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Cap Touch 6 Click

PID: MIKROE-5517

Cap Touch 6 Click is a compact add-on board that easily integrates projected capacitive touch into users' applications. This board features the IQS227D, a single-channel capacitive controller with an internal voltage regular and reference capacitor from Azoteq. Besides the capacitive sensing area, this board also has output pins for proximity and touch events with their corresponding LED indicators. The IQS227D automatically tracks slow varying environmental changes via various filters. This Click board™ offers reliable and accurate sensing for any human-machine interface application that uses capacitive touch sensing functions.

Cap Touch 6 Click is supported by a mikroSDK compliant library, which includes functions that simplify software development. This Click board™ comes as a fully tested product, ready to be used on a system equipped with the mikroBUS™ socket.

How does it work?

Cap Touch 6 Click is based on the IQS227D, a fully integrated single-channel capacitive controller with an internal voltage regular and reference capacitor from Azoteq. As known, the capacitive touch technology works by detecting changes in capacitance on the screen or touchpad, in this case, the sensing area at the top of the frontal side of the board, when a finger or other conductive object comes into contact with it. The IQS227D is built on ProxSense® low voltage platform, ideal for battery application, and comes with dual outputs (touch and proximity outputs don't need to be configured), a low-power mode while sensing proximity, and an advanced on-chip digital signal processing.

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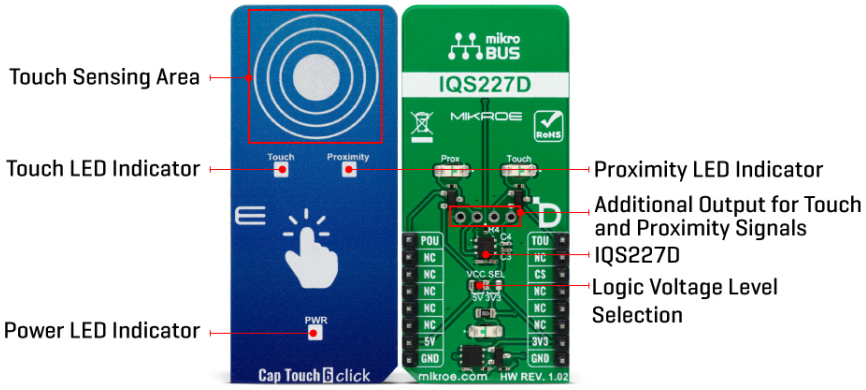

Touch and proximity features, alongside its mikroBUS™ pins, marked TOU and POU, only used to communicate with MCU, also have their corresponding LED indicators, labeled Touch and Proximity, reporting the activity of these features. If a touch/proximity event is detected on the onboard sensing pad, the state of the corresponding LED will be changed, indicating an activated channel.

In addition to pins of the mikroBUS™ socket, these functions can also be found on the unpopulated header for external uses if they are necessary for the user in some specific application. As mentioned earlier, this board contains a capacitive sensing area that is the only element on the top side of the board, allowing the protective acrylic plexiglass layer placement.

This Click board™ can operate with either 3.3V or 5V logic voltage levels selected via the VCC SEL jumper on the back side of the board. This way, both 3.3V and 5V capable MCUs can use the communication lines properly. However, the Click board™ comes equipped with a library containing easy-to-use functions and an example code that can be used, as a reference, for further development.

Specifications

Type	Capacitive
Applications	Can be used for any human-machine interface application that uses capacitive touch sensing functions
On-board modules	IQS227D - single-channel capacitive touch and proximity controller from Azoteq
Key Features	Low power mode while sensing proximity, automatic tuning of sense electrode, advanced on-chip digital signal processing, low power consumption, touch and proximity LED indicators, protective acrylic plexiglass layer, and more
Interface	GPIO
Feature	ClickID
Compatibility	mikroBUS™

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Click board size	L (57.15 x 25.4 mm)
Input Voltage	3.3V or 5V

Pinout diagram

This table shows how the pinout on Cap Touch 6 Click corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin	mikroBUS				Pin	Notes
Touch Output	**TOU**	1	AN	PWM	16	**POU**	Proximity Output
	NC	2	RST	INT	15	NC	
	NC	3	CS	RX	14	NC	
	NC	4	SCK	TX	13	NC	
	NC	5	MISO	SCL	12	NC	
	NC	6	MOSI	SDA	11	NC	
Power Supply	**3.3V**	7	3.3V	5V	10	**5V**	Power Supply
Ground	**GND**	8	GND	GND	9	**GND**	Ground

Onboard settings and indicators

Label	Name	Default	Description
LD1	PWR	-	Power LED Indicator
LD2	Touch	-	Touch LED Indicator
LD3	Prox	-	Proximity LED Indicator
JP1	VCC SEL	Left	Logic Level Voltage Selection 3V3/5V: Left position 3V3, Right position 5V

Cap Touch 6 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	3.3	-	5	V

Software Support

We provide a library for the Cap Touch 6 Click as well as a demo application (example), developed using Mikroe compilers. The demo can run on all the main Mikroe development boards.

Package can be downloaded/installed directly from NECTO Studio Package Manager (recommended), downloaded from our LibStock™ or found on Mikroe github account.

Library Description

This library contains API for Cap Touch 6 Click driver.

Key functions

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- captouch6_get_tout_pin This function returns the TOUT pin logic state.
- captouch6_get_pout_pin This function returns the POUT pin logic state.

Example Description

This example demonstrates the use of Cap Touch 6 Click board™ by reading and displaying the touch and proximity events.

The full application code, and ready to use projects can be installed directly from NECTO Studio Package Manager (recommended), downloaded from our LibStock™ or found on Mikroe github account.

Other Mikroe Libraries used in the example:

- MikroSDK.Board
- MikroSDK.Log
- Click.CapTouch6

Additional notes and informations

Depending on the development board you are using, you may need USB UART click, USB UART 2 Click or RS232 Click to connect to your PC, for development systems with no UART to USB interface available on the board. UART terminal is available in all Mikroe compilers.

mikroSDK

This Click board™ is supported with mikroSDK - Mikroe Software Development Kit. To ensure proper operation of mikroSDK compliant Click board™ demo applications, mikroSDK should be downloaded from the LibStock and installed for the compiler you are using.

For more information about mikroSDK, visit the official page.

Resources

mikroBUS™

mikroSDK

Click board™ Catalog

Click boards™

ClickID

Downloads

Cap Touch 6 click example on Libstock

Cap Touch 6 click 2D and 3D files

IQS227D datasheet

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[Cap Touch 6 click schematic]

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