

3-Channel Capacitive Touch Sensor with I2C

The project described here is a 3 channel capacitive touch sensor based on CAP1203 chip from Microchip which is a multiple-channel capacitive touch sensor controller. It has 3 x individual capacitive touch sensor inputs with programmable sensitivity for use in touch sensor applications. 3 x touchpads are provided on PCB to detect the touch. Each sensor input is calibrated to compensate for system parasitic capacitance and automatically recalibrated to compensate for gradual environmental changes. The CAP1203 includes Multiple Pattern Touch recognition that allows the user to select a specific set of buttons to be touched simultaneously. If this pattern is detected, a status bit is set and an interrupt is generated. The CAP1203 has Active and Standby states, each with its own sensor input configuration controls. Power consumption in the Standby state is dependent on the number of sensor inputs enabled as well as averaging, sampling time, and cycle time. Deep Sleep is the lowest power state available, drawing 5 μ A (typical) of current. In this state, no sensor inputs are active, and communications will wake the device.

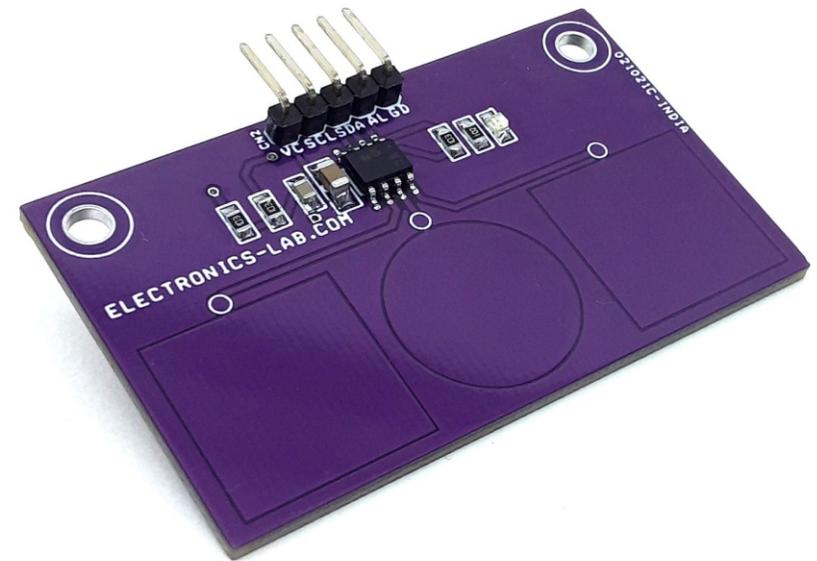
Connections Connector Cn2

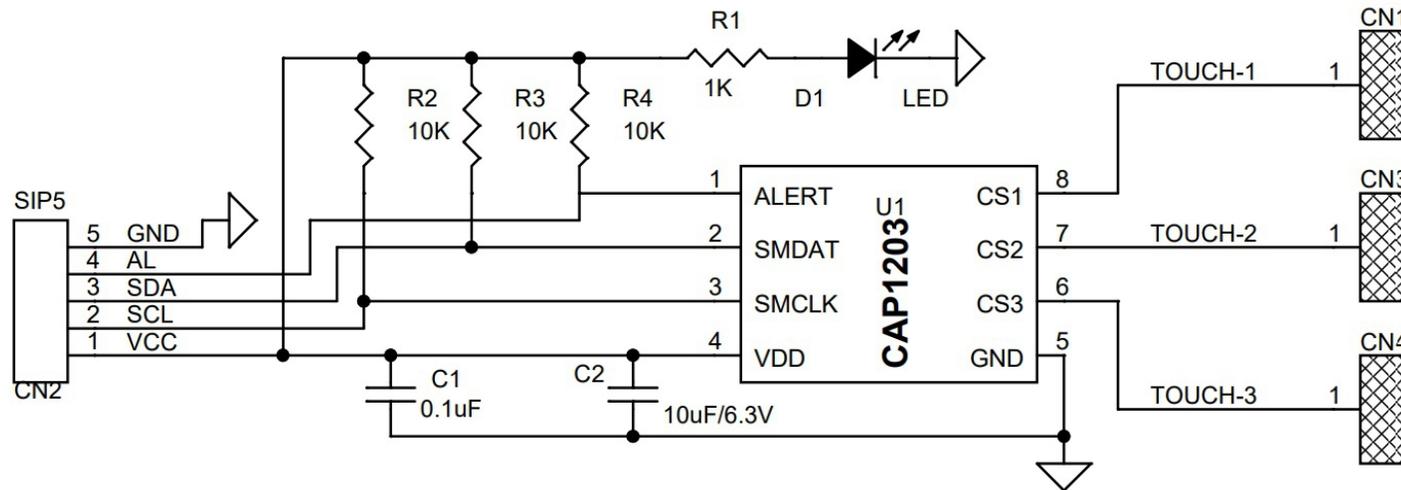
- Pin1 VCC 3.3V or 5V DC
- Pin2 SCL (Arduino UNO Analog Pin A5)
- Pin 3 SDA (Arduino UNO Analog Pin A4)
- Pin 4 Alert Interrupt Output for SMBus
- Pin 5 GND

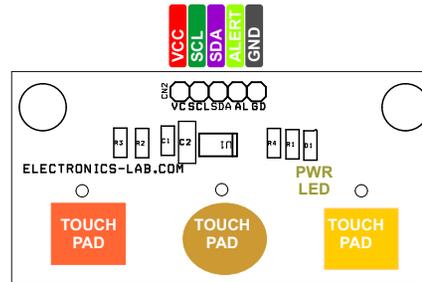
Note: Refer to datasheet of CAP1203 for the operation and configuration of the chip. Arduino example code and CAP1203 library from sparkfun.com are available as downloads to test the board.

Features

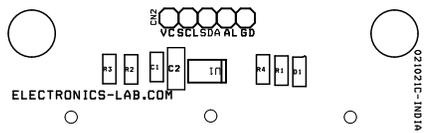
- Power Supply 3.3V or 5V DC
- Three (3) Capacitive Touch Sensor Inputs
- Programmable Sensitivity
- Automatic Recalibration
- Calibrates For Parasitic Capacitance
- Individual Thresholds for each Button
- Multiple Button Pattern Detection
- Power Button Support
- Press and Hold Features for Volume-like Applications
- Analog Filtering for System Noise Sources
- RF Detection and Avoidance Filters
- Digital EMI Blocker
- Low Power Operations 5uA Quiescent Current in Deep Sleep. 50uA In Standby (Only Chip)
- Samples One Or More Channels in Standby
- I2C/SMBus Compliant Communication Interface
- 2 Easy to Mount Holes
- Header Connector for Micro-Controller Interface
- On Board Power LED



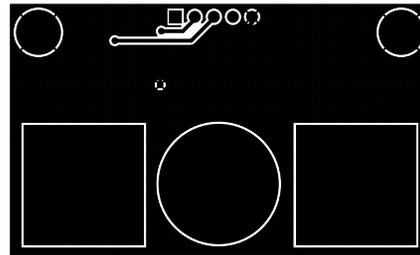




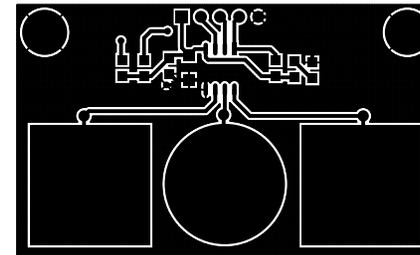
BOM						
NO	QNTY.	REF.	DESC.	MANUFACTURER	SUPPLIER	SUPPLIER PART NO
1	1	CN2	5 PIN MALE HEADER PITCH 2.54MM	WURTH	DIGIKEY	732-5318-ND
2	1	C1	0.1uF/50V SMD SIZE 0805	MURATA/YAGEO	DIGIKEY	
3	1	C2	10uF/6.3V SMD SIZE 1206	MURATA/YAGEO	DIGIKEY	
4	1	D1	LED RED SMD SIZE 0805	LITE ON INC	DIGIKEY	160-1427-1-ND
5	1	R1	1K 5% SMD SIZE 0805	MURATA/YAGEO	DIGIKEY	
6	3	R2,R3,R4	10K 5% SMD SIZE 0805	MURATA/YAGEO	DIGIKEY	
7	1	U1	CAP1203 SOIC8	MICROCHIP	DIGIKEY	CAP1203-1-SN-ND



SILK SCREEN TOP



BOTTOM LAYER



TOP LAYER

PCB DIMENSIONS 56.19MM X 33.90MM