Customer Acceptance Specification

Customer 客戶名稱	
Model No. 產品型號	**HJM2134Q**
Product type 產品內容	MODE: Active Matrix TFT, Transmissive type. LCD Module : 240×RGB×400 Dots Screen Size: 3.0(Diagonal)
Remarks 備註欄	
Signature by Customer: 客戶確認簽章:	

	signature	Date
Design		
Check		
Approved		

Version	Date	Description	Modification	Check
A	09-08-14	New Version		

CONTENTS

Specification of LCD Module Type

Model No: HJM2134Q

1. General Description

MAIN:

Display type (Color):	[240(R.G. B)×400 Dots Matrix TFT LCD Module]
Polarizer Mode:	[transmissive]
View Direction:	[12 O'clock]
IC:	[COG LGDP4551]
Backlight:	[4 LED B/L White]
INTERFACE:	[parallel 16-bits 8080 system]

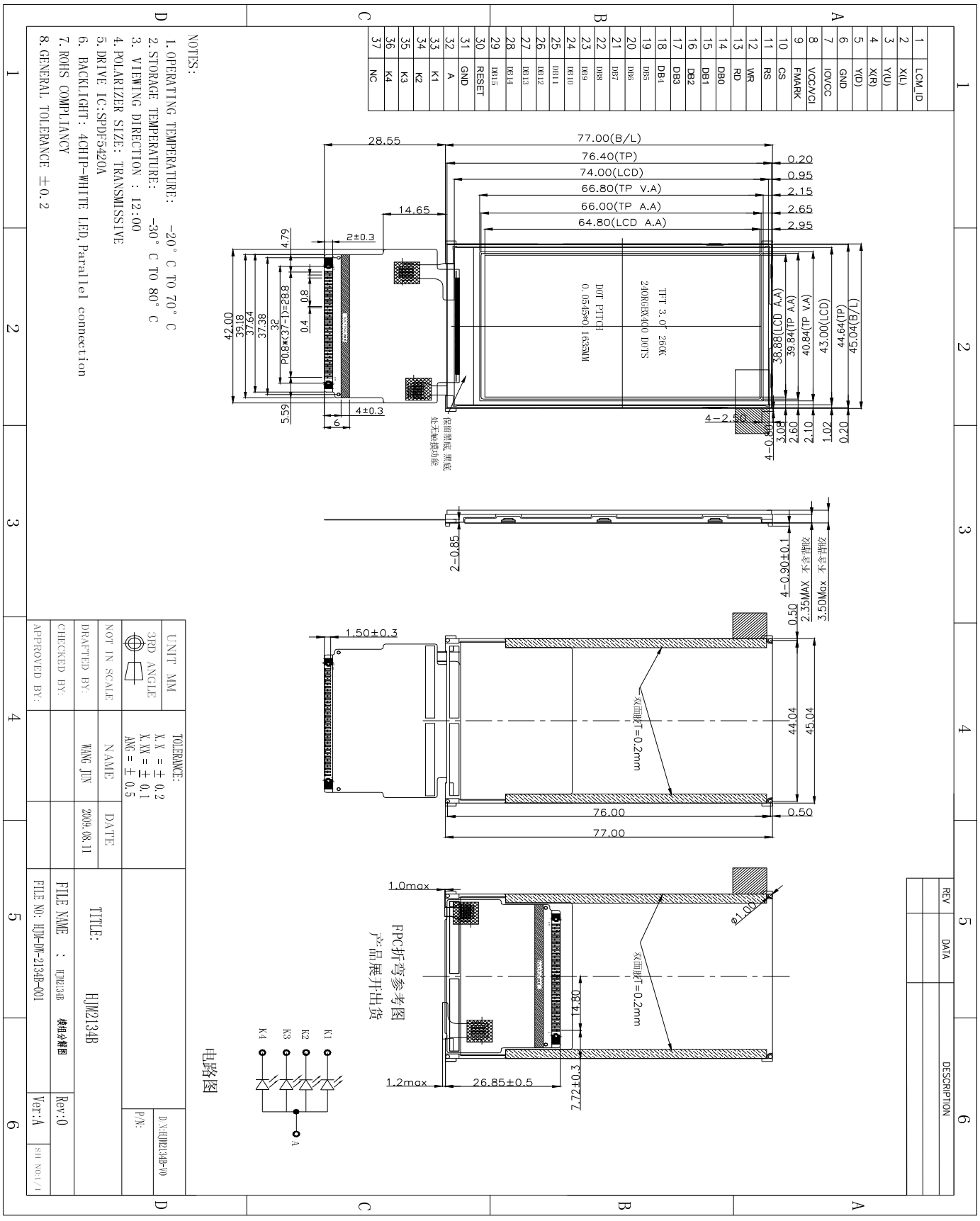
2. Mechanical Specifications

The mechanical detail is shown in Fig 1 and summarized in Table 1 below.

Table 1

ITEM	STANDARD VALUES	UNITS
LCD type	TFT	-
Dot arrangement	240(R.G.B)×400	dots
Module size	45.04(W) ×77(H)×3.5(T)	mm
LCD size	43.00(W) ×74(H)	mm
Active area(LCD)	38.88(W) ×64.80(H)	mm
Dot pitch	0.162 (W) ×0.162 (H)	mm
Viewing direction	12O'clock	

FIG 1


NOTES:
1. OPERATING TEMPERATURE: -20° C TO 70° C
2. STORAGE TEMPERATURE: -30° C TO 80° C
3. VIEWING DIRECTION : 12:00
4. POLARIZER SIZE: TRANSMISSIVE
5. DRIVE IC:SPD5420A
6. BACKLIGHT: 4CHIP-WHITE LED,Parallel connection
7. ROHS COMPLIANCY
8. GENERAL TOLERANCE ±0.2
LCM_ID
X(L)
Y(U)
X(R)
Y(D)
GND
IOVCC
VCC/NCI
FMARK
CS
RS
WR
RD
DB0
DB1
DB2
DB3
DB4
DB5
DB7
DB8
DB9
DB10
DB11
DB12
DB13
DB14
DB15
RESET
GND
A
K1
K2
K3
K4
NC
77.00(B/L)
76.40(TP)
74.00(LCD)
66.80(TP V.A)
66.00(TP A.A)
64.80(LCD A.A)
28.55
14.65
2±0.3
4.79
42.00
38.88(LCD A.A)
39.84(TP A.A)
40.84(TP V.A)
43.00(LCD)
44.64(TP)
45.04(B/L)
TFT 3.0" 260K
240RGBX400 DOTS
DOT PITCH
0.054*0.162MM
P0.8*(37-1-2=28.8
4±0.3
5.59
6
保留黑底 黑底处无触摸功能
4-2.50
4-0.80
3.08
2.60
2.10
1.02
0.20
2-0.85
4-0.90±0.1
0.50
2.35MAX 不含背胶
3.50Max 不含背胶
1.50±0.3
双面胶T=0.2mm
44.04
45.04
76.00
77.00
0.50
1.0max
ø1.00
14.80
22.20±0.3
1.2max
26.85±0.5
FPC折弯参考图
产品展开出货
电路图
UNIT MM
3RD ANGLE
NOT IN SCALE
DRAFTED BY:
CHECKED BY:
APPROVED BY:
TOLERANCE:
X.X = ± 0.2
X.XX = ± 0.1
ANG = ± 0.5
NAME
DATE
WANG JUN
2009.08.11
TITLE: HJM2134B
FILE NAME : HJM2134B 模组外框图
FILE NO: HJM-DW-2134B-001
D.WG:HJM2134B-V0
P/N:
Rev:0
Ver:A
SH1 NO:1/1
REV
DATA
DESCRIPTION

3.Absolute Maximum Ratings (Ta=25℃)

Table 2

ITEM	SYMBOL	MIN	MAX	UNITS	
Power Supply Voltage (1)	VDD	-0.3	+4.0	V	
Power Supply Voltage (2)	VGH	+9.0	+16.5	V	
Power Supply Voltage (3)	VGL	-16.5	-4.0	V	
Input Voltage	VI	-0.3	VDD+0.3	V	
Operating Temperature	Topr	-20	70	℃	NOTE
Storage Temperature	Tstg	-30	80		

Notes:

1. If the LSI is used above these absolute maximum ratings, it may become permanently damaged. Using the LSI within the following electrical characteristics limit is strongly recommended for normal operation. If these electrical characteristic conditions are also exceeded, the LSI will malfunction and cause poor reliability.
2. VDD, GND must be maintained
3. DC characteristics and AC characteristics of shipping chips and shipping wafer are guaranteed at 85℃.

4. Electrical Specifications

4.1 Interface signals

Table 3: Pin description of FPC interface

PIN NO.	PIN NAME	DESCRIPTION
1	LCD_ID	Identify of LCM. VID=TBD (VCC=2.8V).
2	XL	Touch panel interface
3	YU	Touch panel interface
4	XR	Touch panel interface
5	YD	Touch panel interface
6	GND	Ground pin
7	VDD	Power supply for system
8	VDD	Power supply for system
9	FMARK	Frame head pulse signal, which is used when writing data to the internal RAM.When not in use, keep Open.
10	CS	Chip selection input pin: Active "L"
11	RS	LCD registor selector
12	WR	LCM write signal: Active “L”
13	RD	LCM read signal: Active “L”
14-29	DB0-DB15	LCD data bus
30	RESET	Reset signal: Active “L”
31	GND	Ground pin
32	A	Backlight positive input pin
33	K1	Backlight negative input pin
34	K2	Backlight negative input pin
35	K3	Backlight negative input pin
36	K4	Backlight negative input pin
37	NC	No connection

4.3 Typical Electrical Characteristics

Table 4:

ITEM	SYMBOL		CONDITIONS	MIN	TYP	MAX	UNITS
Power-supply voltage For LCD	TFT LCD	VGH	At 25℃	9.0	--	16.5	V
		VGL		-16.5	--	-4	
	VDD-GND			-	2.8	3.3	
Input voltage for LCD	V_{IH}		"High" level	0.8VDD	—	VDD	
	V_{IL}		"Low" level	GND	—	0.2VDD	
Supply current for LCD	VDD		VDD=2.8V	—		10	mA

Note 1: The supply voltage for VLCD has to be adjusted by software.

4.4 B/L Characteristics

Table 5:

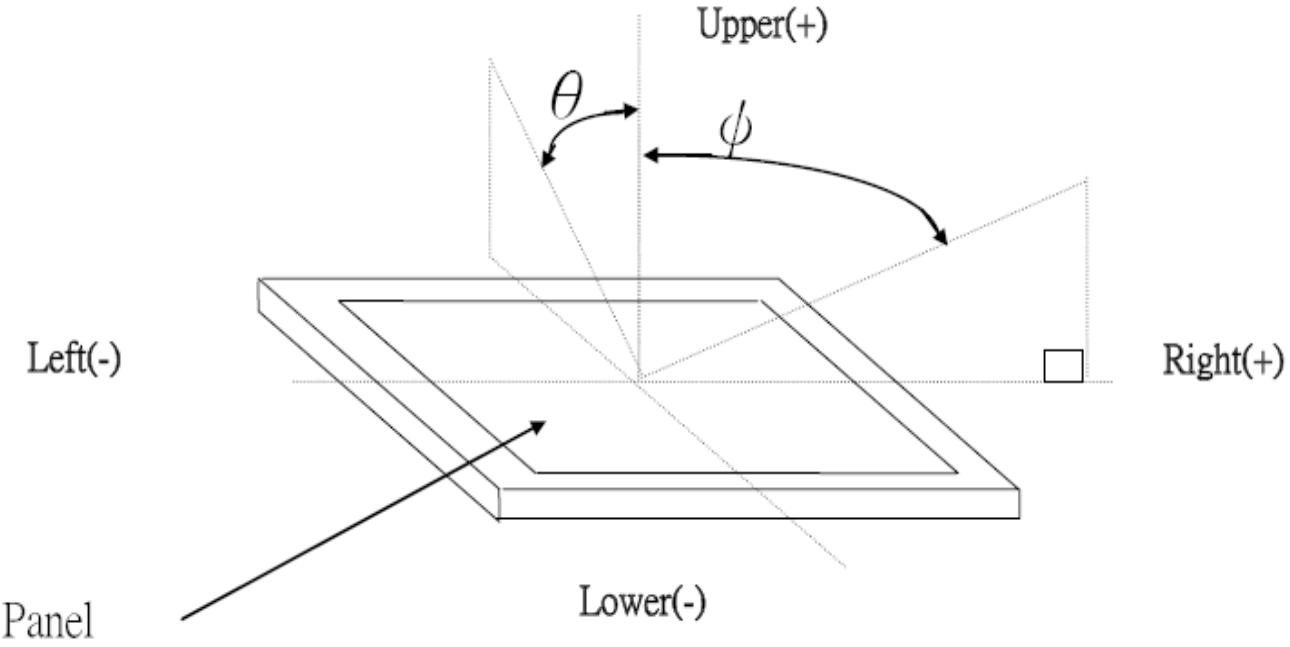
PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	CONDITION
Lamp Voltage	V_L	--	3.2	3.5	V	Each ILED=15mA
Back Light	--	--	3800	--	Cd/㎡	

※ LEDs in 4- parallel of B/L module

5. Optical Characteristics Definition

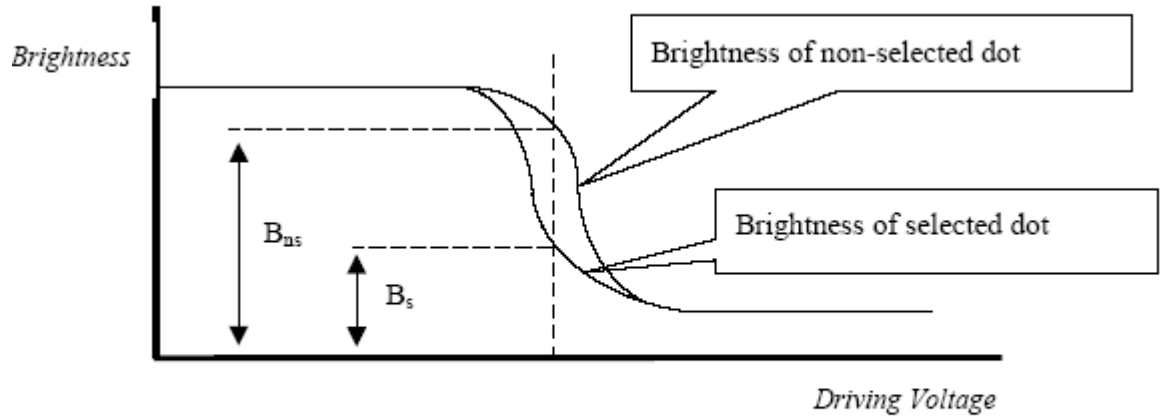
a.)Viewing Angle θ and ϕ

Fig 3



b.) Contrast Ratio

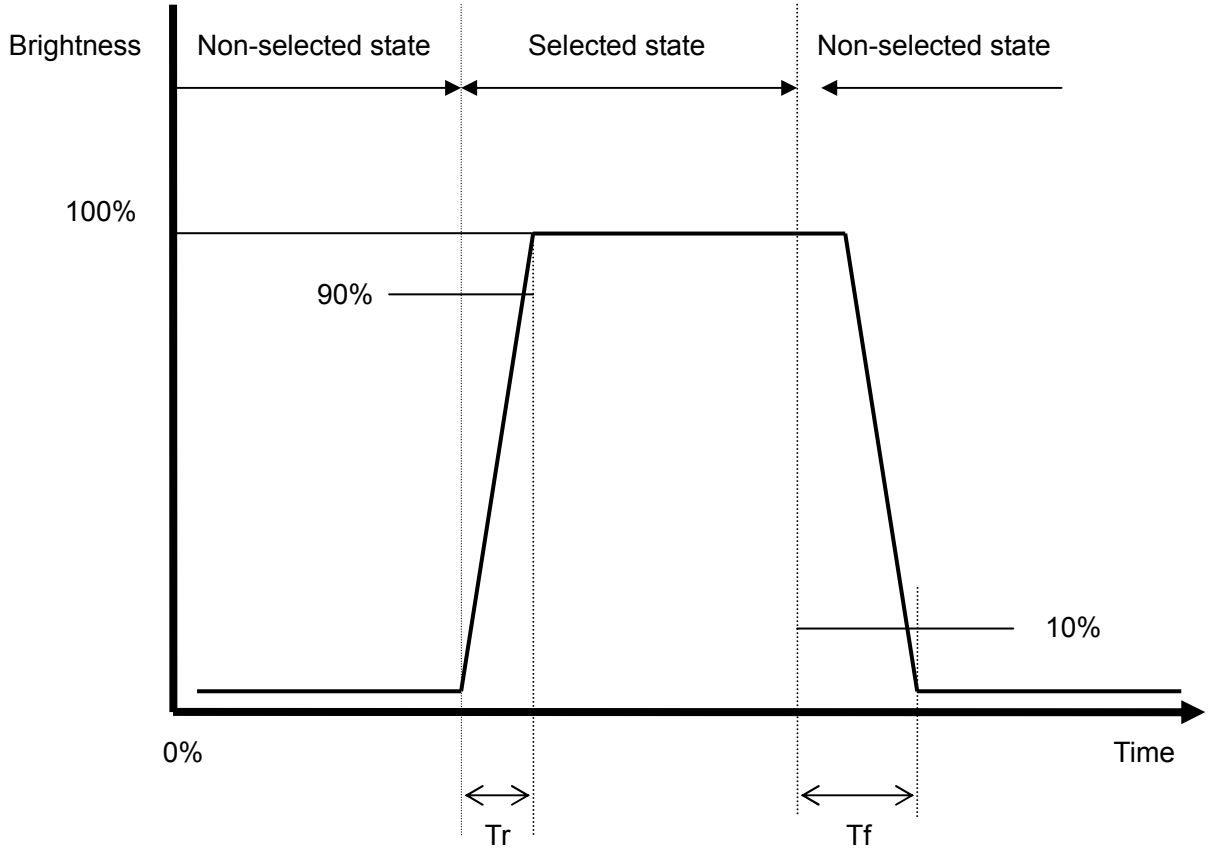
Fig 4



Contrast Ratio: $C_r = B_{ns} / B_s$

c.) Response Time

Fig 5
Negative TYPE



NOTE:

1、Tr is the time it takes to change from non-selected state with relative luminance 0% to selected state with relative luminance 90%.

2、Tf is the time it takes to change from selected state with relative luminance 100% to non-selected state with relative luminance 10%.

5.1 LCD Panel

Table 6:

ITEM		SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Transmittance		T			(5.5)		%
Contrast Ratio		CR	*1)		(250)		
Response Time		Tr+ Tf	*3)		(30)		ms
Viewing Angle	Vertical	θ*2)	CR≧10		(110)		
	Horizontal	ψ*2)			(130)		
Color Filter Chromacicity	White	x	θ=ϕ= 0°	(0.283)	(0.303)	(0.323)	
		y		(0.322)	(0.342)	(0.362)	
		Y		(27.7)	(31.7)	(35.7)	
	Red	x	θ=ϕ= 0°	(0.633)	(0.653)	(0.673)	
		y		(0.311)	(0.331)	(0.351)	
		Y		(14.9)	(17.9)	(20.9)	
	Green	x	θ=ϕ= 0°	(0.29)	(0.31)	(0.33)	
		y		(0.554)	(0.574)	(0.594)	
		Y		(57.3)	(61.3)	(65.3)	
	Blue	x	θ=ϕ= 0°	(0.115)	(0.135)	(0.155)	
		y		(0.115)	(0.135)	(0.155)	
		Y		(12.8)	(15.8)	(18.8)	
	NTSC				(61%)		

6 RELIABILITY CONDITIONS

Table 7:

ITEM	CONDITIONS	CRITERIA
High temperature operation	70℃,120Hr	1. No defect in cosmetic and operational functions except for polarizer. 2. Total current consumption below double of initial value 3. Optical characteristics value must be in initial spec. range.
Low temperature operation	-20℃,120Hr	
High humidity storage	60℃,95%RH,120Hr	
High temperature storage	80℃,120Hr	
Low temperature storage	-30℃,120Hr	
Temperature cycle	25℃→ -20℃ → 25℃ → 70℃ 5(min) 30(min) 5(min) 30(min) 15 cycles,55~60%RH	

NOTE:

1、Operation test should be mounted with the driver IC, we hereby provide the operation test conditions with the square ac waveform.

2、The test LCD cell shall be inspected 2hrs latter storage at room temperature & humidity after it was removed from the chambers.

3、No dew condensations would be observed.

7. Important Notice

The information presented in this specification has been carefully checked and is believed to be accurate, however, no responsibility is assumed for inaccuracies. HONGJIAMEI reserves the right to make changes to nay specifications without further notice for performance, reliability, production technique and other considerations. HONGJIAMEI does not assume any liability arising out of the application or use of products herein. Please see Limited Warranty in the previous section.

“HONGJIAMEI Limited reserves the right to change this specification. ”

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