

# TCB7843

## Touch Panel Controller Board User Manual

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Rev.	Descriptions	Release Date
0.1	Preliminary Release	2007-10-13

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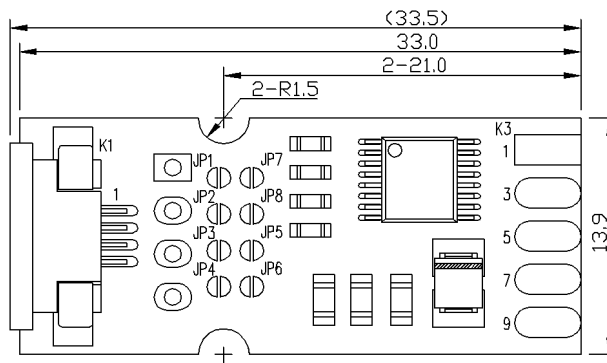
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## 1. Basic Specifications

### 1.1 Product Highlight

- 1) TCB7843 is a Touch Panel Controller Board using AD7843
- 2) Speeding up the development for Touch Panel Application.
- 3) Suitable for 4-wire Touch Panel interface
- 4) High Speed Serial Interface for the MCU
- 5) 5.0 or 3.0V single supply
- 6) 8-bit or 12-bit resolution

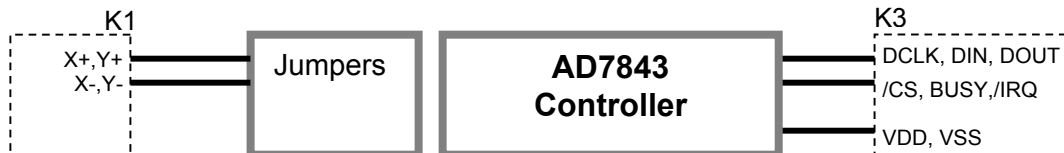
### 1.2 Mechanical Specifications



K1 : For Touch panel Terminal (P1.0mm, 4pin)

K3 : suitable for 10pin DIL Header (P2.54mm, 10pin) or direct cable soldering, pin2,4,6,8 is on the back side

### 1.3 Block Diagram



### 1.4 Terminal Functions

#### 1.4.1 Touch Panel Terminal K1 (default setting)

Pin No.	Pin Name	I/O	Descriptions
1	X+	Input	Touch Panel X+ position Input, ADC input Channel 1
2	Y+	Input	Touch Panel Y position Input, ADC input Channel 2
3	X-	Input	Touch Panel X- position Input
4	Y-	Input	Touch Panel Y- position Input

### 1.4.2 MCU Terminal K3

Pin No.	Pin Name	I/O	Descriptions
1	NC	-	No connection
2	NC	-	No connection
3	DCLK	Input	Clock Input for Serial Data and conversion process
4	/CS	Input	Chip Select input, also for initiating the conversions
5	DIN	Input	Data input
6	BUSY	Output	Busy output
7	DOUT	Output	Data output
8	/PENIRQ	Output	Pen Interrupt output
9	VDD	Power	Power supply
10	VSS	Power	Power supply GND (0V)

For the details, please refer to the AD7843 data sheet

## 2. Absolute Maximum Ratings

Items	Symbol	Min.	Max.	Unit	Condition
Supply Voltage	$V_{DD}$	-0.3	4	V	$V_{SS} = 0V$
Input Voltage	$V_{IN}$	-0.3	$V_{DD}+0.3$	V	$V_{SS} = 0V$
Operating Temperature	$T_{OP}$	-20	70	°C	No Condensation
Storage Temperature	$T_{ST}$	-30	80	°C	No Condensation

Cautions:

Any Stresses exceeding the Absolute Maximum Ratings may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in the specification is not implied and prolonged exposure to extreme conditions may affect device reliability.

## 3. Electrical Characteristics

### 3.1 DC Characteristics

$V_{SS}=0V, V_{DD}=3.3V, T_{OP} =25^{\circ}C, JP1=CLOSE$

Items	Symbol	MIN.	TYP.	MAX.	Unit	Applicable Pin
Operating Voltage	$V_{DD}$	2.8	3.3	5.2	V	VDD
Logic Input High Voltage	$V_{IH}$	2.4	-	VDD	V	Input pins
Logic Input Low Voltage	$V_{IL}$	VSS	-	0.4	V	Input pins
Output High Voltage	$V_{OH}$	2.8	-	-	V	Output pins
Output Low Voltage	$V_{OL}$	-	-	0.5	V	Output pins

For the details, please refer to the AD7843 data sheet

### 3.2 AC Characteristics

Please refer to AD7843 datasheet for details.

## 4. Function Specifications

Please refer to AD7843 datasheet for full functional details.

### 4.1 Jumpers Setting

There are 8 jumpers for the Touch Panel interface polarity/pin-out matching

Pin No. / Name				Jumpers								Note
1	2	3	4	JP1	JP2	JP3	JP4	JP5	JP6	JP7	JP8	
X+	Y+	X-	Y-	CLOSE	CLOSE	CLOSE	CLOSE	OPEN	OPEN	OPEN	OPEN	Default
X+	Y-	X-	Y+	CLOSE	OPEN	CLOSE	OPEN	OPEN	CLOSE	OPEN	CLOSE	
X-	Y+	X+	Y-	OPEN	CLOSE	OPEN	CLOSE	CLOSE	OPEN	CLOSE	OPEN	
X-	Y-	X+	Y+	OPEN	OPEN	OPEN	OPEN	CLOSE	CLOSE	CLOSE	CLOSE	
Y+	X+	Y-	X-	CLOSE	CLOSE	CLOSE	CLOSE	OPEN	OPEN	OPEN	OPEN	
Y+	X-	Y-	X+	CLOSE	OPEN	CLOSE	OPEN	OPEN	CLOSE	OPEN	CLOSE	
Y-	X+	Y+	X-	OPEN	CLOSE	OPEN	CLOSE	CLOSE	OPEN	CLOSE	OPEN	
Y-	X-	Y+	X+	OPEN	OPEN	OPEN	OPEN	CLOSE	CLOSE	CLOSE	CLOSE	

### 4.2 Decoupling Capacitors

There are 4 capacitors space (C1~C4) on the TCB7843. It is for Touch Panel decoupling, if necessary. The capacitors value should be about 300pF. Note: it may slow down the AD conversion speed when applied.

## 5. Design and Handling Precaution

- Any mechanical shock (eg. dropping from high place) will damage the device.
- Do not add excessive force on the device.
- Never attempt to disassemble or rework the device.
- When mounting the device, make sure that it is free from twisting, warping and distortion.
- Only hold the device by its side.
- Never add force to component of the device. It may cause invisible damage or degrade of the reliability.
- This could be easily damaged by static electricity. Be careful to maintain an optimum anti-static work environment to protect it.
- Take care and prevent get hurt by the device sharp edge.
- Never operate the device exceed the absolute maximum ratings.
- Keep the signal line as short as possible to prevent noisy signal applying to the device.
- Never apply signal to the device without power supply.
- Device reliability may be reduced by temperature shock.
- When storing the device, avoid exposure to the direct sunlight, high humidity, high temperature or low temperature.