1, Product **presentation.**
TD-24G-A-002 microwave detection module can be used to detect targets with movement speeds ranging from 0.2 km / h to 22 km / h, to detect movement targets, to detect distances ranging from 0.1m to 25m, and to customize the measuring range according to customer needs, with an accuracy of up to 0.5M.

2, description of the characteristics.
24GHz (ISM standard band) based on radar operation
The maximum detection distance of the motion detector is up to 20 meters (the target is the person moving nearby) the closest detection distance is customized according to the application range **(The agreed detection distance before the command, the default delay, the high-level output).**
Module Appearance Dimensions.:25mm(L)X 25mm (W) X 12mm (H)

3, limit parameters.

The limit operating voltage range.	4.5V ~ 5.5V
Limits the operating temperature range.	-40 ° ~ + 85 °

4 recommended working conditions.

The recommended operating voltage range.	4.75V ~ 5.25V
The recommended operating temperature range.	-30 ° ~ + 60 °

5. EMC

Standard.	Pilot project.	Parameters and regulations.
IEC61000-4-2	Immunity to electrostatic discharge.	+/- 4.0kV (Contact discharge.); +/- 8.0k
IEC61000-4-3	Radiation immunity.	80-1000MHz, 3V / m, 80% AM (1KHz)
IEC61000-4-4	Fast electrical immunity to the group of transient pulses.	2KV (electrical end), Tr / Th = 5 / 50ns,
IEC61000-4-6	Immunity to Harassment by Conduction.	0.15-80MHz, 3V, 80% AM (1KHz)

6. Technical parameters.

Settings.	Symbol.	The minimum value.	Typical value.	The maximum value.	Unity.
Operating voltage.	VCC	4.75	5	5.25	V

Operating current.	Cic		35	45	MY
The transmission frequency.	Fstandard	24.00 0	24,125	24,250	GHz
Power output. (EIPR)	Pout		<20		DBm
Antenna settings.	Level.		78		°
	Vertical.		36		°
Antenna gain.	Level.		12		DB
	Vertical.		13		DB
Operating temperature.	High	-30		+ 85	℃
Store the temperature.	Tst	-45		+ 115	℃
Temperature drift.	△ F TX		-1.0		MHz /
Cut.	L * W * H		25 * 25 * 6.6		Mm
The entrance is weak.	VIL	-0.3		1.5	V
Entrance is high.	Virus	3.5		5.3	V
The yield is low.	FLIGHT			0.8	V
The yield is high.	VOH	4.0			V

7. Definition of the interface.

The interface of the PCBA microwave detection module is a horizontal table-mounted socket with a pitch of 1mm

Serial number.	The name of the pin.	Enter exit.
1	+ 5V	Power input.
2	Signal	Level signal output.
3	IO_input	Depending on the input level, different detection distances can be set.
4	GND	Power supply.

Design specifications and selection of housing material

When installing, the shell can not be made of metal materials or metal layers; Carbonless plastics or plastic foams can be used. The right way

When the shell is made of plastic material (ABS, PVC, etc.), the thickness and space of the shell should be properly assessed, and the antenna should be wrapped so as not to come into direct contact with the structure the radar antenna;

When using foam materials (such as Stypopor or similar materials) for the shell, make sure that the relative dielectric constant of the material is close to 1
Wrong way
Wrap the antenna with metal foil or a few metal parts;
Spray the antenna structure with any type of paint or varnish;
Wrap the antenna with CFK (conductive) foil;
The plastic material is in direct contact with the corroded antenna structure (has a higher constant dielectric effect on the resonant frequency of the patch). Recommended hull size
For 24GHz radar, based on experience, the shell can be plastic with a thickness of about 3mm and keep a distance of about 6mm from the surface of the radar antenna.
If a thicker plastic material is used, the increased insertion loss should be taken into account; At the same time, too thick a shell can affect the pattern of the antenna.
When it is necessary to pot the PCBA microwave induction module, as indicated by the red arrow in the figure below, the width of the step where the PCBA is glued to the inner wall of the shell should be included between 2.5mm and 3mm to prevent glue from leaking from the bottom of the PCBA during repotting, and the shell should be able to be placed evenly and is convenient for mass production of glue. The screw holes are of suitable size and not easy to slide.