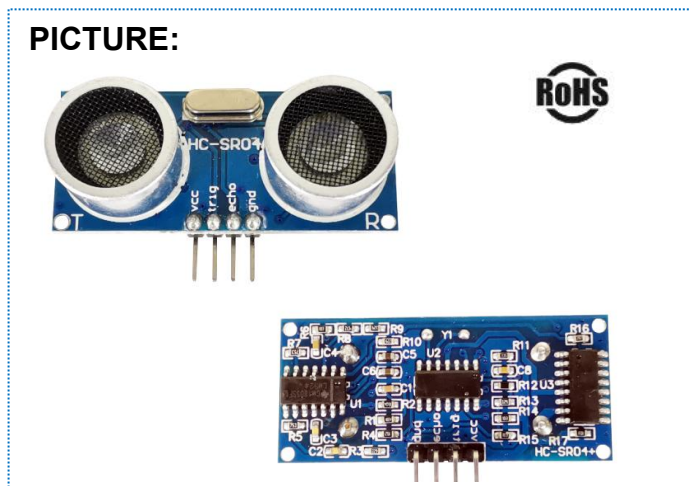**DESCRIPTION:** Ultrasonic Sensor Module
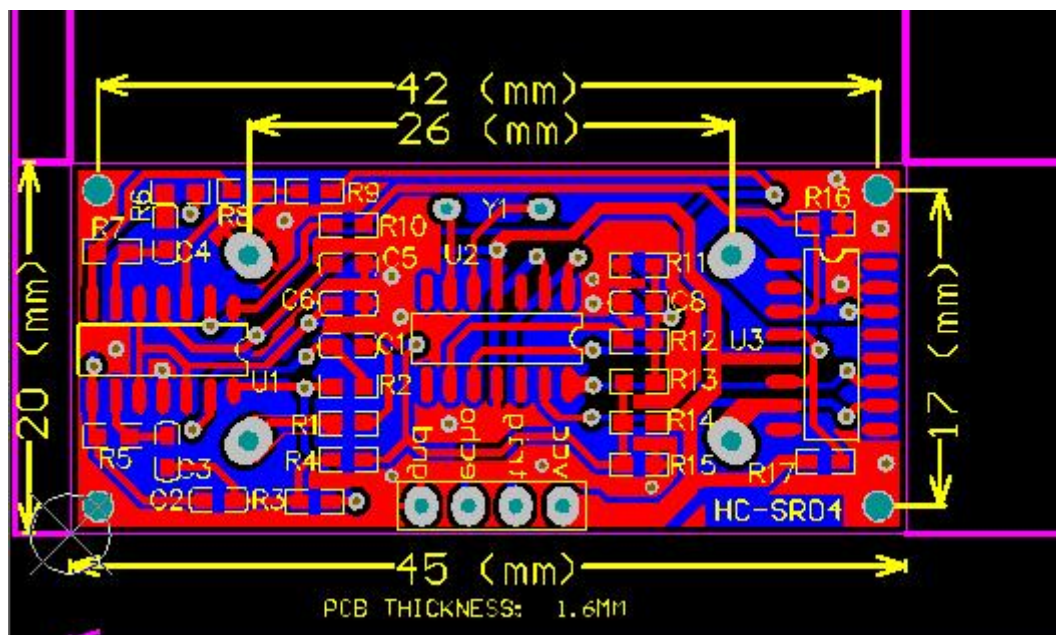**MODEL:** HC-SR04

PICTURE:

RoHS

FEATURES

- Typical working voltage: 5V
- Ultra-small static working current: less than 5mA
- Sensing angle: no more than 30 degrees
- Detection distance: 2cm ~ 450cm
- Accuracy: 1cm
- Blind area: 2cm

MECHANICAL DRAWING
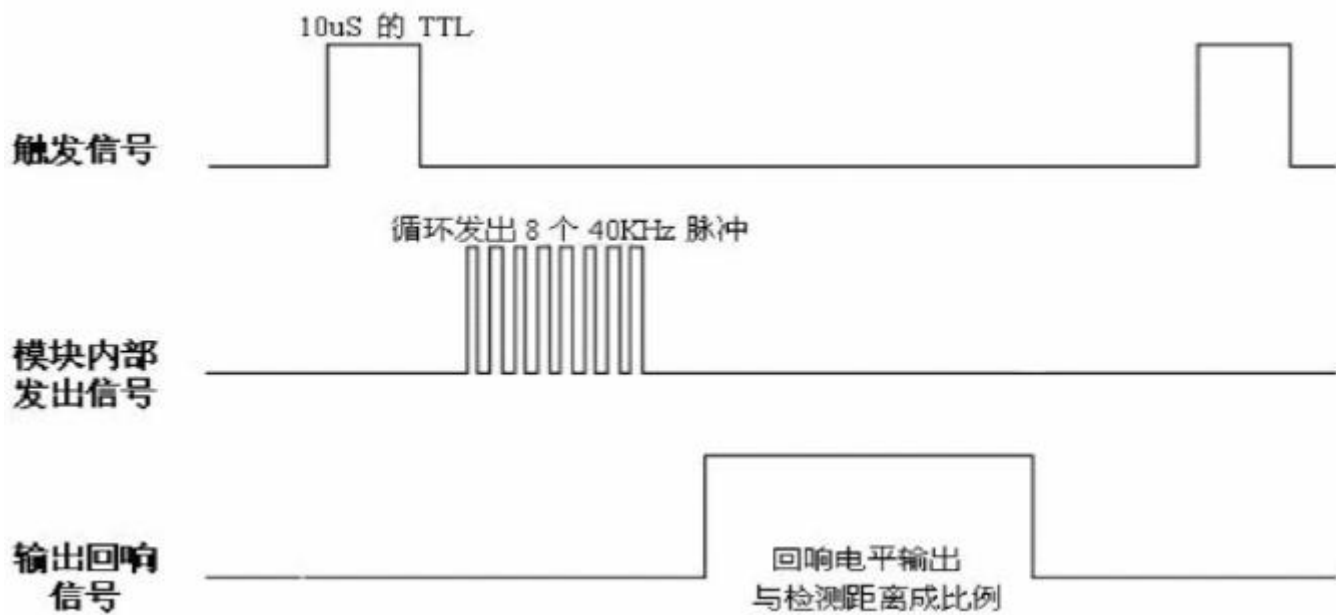units:mm

INTERFACE DEFINITION

Vcc、 Trig、 Echo、 Gnd

Usage: Control the mouth to send a high level above 10US, you can wait for the high level output at the receiving port. The timer can be turned on when there is an output, and the timer value can be read when the port goes low. At this time, it is the time of the distance measurement, and the distance can be calculated. With such continuous cycle measurement, the value of your mobile measurement can be reached.

WORKING PRINCIPLE

●Use IO to trigger ranging, giving a high level signal of at least 10us;

●The module automatically sends 8 40khz square waves to automatically detect whether there is a signal return.

●There is a signal return, through the IO output a high level, the high level duration is (4) the time from the transmission to the return of the ultrasonic wave. Test distance = (high time * sound speed (340M / S)) / 2

Ultrasonic timing diagram

The above timing icon shows that you only need to provide a pulse trigger signal of 10uS or more. The module will internally emit eight 40khz cycle levels and detect echoes. The echo signal is input as soon as an echo signal is detected. The pulse width of the echo signal is proportional to the measured distance. The distance can thus be calculated by transmitting a signal to the received echo signal time interval. Formula: uS/58=cm or uS/148=inch: or: distance=high time*sonic speed (340M/S)/2;It is recommended that the measurement period be 60ms or more to prevent the influence of the transmitted signal on the reverberation signal.

APPLICATION CONSIDERATIONS

1: This module should not be connected with power. If you want to have a live connection, let the Gnd terminal of the module be connected first. Otherwise it will affect the module work.

2: When measuring distance, the area of the object to be measured is not less than 0.5 square meters and should be as flat as possible. Otherwise it will affect the test results.

CIRCUIT DIAGRAM