Sense.T.C

capacitive touch

Built around the Azoteq IQS323 ProxFusion controller, the Sense.T.C tile's entire top surface functions as a capacitive touch sensor, while a second input channel is available via one of the pads.
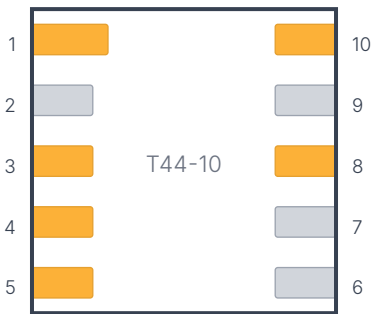
The IQS323 provides both proximity and touch detection with all signal processing on-chip, exposing processed results over I2C. Each channel reports 16-bit filtered counts, a 16-bit long-term average baseline, and binary proximity/touch states with configurable thresholds, debounce, and hysteresis. When configured as a slider across multiple tiles, the controller provides a 16-bit position output with on-chip gesture recognition including tap, swipe, flick, and hold.

Report rates are configurable per power mode, from every 16ms in normal self-capacitive mode (125μA average current consumption) up to every 160ms in 4 μA ultra-low-power mode (160 ms). In addition, event-driven reporting can leave the host free between changes in state.

Overview

Revision	a
Package	T44-10
Supply	1.71–3.5V
Component	IQS323
Interfaces	I2C

Pad Assignments

(top view)

PAD	TYPE	FUNCTION	NOTE
1	power	GND	
3	digital	RDY	configurable interrupt output (with an internal 4.7k pull up on the open-drain)
4	interface	I2C.CLK	
5	interface	I2C.DAT	
8	analog	C0	additional external cap-touch input
10	power	V+	1.71-3.5V

Interfaces

I2C		I2C
Mode		slave
Max Clock		1MHz
Address		0x44

FUNCTION	REQ	PAD(S)
I2C.CLK	No	4
I2C.DAT	No	5

Application Notes

Sensing Surface
The entire top surface of the tile connected to the C1 sensor input with a 470-ohm series resistor.

Secondary Input
The C0 input on the IQS323 is directly connected to pad 8 of the tile, allowing for user configuration of a secondary capacitive touch input.