Shenzhen Hi-Link Electronic Co., Ltd

ZW111 Semiconductor Fingerprint Processing Module

Specification

Amendment Record

Version Number	Date of revision	Content of the modification	Moderator
V1.0	2020-8-27	Initial Version	Frank.

Content

1. Product Overview

ZW111 is an all-in-one semiconductor fingerprint processing module, which consists of an active semiconductor fingerprint capture SENSOR and a fingerprint identification processing chip.

Fingerprint identification algorithm chip adopts high-performance, low-power Riscv core, running 360-degree adaptive self-learning algorithm. Semiconductor Sensor adopts active RF acquisition, supports low-power finger detection, eliminates the need for external finger touch detection chip, high integration, simple product structure, and improves the stability and consistency of the product. At the same time to provide seven-colour light effect, can be customized according to user requirements of different colors and display mode.

2. Technical parameters

2.1. Performance parameters

Pixel	88*112
Resolution	500DPI
Chip package	Ø15mm *0.6mm
Module Packaging	Ø21mm*5.0 mm
Comparison speed	<0.8s
Start-up time	<0.1s
Recording time	<0.06s
Truth Rejection Rate (FRR)	<3 per cent
False Alarm Rate (FAR)	<0.0001 per cent
Storage capacity	40
Number of presses	1,000,000

2.2. Electrical parameters

Item	Minimal	Typical	Maximum	Unit
Sensor supply voltage (**V_TOUCH**)	2.2	3.3	3.6	V
Fingerprint supply voltage (**vcc**)	2.6	3.3	3.6	V
Operating current	35	40	45	mA
Static power consumption	8	10	12	μA
Operating temperature	-20		70	°C
Operating humidity (no condensation)	40		85	%RH
Storage temperature	-40		85	°C
Storage humidity (no condensation)			85	%RH
ESD Non-Contact Discharge			15	KV
ESD Contact Discharge			8	KV

Description:

Operating current: the current when the fingerprint module is in the image acquisition state, such as the enrolment process and the comparison process;

Static Power Consumption: The current of the fingerprint module when the fingerprint supply voltage is 0 and the Sensor supply voltage is 3.3V.

3. Product Appearance and Structural Dimensions
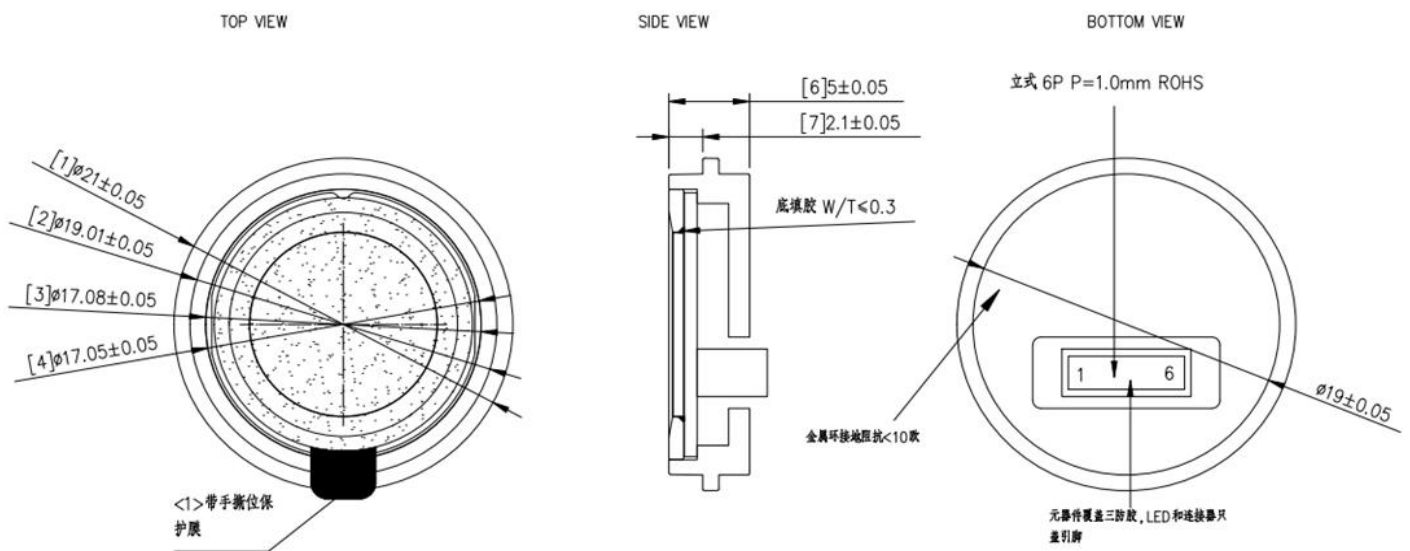

Figure 3.1 Product Appearance

Figure 3.2 Product structure size (mm)

4. Communication interface definition

Communication interface: Standard UART TTL level

Baud rate: default 57600 bps, 1 start bit, 1 stop bit, 3.3V TTL level

Connector: MX1.0-6P Vertical Paste

Pin pin definition: (see Figure 3.1 for wire sequence)

| PIN	Define	Instructions
1	V_SENSOR	3.3V touch-powered (needs to be powered all the time)
2	TOUCH_OUT	Wake-up IRQ (true:1, flase:0)
3	VCC	Fingerprint Module VCC
4	TX	UART_TX (fingerprint module->MCU)
5	RX	UART_RX (MCU->fingerprint module)
6	GND	GND

Note: The serial port is 3.3V TTL level, connecting to the computer needs level conversion, it should be noted that V_SENSOR needs to be powered all the time, TOUCH_OUT is the live signal output, the voltage is the same as the voltage of the touch control, 1 - live detection is true, 0 - live detection is false.

5. Low Power Reference Design

To reduce the power consumption of the fingerprint module by controlling the power supply of the fingerprint module VCC or not, the circuit is shown in the following figure:

VIN is the client 3.3V voltage, VCC is the fingerprint module VCC, and CTRL is the client MCU I/O control signal;

CTRL is the client MCU I/O control signal; CTRL controls the fingerprint module VCC on and off.
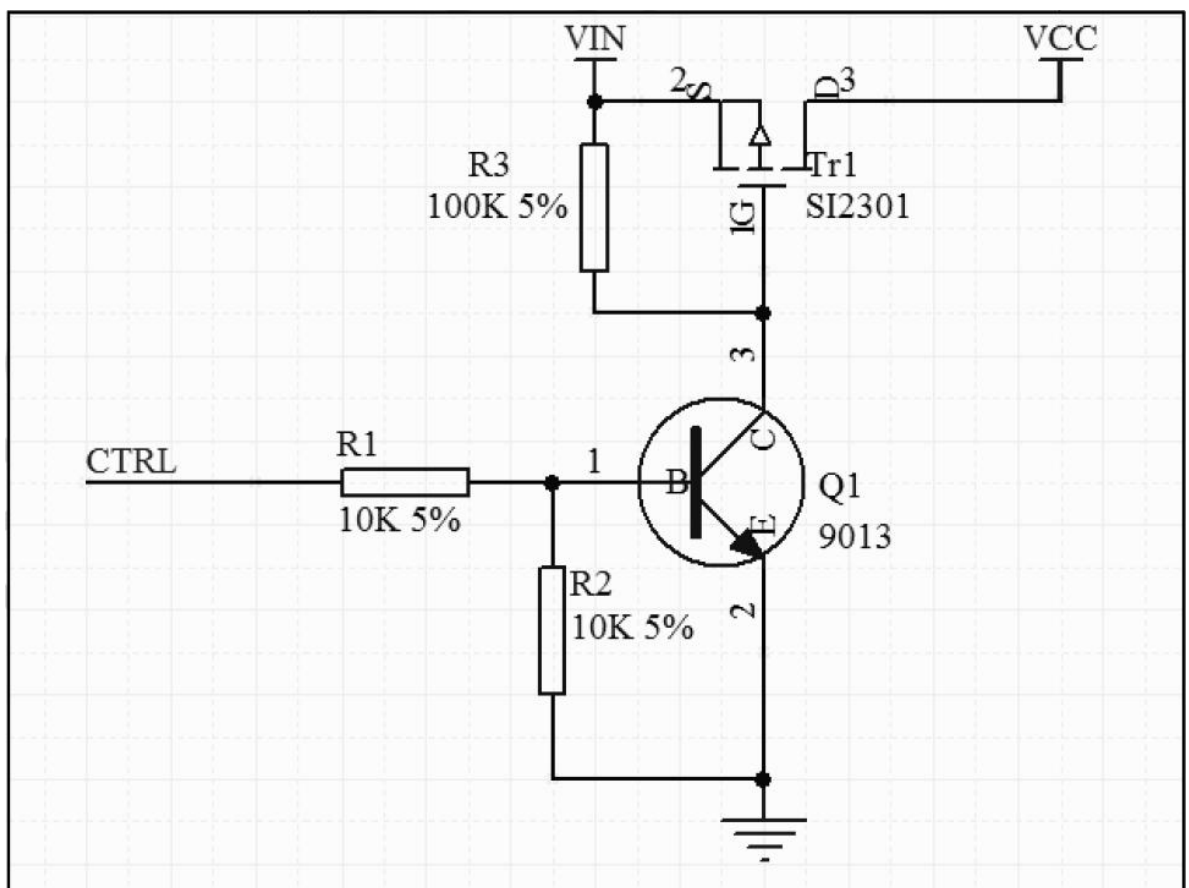
6. Communication protocols and other reference commands

 Please refer to <Fingerprint Module Communication Protocol Overview>

7. Technical support and contact information

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