



深圳市希恩凯电子有限公司

SHENZHEN CNK ELECTRONIC CO.,LTD.

Product Specification For LCD Module

Model NO.: CNKT01770-12003A

CUSTOMER ITEM NO.:

REVISION : A

APPROVAL FOR SPECIFICATIONS ONLY

APPROVAL FOR SPECIFICATIONS AND SAMPLE

CUSTOMER :

APPROVED BY :

CNK LCM R&D CENTER

APPROVED BY

CHECKED BY

PREPARED BY



DIRECTOR

MANAGER

Engineer

深圳市希恩凯电子有限公司

SHEN ZHEN CNK ELECTRONICS CO., LTD

地址: 惠州市惠阳区西湖村铭仕工业园 2 栋 1-2 楼

电话: 0752-3556001

传真: 0752-3556004

<http://www.szcnk.com>

1.0 General Description

1.1 General information

| Item | | Specification | Unit |
|-------------------|--------------|------------------------|---------|
| LCD Type | | TFT TRANSMISSIVE | - |
| Viewing Direction | | 6:00 | O'clock |
| Backlight Type | | 2-White LED | - |
| Outline Dimension | | 34 x 43.7 x 2.2 | mm |
| Display area | | 28.03(H) x 35.04(V) | mm |
| TP Active area | | / | mm |
| TP Viewing area | | / | mm |
| Number of Pixel | | 132RGB (H) x 162(V) | - |
| Display mode | | Normally white | - |
| Driver IC | | ST7735S | - |
| Interface Mode | | 8080 MCU 8bit Parallel | - |
| Power Consumption | Logic System | 0.05 (Max.) | W |
| | B/L System | 0.064 (Max.) | W |

2.0 Absolute Maximum Ratings

2.1 Electrical Absolute Rating

2.1.1 TFT LCD Module

| Item | Symbol | Min | Max | Unit | Note |
|--------------------------|--------|------|------|------|-----------|
| Supply Voltage | VCC | -0.3 | +4.5 | V | (1)(2)(3) |
| Supply Voltage (Logic) | IOVCC | -0.3 | +4.5 | V | (1)(2)(3) |
| Supply Voltage (Digital) | | | | | |

2.1.2 Back-Light Unit

| Item | Symbol | Min | Max | Unit | Note |
|-------------------|--------|-----|-----|------|-----------|
| LED current | IL | - | 40 | mA | (1)(2)(4) |
| LED voltage | VL | - | 3.2 | V | (1)(2)(4) |
| Power Consumption | PL | - | 128 | mW | (1)(2)(4) |

Note:

- (1) Permanent damage may occur to the LCD module if beyond this specification. Functional operation should be restricted to the conditions described under normal operating conditions.
- (2) $T_a = 25 \pm 2^\circ\text{C}$
- (3) GND=0V
- (4) The LED lifetime could be decreased if operating IL is larger than 20mA.

2.2 Environment Absolute Rating



| Item | Symbol | Min | Max | Unit | Condition |
|-----------------------|--------|-----|-----|------|-----------|
| Operating Temperature | Topa | -20 | 70 | °C | |
| Storage Temperature | Tstg | -30 | 80 | °C | |

3.0 Electrical Characteristics

3.1 TFT LCD Module

| Item | Symbol | Min | Typ. | Max | Unit | Condition |
|-----------------------------|--------|----------|------|----------|------|-----------|
| System Voltage | VCC | 2.7 | 2.8 | 3.3 | V | --- |
| Interface Operation Voltage | IOVCC | 2.8 | 2.8 | 3.3 | V | |
| Logic-High Input Voltage | VIH | 0.8IOVCC | --- | IOVCC | V | --- |
| Logic-Low Input Voltage | VIL | VSS | --- | 0.2IOVCC | V | --- |

3.2 Back-Light Unit

| Item | Symbol | Min | Typ. | Max | Unit | Condition |
|-----------------|--------|----------|------|-----|-------------------|----------------------|
| Input voltage | VL | 2.8 | 3.0 | 3.2 | V | --- |
| Input current | IL | -- | 15 | 40 | mA | --- |
| Luminance | Lv | 1500 | 2000 | --- | cd/m ² | I _L =20mA |
| Number of LED | --- | 1 | | | Piece | --- |
| Connection mode | P | parallel | | | --- | --- |

3.3 AC Characteristics

Please refer to the driver IC specification.

4.0 Optical Characteristics

4.1 Optical specification

| Item | Symbol | Condition | Min. | Typ. | Max. | Unit | Note |
|------|--------|-----------|------|------|------|------|------|
|------|--------|-----------|------|------|------|------|------|



| | | | | | | | | |
|--------------------------|---------|----------------|--|-------|-------|-------|-------------------|------------------------|
| Contrast | | CR | $\Theta=0$ (25°C) Normal Viewing Angle | 300 | 500 | — | | (1)(2) |
| Response time | TR + TF | | | — | 35 | 50 | ms | (1)(3) |
| White luminance (Center) | | YL | | 50 | 75 | — | cd/m ² | (1)(4)(7) (IL=20mA) |
| Color chromaticity | White | W _x | | 0.260 | 0.310 | 0.360 | | (1)(4) |
| | | W _y | 0.280 | 0.330 | 0.380 | | | |
| Viewing angle | Hor. | Θ_L | CR>10 | 50 | 60 | — | Deg. | |
| | | Θ_R | | 50 | 60 | — | | |
| | Ver. | Θ_U | | 40 | 45 | — | | |
| | | Θ_D | | 45 | 55 | — | | |
| Brightness uniformity | | BUNI | $\Theta=0$ | 80 | — | — | % | (5)(7) |

5.0 Input Interface PIN Assignment

| PIN | SYMBOL | FUNCTION |
|-----|--------|------------------------|
| 1 | BL-K | Backlight ground |
| 2 | BL-A | Backlight power supply |
| 3 | GND | Ground |



| | | |
|----|--------|---|
| 4 | VCC | Power supply (2.7-3.3V) |
| 5 | NC | NO Connect |
| 6 | NC | NO Connect |
| 7 | /CS | Chip select input pin ("Low" enable). |
| 8 | /RESET | Chip reset pin ("Low Active"). -This signal will reset the driver and it must be applied to properly initialize the chip. |
| 9 | RS | Command / parameter or display data selection pin. |
| 10 | /WR | Write enable pin I80 parallel bus system interface. |
| 11 | /RD | Read enable pin I80 parallel bus system interface. |
| 12 | DB7 | Data bus |
| 13 | DB6 | |
| 14 | DB5 | |
| 15 | DB4 | |
| 16 | DB3 | |
| 17 | DB2 | |
| 18 | DB1 | |
| 19 | DB0 | |
| 20 | GND | Ground |

UnRegistered

6.0 Outline Dimension



| | | | |
|------|----------------|----------|--|
| VER. | REVISED RECORD | DATA | |
| V0 | New Issue | 14.02.19 | |

| PIN | DESCRIPTION |
|-----|-------------|
| 1 | LEDK |
| 2 | LEDA |
| 3 | GND |
| 4 | VCC |
| 5 | NC |
| 6 | NC |
| 7 | CS |
| 8 | RESET |
| 9 | RS |
| 10 | WR |
| 11 | RD |
| 12 | DB7 |
| 13 | DB6 |
| 14 | DB5 |
| 15 | DB4 |
| 16 | DB3 |
| 17 | DB2 |
| 18 | DB1 |
| 19 | DB0 |
| 20 | GND |

NOTES

1. Drive IC: ST7735S OR COMPATIBLE
4. Display Type: TFT/Transmissive
4. Viewing Direction: 6 0' CLOCK
5. Backlight: 2 Chip White LED
6. Operating Temperature: -20° C to 70° C
- Storage Temperature: -30° C to 80° C
7. General Tolerance: ±0.2

| | | | | | |
|------------|------------------|----------|----------|---------|----------|
| SCALE:1:1 | UNIT:mm | PAGE:1/1 | APPROVED | CHECKER | DRAWN |
| MODULE NO. | CNKT01770-12003A | | | | WHY |
| | | | | | 14.02.19 |