TOUCH



Touch Capacitive Sensor

v1.0 2025-09-11 Rev. A

Professional electronic component

PRODUCT OVERVIEW

The UNIT Touch Capacitive Sensor transforms a simple touch into a precise digital signal—no buttons, no moving parts. Powered by the TTP223B capacitive sensing chip, this board continuously monitors its flat electrode pad and instantly reports "touch detected" via a clean HIGH logic output. Whether you're building a sleek control panel, a wearable interface, or a touch-activated lamp, this sensor delivers reliable, debounce-free touch detection with minimal wiring and virtually zero power draw at rest.

PRODUCT VIEWS

TOP VIEW



Component placement and connectors

BOTTOM VIEW



Underside components and connections

KEY TECHNICAL SPECIFICATIONS



CONNECTIVITY

Primary Interface: **GPIO (Interrupt)**

Connector Type: JST 4-pin 1.0mm

Logic Levels: VCC-referenced (2V - 5.5V tolerant)

KEY FEATURES

Touch-only sensing

No physical press required – reacts to proximity of a finger.

Auto-calibration

Compensates for environmental changes and drift.

On-board pull-up/down

Ensures clean digital output.

JST PH-2.0 connector

Quick-disconnect cable interface.

Fast response

< 80 ms touch detection time.

Selectable modes

Momentary or toggle output (via solder-jumper on the board).

Mounting holes

Two M3 screw holes for easy panel integration.

® Key Applications

User interfaces for wearables and handheld devices, Touch-activated lamps, buzzers or relays, Capacitive keyboards and remote controls and more

ADDITIONAL TECHNICAL INFORMATION



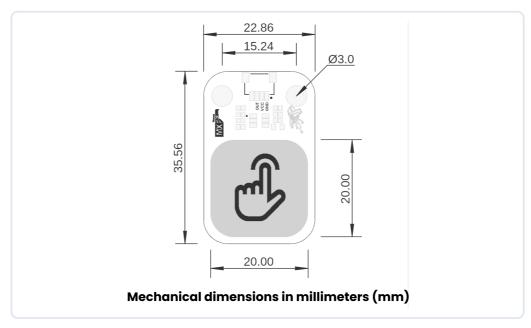
FEATURE	DESCRIPTION
Capacitive Sensing	Utilizes the TTP223B IC to detect changes in capacitance on the large silver touch pad.
Signal Processing	Internal auto-calibration and filtering circuitry remove noise and drift for reliable operation.
Digital Output	OUT pin goes HIGH when touch is detected (capacitance exceeds threshold); remains LOW otherwise.
Mode Selection	Solder jumper selects between Momentary mode (OUT is HIGH only while touched) and Toggle mode (OUT toggles state on each touch).

MODE AND LEVEL SELECTION TABLE

MODE SELECTION	LEVEL SELECTION	TOG	AHLB	PAD Q (CMOS OUTPUT)	PAD OPDO (OPEN DRAIN OUTPUT)	DESCRIPTION
0	0	0	0	Direct mode, active high	Direct mode, open drain active high	Single pulse, momentary
0	1	0	1	Direct mode, active low	Direct mode, open drain active low	Single pulse, toggle (inverted pulse)
1	0	1	0	Toggle mode, power-on state = 0	Toggle mode, power- on = High-Z, active high	Pulse latch, requires another touch to release
1	1	1	1	Toggle mode, power-on state = 1	Toggle mode, power- on = High-Z, active low	Pulse latch, requires another touch to release (inverted)

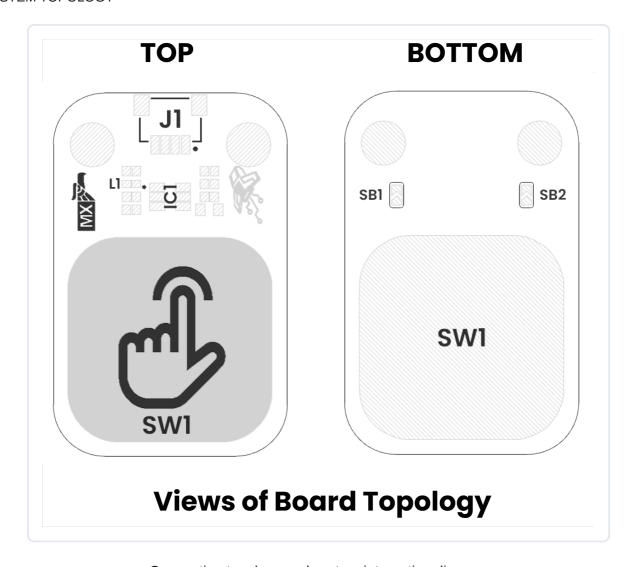
HARDWARE DOCUMENTATION

MECHANICAL DIMENSIONS



Physical dimensions and mounting specifications (measurements in millimeters)

SYSTEM TOPOLOGY

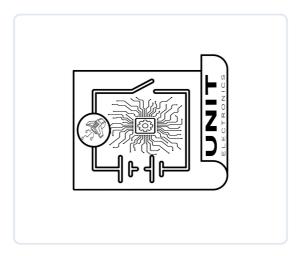


Connection topology and system integration diagram

Click image to open in full size

COMPONENT REFERENCE				
REF.	DESCRIPTION			
SW1	Capacitive Touch Button			
L1	Built-In LED			
IC1	TTP223-BA6-TD Touch Detector			
J1	QWIIC Connector (JST 1 mm pitch) for I2C			
SB1	Solder Bridge for Mode Selection			
SB2	Solder Bridge for Logic Level Selector			

CIRCUIT SCHEMATIC



Complete circuit schematic showing all component connections

View Complete Schematic PDF

PIN DESCRIPTION

Detailed pin assignment and electrical specifications

FUNCTION NOTES Power Supply 3.3V or 5V, depending on design Ground Common ground reference Data Signal Digital Output signal Solder Jumper Select between Momentary or Toggle mode Solder Jumper Select between low and high sensitivity

PIN CONFIGURATION LAYOUT

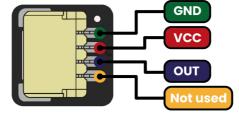
Physical connector layout and pin positioning

PINOUT









Description:

- Supply voltage
- Touch Pad

GND

Mode selection

Output

D Level selection

Complete pin configuration diagram showing all connectors, pin assignments, and electrical connections for proper integration

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