



ProxSense® IQS333-TS35 6 Key Capacitive Touchscreen

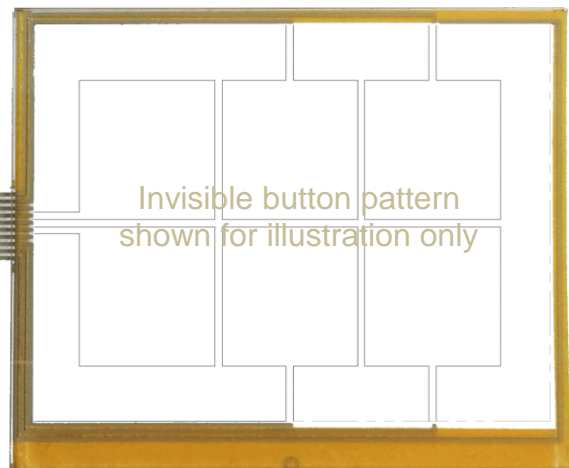
Touch Key Sensor and Controller a 3.5" LCD display

The IQS333-TS35 combines a 6 key touchscreen sensor and controller to provide a complete touchscreen solution. The IQS333-TS35 a low cost solution to a 6-key touch interface to any application. With pre-defined button layout the display is divided into 6 parts that would guide GUI development. The high-performance touch sensing technology of the IQS333 offers the ability to drive large capacitive loads (mounted directly onto a metal display cover) while keeping the ability to sense small capacitive changes.

The IQS333 offers standard I2C as communications interface. The device is highly configurable, but recommended configuration settings for modules mounted directly onto a display with metal housing are given in this document.

Main Features

- 3.5" Touchscreen Panel with controller
- IQS333 Controller
- 6 Discrete keys
- I²C Interface
- Event mode and streaming modes
- Excellent panel transparency (>90%)
- Proximity low power operation (<10uA)
- Supply voltage 1.65V to 3.6V



Applications

- White goods
- Appliances
- Office equipment
- Toys
- Medical equipment
- Industrial Instrumentation



2 General Specifications

Item	Specification	Unit
Panel diagonal size	3.5	Inch
Panel size	78	mm
	64.5	mm
Tail length	32	mm
Tail width	11	mm
Transparency	>90	%
PCB size	26	mm
	20	mm
PCB connection	6w ZIF connector (1mm pitch)	-
	Castellated pads for surface mount (2.54mm pitch) 4x PWM outputs 6x ZIF connector (power, I2C & reset) 1x Capacitive sensor connection (intended for proximity wake-up electrode)	-
Interface type	I ² C (400kHz)	-
IQS333	Special QFN-20 version	-



3 Mechanical Drawings

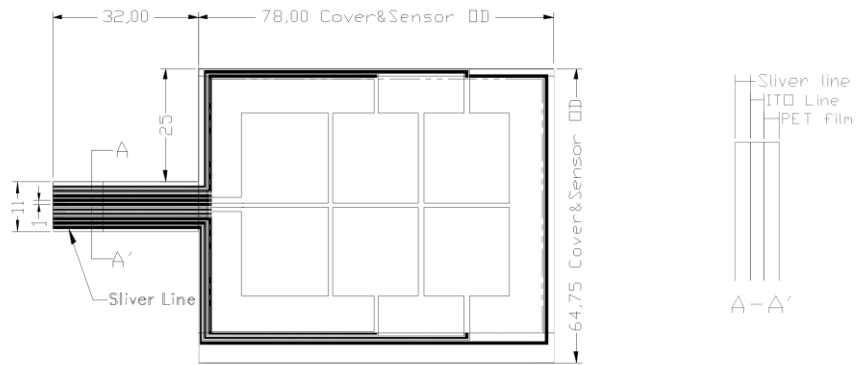


Figure 3.1 Panel front view with layer stack-up on the right

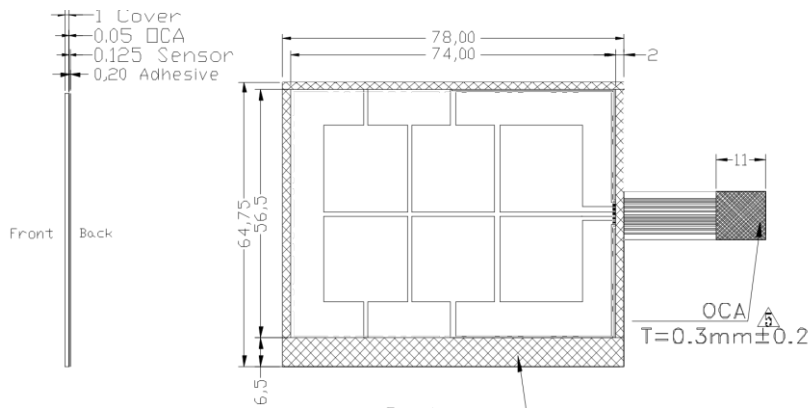


Figure 3.2 Panel rear view with cross-section view on the left

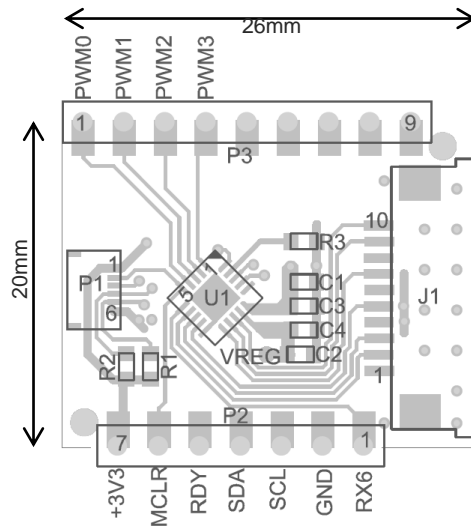


Figure 3.3 Assembly diagram

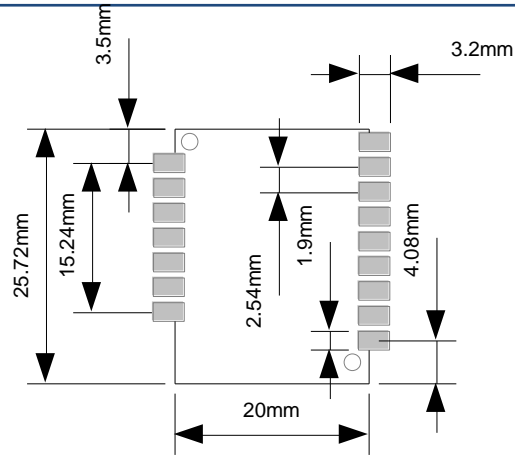


Figure 3.4 Recommended PCB landing pad

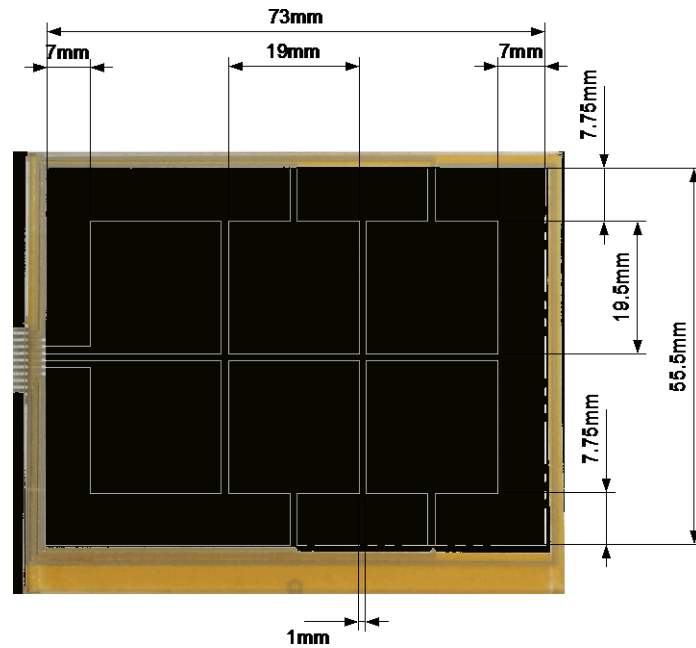


Figure 3.5 Button dimensions for GUI design



4 Interface description

Connector - pin number	Pin name	Pin Description
P1-1 / P2-7	VDDHI	Input voltage (1.65V to 3.6V)
P1-2 / P2-6	NRST	Soft reset input
P1-3 / P2-5	RDY	Ready line (interrupt request line)
P1-4 / P2-4	SDA	I2C bus data line
P1-5 / P2-3	SCL	I2C bus clock line
P1-6 / P2-2	GND	Signal ground
P2-1	RX6	Proximity wake-up electrode connection
J1-10	RX0	Top right electrode
J1-9	RX1	Top middle electrode
J1-8	GND	Signal ground
J1-7	RX2	Top left electrode
J1-6	GND	Signal ground
J1-5	RX3	Bottom left electrode
J1-4	GND	Signal ground
J1-3	RX2	Bottom middle electrode
J1-2	RX1	Bottom right electrode
J1-1	GND	Signal ground

5 Electrical Characteristics

The [IQS333](#) datasheet specifies the electrical characteristics for the IQS333 controller. All components on the PCB are chosen for optimal performance.

6 Communications Interface

The [IQS333](#) datasheet describes the I²C communication interface.

At power-on the IQS333 should be initialized with the configuration settings specified in section 7.

Azoteq provides an easy to use debugging environment via a USB streaming tool (CT210)



7 Recommended configuration

The IQS333 will start up in a default configuration. In order to function properly with a standard metal framed 3.5" LCD, change the following settings:

Register name	Register address	Value
ACTIVE CHANNELS	0x0E	0x7F (enable the combination proximity channel and six other channels) 0xFF (if RX6 on AZP437B01 is connected to a proximity electrode)
MULTIPLIERS	0x06	Byte0: 0x00 (default) Byte1: 0xC0 Byte2: 0x00 Byte3: 0x00 Byte4: 0xC0 Byte5: 0x40
ProxSettings	0x08	Byte0: 0x10 (schedule a redo-ATI routine)



Appendix A. Contact Information

	USA	Asia	South Africa
Physical Address	6507 Jester Blvd Bldg 5, suite 510G Austin TX 78750 USA	Rm1725, Glittery City Shennan Rd Futian District Shenzhen, 518033 China	109 Main Street Paarl 7646 South Africa
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The following patents relate to the device or usage of the device: US 6,249,089 B1, US 6,621,225 B2, US 6,650,066 B2, US 6,952,084 B2, US 6,984,900 B1, US 7,084,526 B2, US 7,084,531 B2, US 7,265,494 B2, US 7,291,940 B2, US 7,329,970 B2, US 7,336,037 B2, US 7,443,101 B2, US 7,466,040 B2, US 7,498,749 B2, US 7,528,508 B2, US 7,755,219 B2, US 7,772,781, US 7,781,980 B2, US 7,915,765 B2, US 7,994,726 B2, US 8, 035,623 B2, US 8,288,952 B2, EP 1 120 018 B1, EP 1 206 168 B1, EP 1 308 913 B1, EP 1 530 178 B1, ZL 200880005683.2, ZL 99 8 14357.X, AUS 761094, HK 104 14100A

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