMBERS	Rev.	ISSUE DATE	PAGE OF
MD002-3002	TL084S02	1.0	2003.08.18	8 / 12

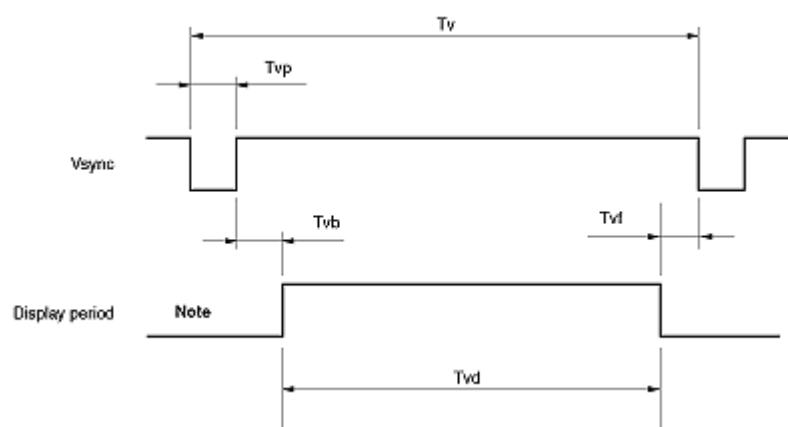


4.5 Interface Timings Definition

<Horizontal>



<Vertical>





Twinwill Optronics Inc.

Specification for Approval

5.0 Backlight Signal Interface

5.1 Backlight Connectors

Used connector : BHR-03VS-1(JST)

Corresponding connector : SM02(8.0)B-BHS(JST)

5.2 Backlight Connector Pin Configuration

Pin	Symbol	Description
1	VHIGH	Power supply for lamp (High voltage side)
2	NC	This is electrically opened.
3	VLOW	Power supply for lamp (Low voltage side)

5.3 Parameter guide line for CCFL Inverter

The backlight system is an edge-lighting type with double CCFT (Cold Cathode Fluorescent Tube) .

The characteristics of single lamp are shown in the following table.

Parameter	Symble	Min	Typ	Max	Units	Condition
Lamp current	IL	—	5	—	MArms	
Lamp power consumption	PL	—	2.4	—	W	
Lamp frequency	FL	—	50	—	KHz	
Kick-off voltage	Vs	—	—	—	Vrms	Ta=25°C
		—	—	—		Ta=0°C
Lamp life time	LL	15000	—	—	hous	Note

Note : Brightness to be decreased to the 50% of initial value.

SPEC. NUMBER
MD002-3002

PRODUCT NUMBERS
TL084S02

Rev.
1.0

ISSUE DATE
2003.08.18

PAGE OF
10 / 12



Twinwill Optronics Inc.

Specification for Approval

6.0 Optical Characteristic

Ta=25°C, Vcc=+3.3V

Parameter		Condition	Min.	Typ.	Max.	Unit	Remark
Viewing angle range	Horizontal	(CR≥10)	60			Deg.	
			60	—	—	Deg.	
	Vertical		40	—	—	Deg.	Bottom
			40	—	—	Deg.	Top
Contrast ratio		θ = 0 °	150	—	—	—	
		Best viewing angle	150	350	—	—	
Response time	Rise	θ = 0 °	—	10	20	ms	
	Decay		—	25	30	ms	
Chromaticity of white			—	0.299	—	—	
			—	0.328	—	—	
Luminance of white			—	350	—	Cd/m ²	
White Uniformity			—	—	1.8	—	
Viewing angle range as a brightness definition	Horizontal	50% of the maximum brightness	—	50	—	Deg.	Reference data

SPEC. NUMBER
MD002-3002

PRODUCT NUMBERS
TL084S02

Rev.
1.0

ISSUE DATE
2003.08.18

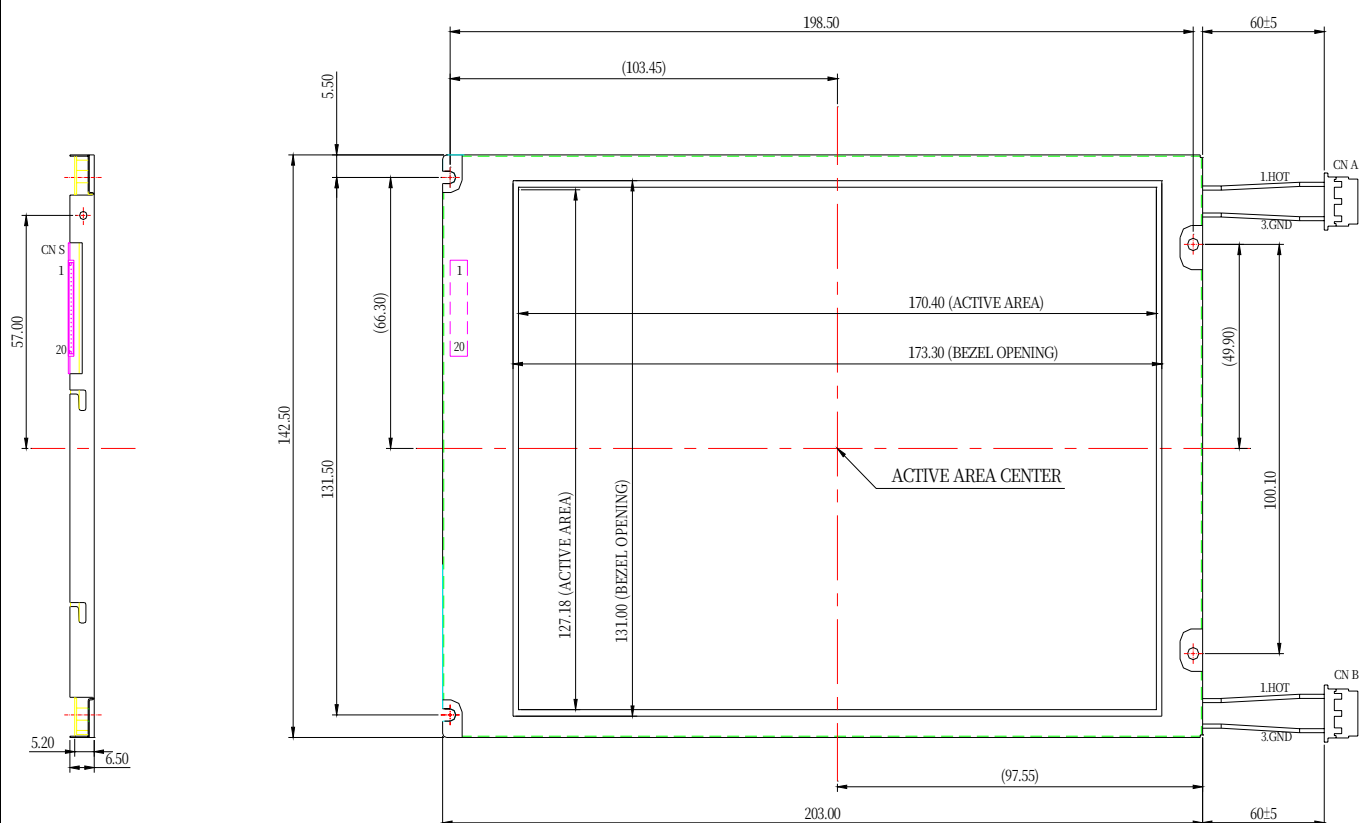
PAGE OF
11 / 12



Twinwill Optronics Inc.

Specification for Approval

7.0 Mechanical Outline Dimension



Unit : mm

SPEC. NUMBER	PRODUCT NUMBERS	Rev.	ISSUE DATE	PAGE OF
MD002-3002	TL084S02	1.0	2003.08.18	12 / 12

