SPECIFICATIONS

CUSTOMER	:	CNO003
SAMPLE CODE	:	SNA480272T016-ZHC
MASS PRODUCTION CODE	:	HNA480272T016-ZHC
SAMPLE VERSION	:	01
SPECIFICATIONS EDITION	:	002
DRAWING NO. (Ver.)	:	LMD-HNA480272T016-ZHC (Ver.002)
PACKAGING NO. (Ver.)	:	PKG-HNA480272T016-ZHC (Ver.001)

Customer Approved

Date:

Approved	Checked	Designer
林裘中 Daniel Lin	呂清溪 Marcs Lu	王映喻 Brown Wang

POWERTIP
2022.01.20
TW RD APR

☐ Preliminary specification for design input

■ Specification for sample approval

POWERTIP TECH. CORP.

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1. SPECIFICATIONS

1.1 Features

Hardware

CPU	RISC Processor	N32926 (ARM926EJ-S) 64MB DDR2 SDRAM
Memory	On Board Flash	1Gb NAND Flash 4GB eMMC (Option)
	External Storage	1x Micro SD (max. 32G)
Display	Resolution	480 x 272 (16bits RGB)
	Touch Panel	Projected Capacitive Touch
	Interface	Parallel RGB 16 bits
I/O	USB	1x USB2.0 Device
	Serial	1 x UART
Power Input	DC	5.0V

Note1:

1. Memory type (Option) will be setting by customer's request.
2. Touch Panel Type will be setting by customer's request.
3. Support PWM Signal Output. (5kHz, Duty Cycle: 256 Step)
4. Support JPEG Codec.
5. Support H.264 & MJPEG Codec
6. Support Video Data Processor (VPE)
7. Support RTC

Note2:

This product built-in Powertip communication protocol system firmware. It manipulates the GUI contents that generated by Powertip Graphic Editor software.(support maximum resolution up to 1024x600)

1.2 Mechanical Specifications

Item	Standard Value	Unit
Outline Dimension	113.2(W) x 73.2(L) x 13.5(H) MAX	mm
Active Area	95.04(W) x 53.856(L)	mm

1.3 Absolute Maximum Ratings

Ta = 25℃

Item	Symbol	Condition	Min.	Max.	Unit
Power Supply	VIN	—	-0.3	6.0	V
Operating Temperature	T_{OP}	—	-20	70	℃
Storage Temperature	T_{ST}	—	-30	80	℃
Humidity	HD	Ta=60 ℃	10	90	%RH

1.4 DC Electrical Characteristics

Ta = 25℃

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Power Supply Voltage	VIN	-	4.8	5.0	5.5	V
Power Supply Voltage of RTC	VBAT	-	2.0	-	3.6	V
Power Supply Current *1	IIN	VIN = 5.0V	-	420	-	mA
Power Consumption of System	PIN	VIN = 5.0V	-	2.1	-	W
IO High-Level input voltage	V_{IH}	-	2.0	-	V3V3+0.3	V
IO Low-Level input voltage	V_{IL}	-	-	-	0.8	V
IO High-Level output voltage	V_{OH}	-	2.4	-	-	V
IO Low-Level output voltage	V_{OL}	-	-	-	0.4	V

1.5 Optical Characteristics

TFT LCD Module VDD= 3.3 V, Ta=25℃

Item		Symbol	Condition	Min.	Typ.	Max.	unit	-
Response time	Tr+Tf	25℃	-	-	30	45	ms	-
Viewing angle	Top	θY+	CR ≥ 10		80	-	Deg.	Note 4
	Bottom	θY-			80	-		
	Left	θX-			80	-		
	Right	θX+			80	-		
Contrast ratio		CR	VCC=12V PWM="High" (Duty=100%)	650	800	-	-	Note 3
Color of CIE Coordinate （With B/L & T/P）	White	X		-	0.30	-	-	Note1
		Y		-	0.34	-		
	Red	X		-	0.64			
		Y		-	0.33	-		
	Green	X		-	0.31	-		
		Y		-	0.62	-		
	Blue	X		-	0.14	-		
		Y		-	0.05	-		
Average Brightness Pattern=white display (LCD & BL)*1		IV	VCC=12V PWM="High" (Duty=100%)	-	850	-	cd/m2	Note1
Uniformity (LCD & BL)*2		△B		70	-	-	%	Note1

Note 1:

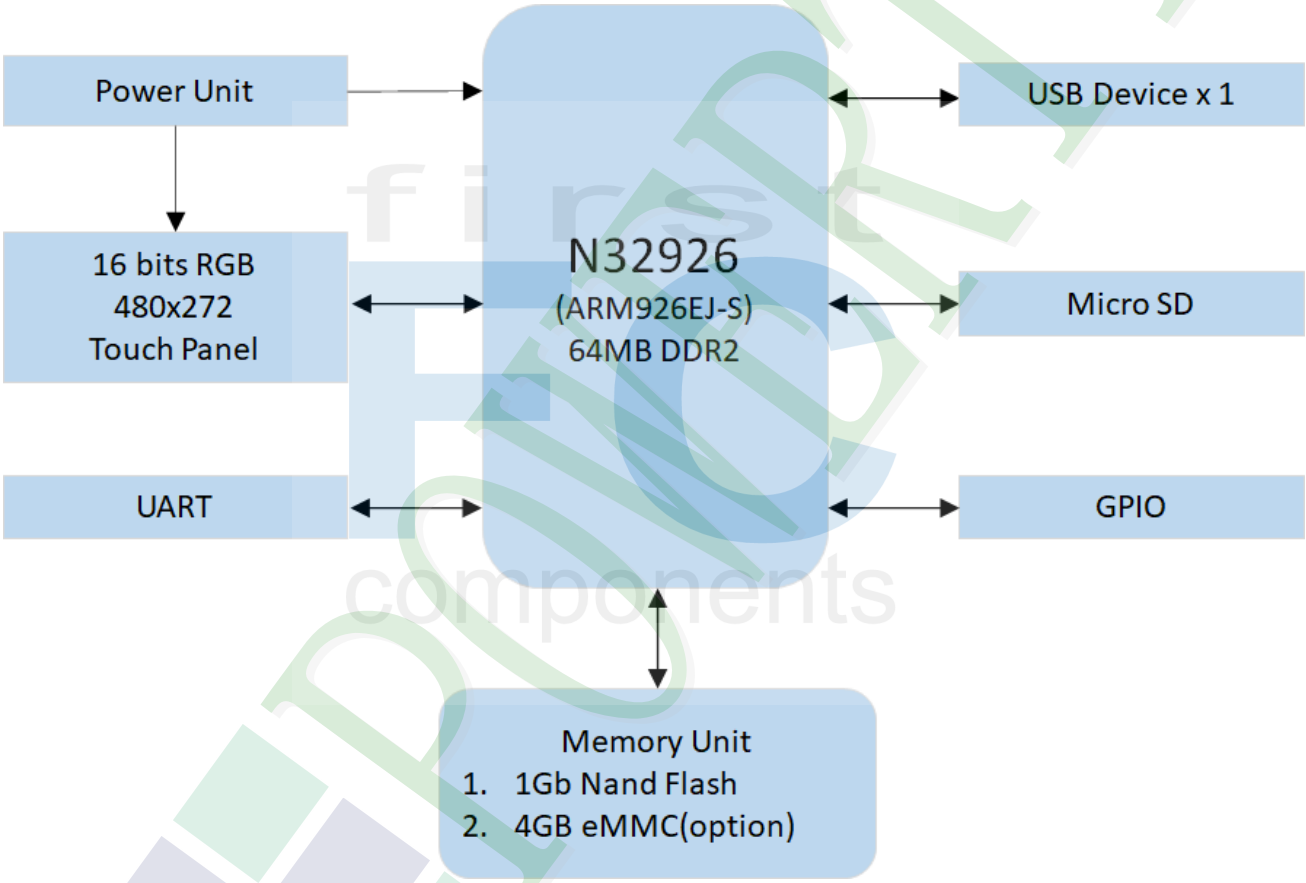
2. MODULE STRUCTURE

2.1 Counter Drawing

2.1.1 Mechanical Diagram

* See Appendix

2.1.2 Block Diagram



2.2 Interface Pin Description

J8 --- I/O

Pin No.	Symbol	Type	DESCRIPTION
1	GND	P	Power ground.
2	GPG9	IO	General Purpose I/O, Port G[9].
3	GPG8	IO	General Purpose I/O, Port G[8].
4	NC	-	Not Used.
5	GND	P	Power ground.
6	NC	-	Not Used.
7	GND	P	Power ground.
8	NC	-	Not Used.
9	GND	P	Power ground.
10	GPG2	IO	General Purpose I/O, Port G[2].
11	GND	P	Power ground.
12	GPG4	IO	General Purpose I/O, Port G[4].
13	GPG5	IO	General Purpose I/O, Port G[5].
14	GND	P	Power ground.
15	GPG3	IO	General Purpose I/O, Port G[3].
16	GND	P	Power ground.
17	HPOUT_L	A	Connect to N32926 pin 102.
18	HPOUT_R	A	Connect to N32926 pin 101.
19	GPG7	IO	General Purpose I/O, Port G[7].
20	GPA11	IO	General Purpose I/O, Port A[11].
21	GND	P	Power ground.
22	RESETn	I	System reset signal input, active low.
23	UART_RXD	I	UART port, receiver signal.

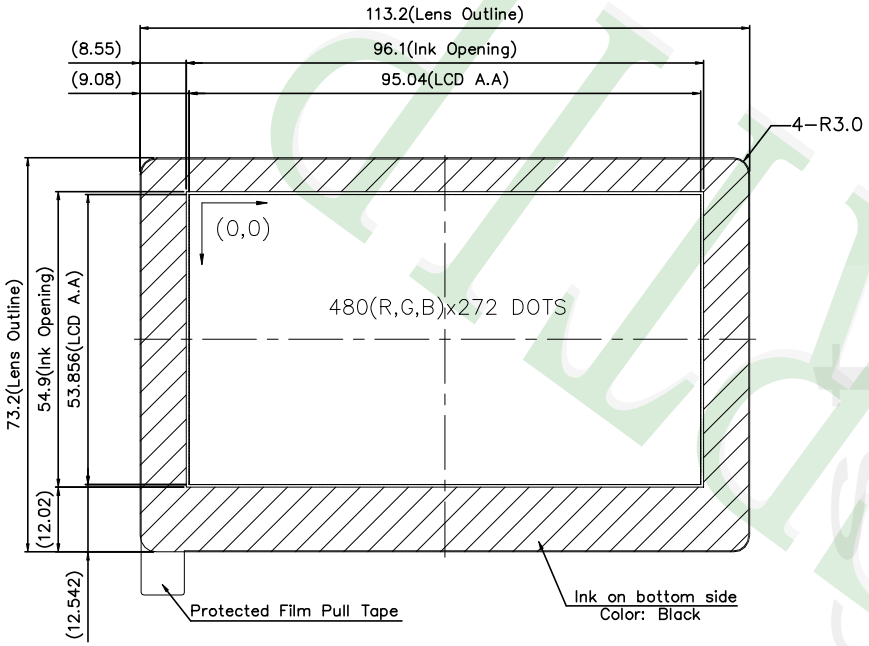
Pin No.	Symbol	Type	Function
24	UART_TXD	O	UART port, transmitter signal.
25	GND	P	Power ground.
26	VIN	P	DC 5.0V Power Supply.
27	VIN	P	DC 5.0V Power Supply.
28	NC	-	Not Used.
29	NC	-	Not Used.
30	GND	P	Power ground.

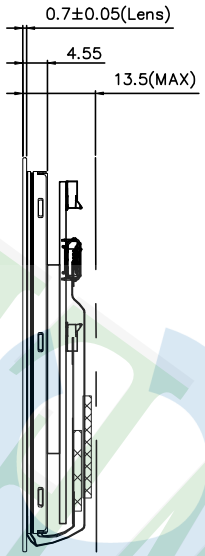
J9 --- USB 2.0 Device Micro USB type

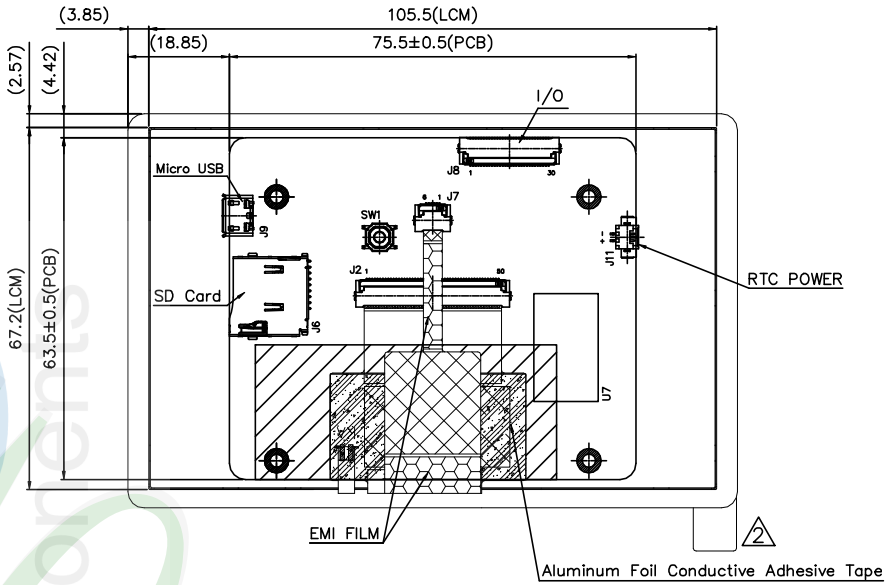
Pin No.	Symbol	Type	DESCRIPTION
1	VUSB5V	P	USB +5.0V.
2	D-	DS	Data – (Data M).
3	D+	DS	Data + (Data P).
4	NC	-	Not Used.
5	GND	P	Ground.

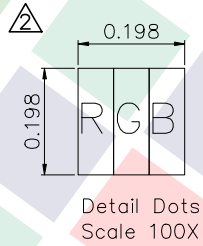
J11 --- RTC POWER

Pin No.	Symbol	Type	Function
1	VBAT	P	Power Supply for RTC.
2	GND	P	Ground.









NOTES:
1. LCD TYPE: TFT LCD
2. LCD DISPLAY: Normally Black/TRANSMISSIVE
3. VIEW DIRECTION: Full Viewing Angle
4. J8: OMRON XF2M-3015-1A or Compatible
5. J11: Molex 532610271 or Compatible
6. The tolerance unless classified ±0.3mm

REV	REV BY	REVISER	DATE
007			
006			
005			
004			
003			
002	Modify DRAWING	Bright	2021/12/15
001	NEW DRAWING	Bright	2021/03/30

PART NO: HNA480272T016-ZHC

DRAWING NAME : LMD-HNA480272T016-ZHC

TITLE: LCD MODULE DRAWING

久正光電股份有限公司
POWERTIP TECHNOLOGY CORPORATION

Design	Bright Chiang	(3)	Surface		
Check	Marcs Lu	Unit	MM	Material	
Approve	Daniel Lin	Scale	FIT	Thickness	
		Page	1/1	Quantity	

Length(Min) (mm) \ Tolerance \ Precision	Level
1 ~ 4	
4 ~ 16	
16 ~ 63	
63 ~ 250	
250 ~ 1000	-

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