



IQS231EV02 Quick start guide

Single Channel Capacitive Proximity/Touch/SAR Controller with movement detection

The IQS231ProxSense[®] IC is a self-capacitance controller designed for SAR applications where a reliable proximity detection function is required along with human and inanimate object distinction. The IQS231 uses quick release and movement detection to achieve this. The IQS231 operates standalone or I²C can be configured via OTP (One Time Programmable) bits.

1 Reference design and pin layout



Figure 1.1 IQS231EV02

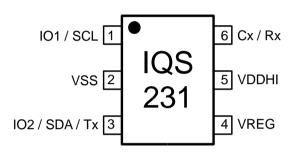


Figure 1.2 TSOT23-6 Pin layout

IQS231 in TSOT23-6									
Pin	Name	Туре	Function						
1	PRIMARY I/O	Digital Input/Output	Multifunction IO1 / SCL (I ² C Clock signal)						
2	VSS	Signal GND							
3	SECONDARY I/O / Tx	Digital Input/Output	Multifunction IO2 / SDA (I ² C Data output) / Tx						
4	VREG	Regulator output	Requires external capacitor						
5	VDDHI	Supply Input	Supply:1.75V – 3.6V						
6	Сх	Sense electrode	Connect to conductive area intended for sensor						

Table 1.1 Multifunction pin descriptions

Table 1.2Pin-out description

Multifunction pin name	Multifunction pin option			
IO1	Proximity output / Proximity output with heartbeat			
102	Sensitivity input / Synchronization input / Movement output / Touch output			





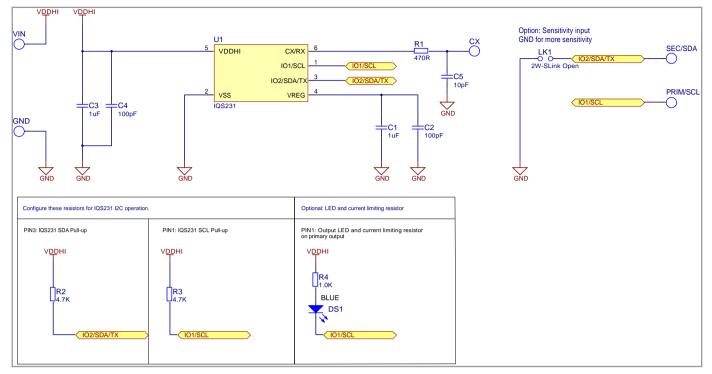
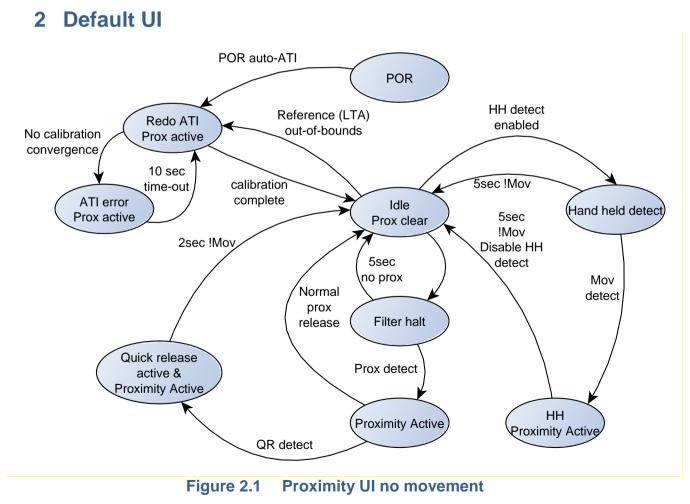


Figure 1.3 Reference design





đ	Azote	eq IQS231		- • ×					
File Options Help									
USB Dongle & Messages		Redo ATI Reseed	Show Reset						
Azoteq - CT210 Device Address : 49H	1500				8		Settings		- 🗆 ×
Device Version (PROD:SW): 64 : 4 Device streaming started		1300				Commands (0x04)			
* Streaming	1100				Setup Enabled Events	Toggle Event Mode	Toggle Litra Low Power Mode	Toggle Movement Algorithm	Toggle AC Filter
* Scleanning	1000	······			Commands		Pone Pode	Agentin	
Settings Stop -	900				OTP Bank 1	Re-ATI CH0	Disable Sensing	Enable Sensing	Warm Boot
Scope Pause	700				OTP Bank 2				
Scope Facas	600	······			OTP Bank 3	Statuses			
	500				Multipliers & Compensation				
System Flags	400				Thresholds & Timings				
ATI Busy : No Movement : No Low Power : No Movement Const : No	200					1			
Reset : No Movement Value : 0	100								
Device Version : 64 : 4		0							
× I2C Events Channels:		(0) I							
Events	Count:	1201							
Prox : No Movement : No	LTA:	1199							
Touch : No Movement Const : No Release : No Movement Value : 0	Delta: Touch THs:	-2							
	Movement Indicator				Update all settings from chip				
	QRD								
					Settings window opacity:				
						1.		Apply Settings &	
	Movement						Apply Settings	Switch To Standalone	Undo All Changes

Figure 2.2 IQS231 GUI

Different UI's can be selected in the IQS231 GUI and can then be selected to run in standalone mode.

The GUI is available for download from the Software & Tools section of <u>azoteq.com</u> and the <u>CT210</u> (sold separately) is used in conjunction with the GUI to select the different UI's and settings.

Using <u>USBProg</u> the IQS231 can be configured in different variations. Please note when settings are programmed it is permanent.

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