LC-TK04U-V2.2
USB Touch controller

1. Electrical

- Supply voltage +5 Vdc, nominal (+4.75 to +5.25 Vdc)
- Supply current 100 mA, typical at +5 Vdc. Average power dissipation is 0.2 W, typical.
- Supply must be capable of sourcing 300 mA, minimum.
- Total noise and ripple requirement must be less than 100 mV (p-p) for frequencies below 1 MHz, and less than 50 mV (p-p) for frequencies above 1 MHz.

2. Interface

- USB
  Compliant USB 1.1 low speed device specification
  Support suspend and remote wakeup capability

3. Operating Modes

- Desktop
- Drawing
- Button

4. Conversion Time

• Max. 200 Points/Sec (pps), typical 160pps

5. Serial Communication Protocol

- UTCP : Default for USB, Ref. to UTCP reference manual for detail
- MT™ : MT410™/510™ protocol,
- Elo™ : SmartSet™ protocol,

6. Reliability

MTBF greater than 300,000 hours per MIL-HDBK-217-F2 using the parts stress calculation method for ground benign environment with an ambient temperature of 25°C

7. Environmental

7.1 Temperature

- Operating: 0°C to 65°C
- Storage: -25°C to 85°C

7.2 Humidity

- Operating: 10% to 90% RH, non-condensing
- Storage: 10% to 90% RH, non-condensing

7.3 Shock and Vibration

- Three axis sine wave, 50 Hz to 2kHz, 1 G, 2 minutes/Octave with dwell on resonances

8. ESD

- Per EN 6100-4-2 1995: Level 4. Contact discharge 8kV, air discharge 15kV.

9. Flammability

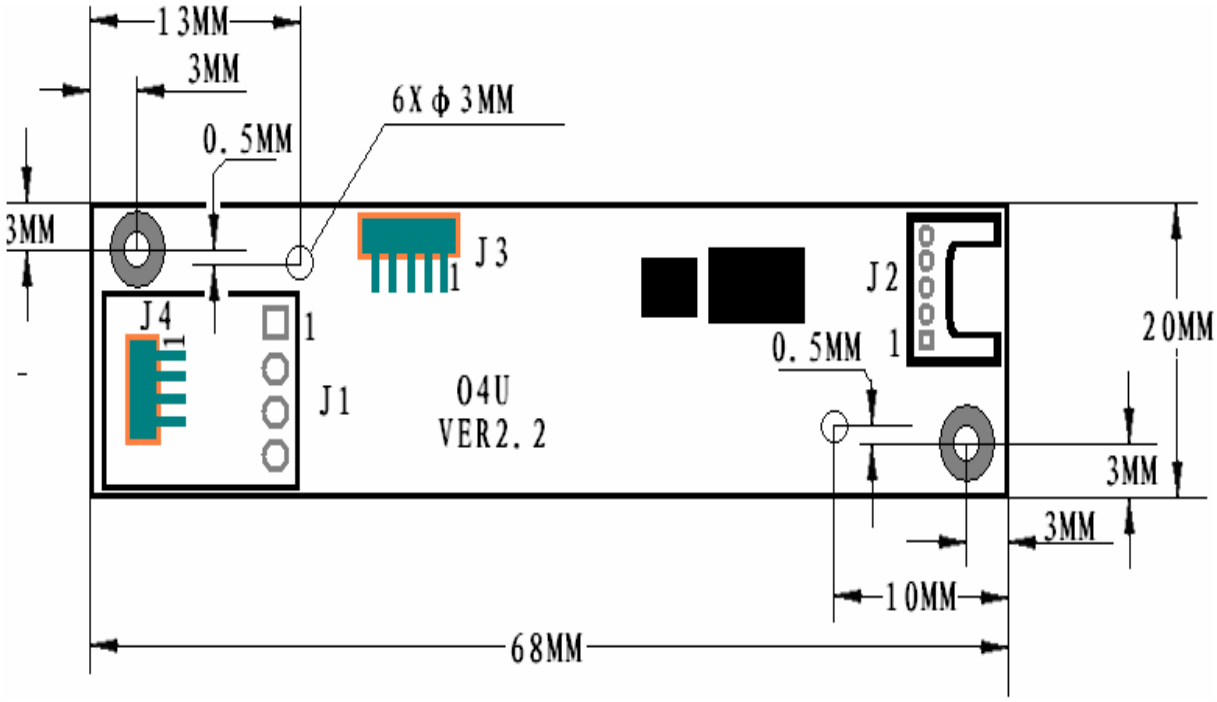
- The printed circuit board substrate is rated 94V0. All plastic components, such as headers and connectors, are also rated 94V0.

10. Physical Characteristics

10.1 Construction

- Four-layer surface-mount design with internal ground plane for EMI suppression.

- different layouts with different connectors and positions, drawing shows all options combined



10.2 Dimension

- Total Width: 20 mm
- Total Length: 68 mm (including connectors)
- Total height: 8.3mm
- All mounting holes are plated through for chassis ground connection

11.Connectors and Pin Definitions

The connector configuration permits the controller to be placed in-line between the touchscreen and serial I/O attachments.

The USB connector, J2(J3), is a single row by seven-position header with pins spaced on 1mm centers. Refer to the following figure for pin number locations.

Signal definition for USB

Signal Name	J3 pin	J2 pin	**Signal Function**
Power (V5IN)	1	2	+5V power drain from host USB port
D-	2	5	USB bus signal
D+	3	4	USB bus signal
GND	4	1	signal ground
GND	5	3	signal ground

Figure 1. Pin diagram for serial connector, J1, as viewed from connector mating surfaces

Touch screen connector, J1(J4) signal descriptions

The touch screen connector, J1, is either a single row or a dual row by four-position header with 0.025-inch square pins spaced on 0.100 centers (2,54mmm pitch). 4-Wire sensors must be connected to the low row of the connector in case of a dual row one.

The 4 Wire Touchscreen connector, J2 lower row, and signal descriptions

Signal name	J1 (J4) pin	**Signal function**
Y+	1	Connect to 4 Wire touchscreen Y+
X+	2	Connect to 4 Wire touchscreen X+
Y-	3	Connect to 4 Wire touchscreen Y-
X-	4	Connect to 4 Wire touchscreen X-

12.Scope of delivery

The touch controller board is always delivered with a cable set:

- USB interface cable, about 1,80 m long,with USB-A connector
- Interface cable for touch panel, 20 cm to 40 cm long, depending on the panel

13.Touchsreeen driver software

Touchscreen driver software for different operating systems is available

- LinuxMCE
- Windows 7
- Windows2000/XP/Vista
- DOS
- WindowsNT

Drivers for other OS on request

14. Revision: V2.2 10/06/2012 revised