



ZW101 Semiconductor Fingerprint Processing Module Specification V1.0

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1 Product description

ZW101 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 method, supports low-power finger detection, eliminates the need for external finger touch detection chip, high integration, simple product structure, improves product stability and consistency. At the same time to provide seven-color light effect, can be customized according to user needs of different colors as well as display mode.

2 Technical parameters

2.1 Performance parameters

Pixels	80*64
Resolution	500DPI
Chip package	Ø11.6mm *0.6mm
Module package	Ø21mm*5.0 mm
Comparison speed	<0.8s
Start-up time	<0.1s
Recording time	<0.06s
FRR	<3%
FAR	<0.0001%
Storage capacity	50 pcs
Pressing times	1,000,000 pcs

2.2 Electrical parameters

Items	Min.	Typ.	Max.	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 of the fingerprint module when it is in the state of image acquisition, such as the enrollment process and the matching process;

Static power consumption: the current when the fingerprint supply voltage of the fingerprint module is 0 and the Sensor supply voltage is 3.3V.

3 Product appearance and structural dimensions



Figure 3.1 Product appearance

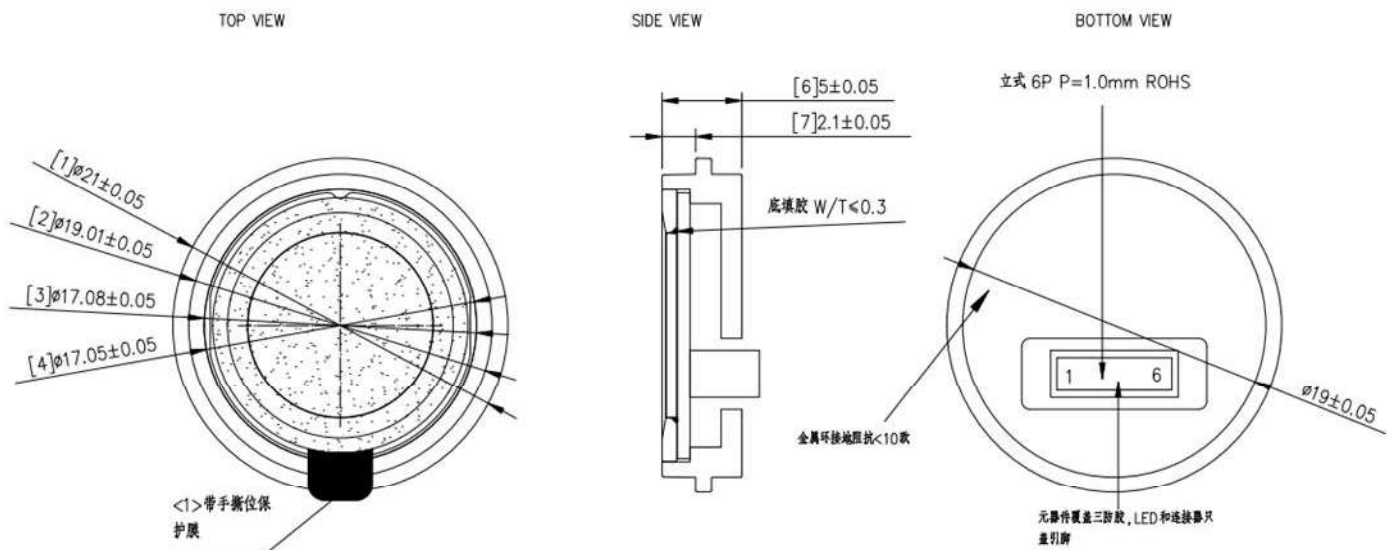


Figure 3.2 Product structure dimensions (mm)

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, Standing paste

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

PIN	Define	Instruction
1	V_SENSOR	3.3V touch-powered (requires constant power)
2	TOUCH_OUT	Wake-up IRQ (true:1, false:0)
3	VCC	Fingerprint module VCC
4	TX	UART_TX (Fingerprint module ->MCU)
5	RX	UART_RX (MCU-> Fingerprint module)
6	GND	GND

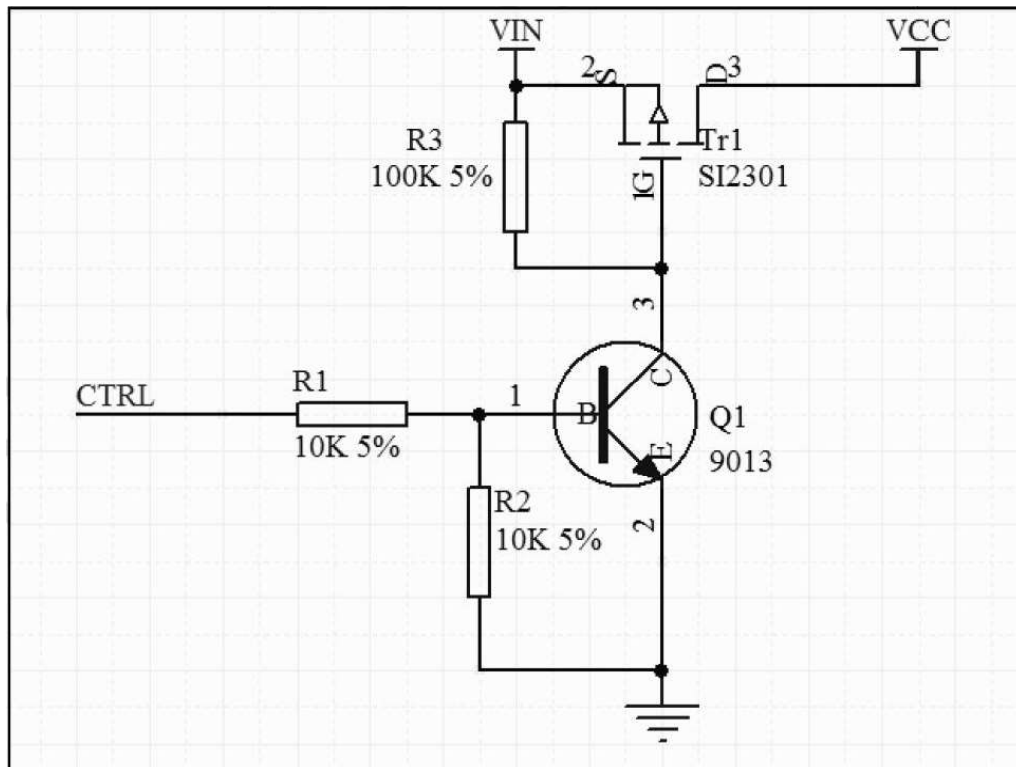
Note: The serial port is 3.3V TTL level, connecting to the computer needs level conversion, it should be noted that V_SENSOR needs to be powered all the time, TOUCH_OUT is the live signal output, the voltage is the same as the voltage of the touch control, 1 - live detection is true, 0 - live detection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

5 Low power reference design

Reducing the power consumption of the fingerprint module is achieved by controlling whether the VCC power supply of the fingerprint module is working or not, and 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 controls the fingerprint module VCC on and off.



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