

GKM-MD5G

5.8GHz Radar Sensor



1. Product Overview

The GKM-MD5G is a compact 5.8 GHz radar sensor module.

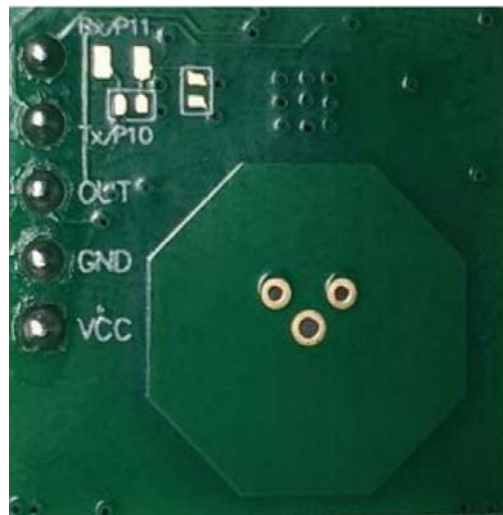
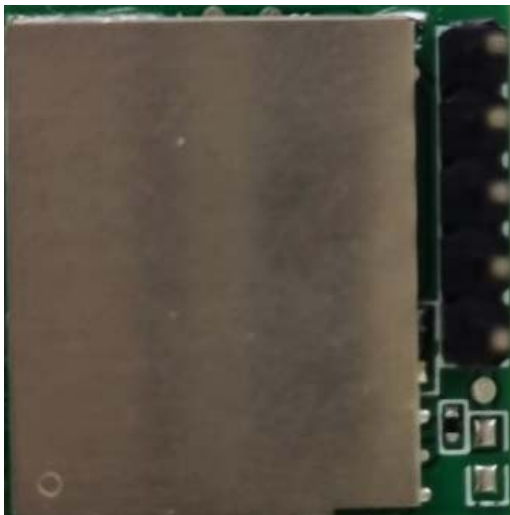
The GKM-MD5G module is a high-performance radar sensor combined with a small flat antenna.

Allows precise detection of moving objects within the sensing area.

It has high-quality sensing performance because it does not affect temperature, humidity, wind, dust, noise, brightness, etc Multi-filter algorithms and interference prevention features provide strong permeability to non-metallic materials such as glass, plastic, fiber, and wood.

The GKM-MD5G module is used to detect people or moving objects and can be applied to various places such as smart homes, smart doorbells, motion detectors, home cameras, and smart lamps.

2. Product Photo



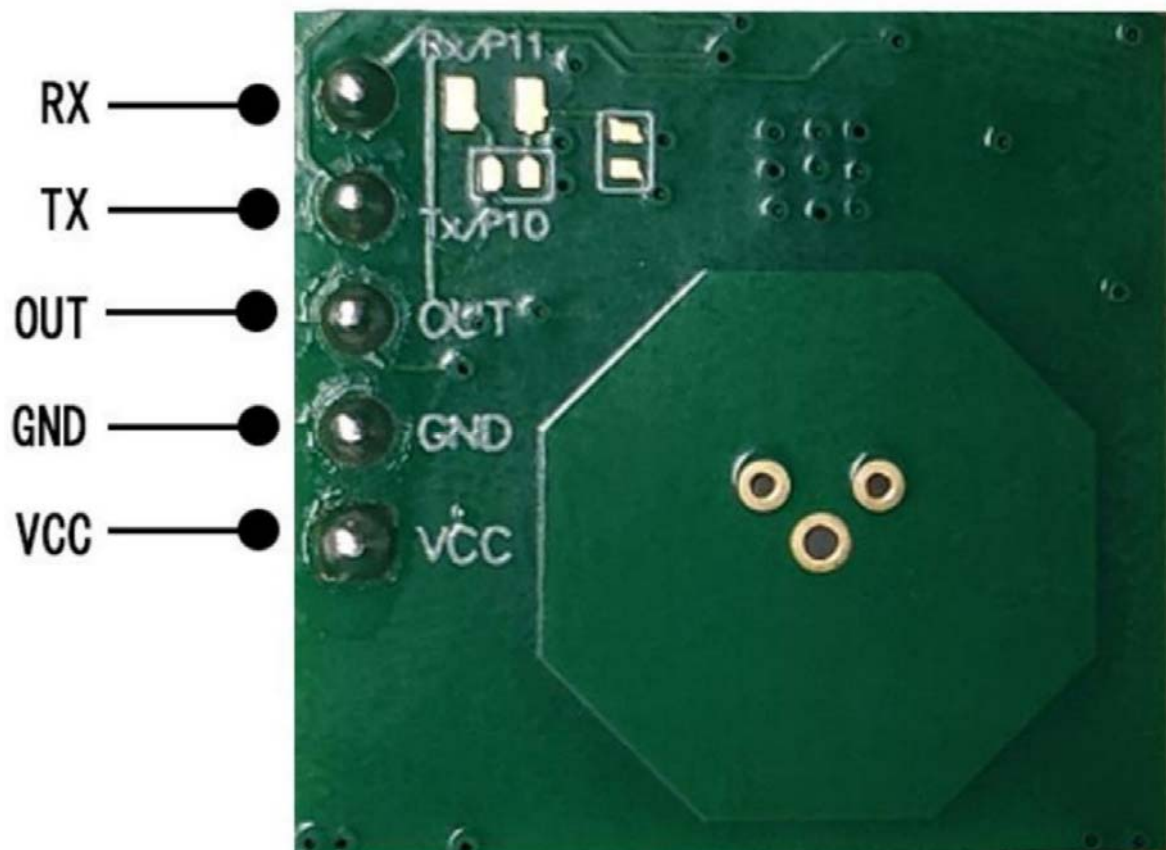
3. Product Features

- A. Operating frequency band: 5.8 GHz ISM frequency band
- B. Doppler Effect Based Microwave Sensor
- C. Sensing distance and sensing time can be controlled
- D. Low cost and high efficiency with CMOS technology
- E. Built-in LDO to support photo-voltage power supply
- F. Provides UART, I2C
- G. Self-calibration functionality ensures no impact from external interference
- H. Certified by FCC

4. Product Specifications

RF	Certification Standards	FCC
	Frequency	5.780GHz~5.810GHz
	Transmitted power	-4dBm
	Antenna	a flat antenna
Hardware	Data Interface	GPIO / UART
	Operating voltage	3.3V
	Operating current	23MA
	Operating temperature	-40°C ~ 85°C
	Storage temperature	-40°C ~ 150°C
	Humidity	<85%
	Size	20mm x 20mm
Basic	Detect output level	3.3V
	Non detect output level	0V
	Default detection output time	2S
	Maximum detection distance	10m
Version	Software	0.1.9.7
	Hardware	GKM-MD5G-3V3-G-5D-NLS-FCC-V2.0

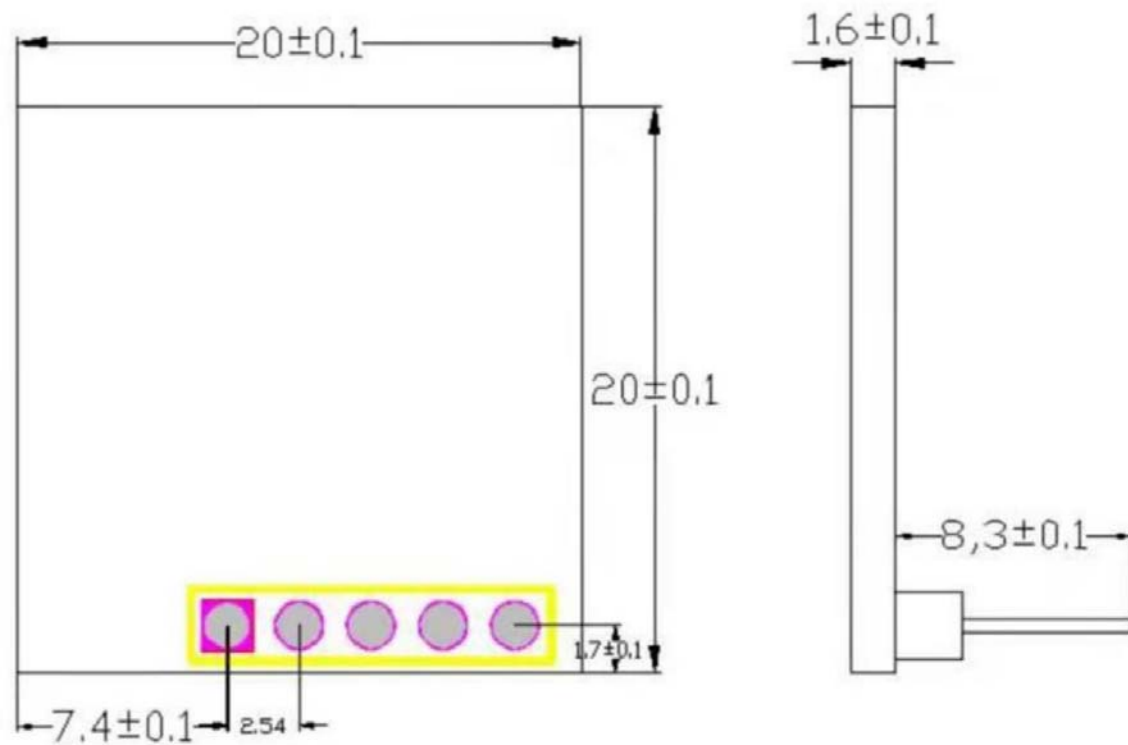
5. Pin Specifications



No.	Title	Details	Remark
1	VCC	-	3.3V
2	GND	-	Ground
3	OUT	I/O	Sensing out
4	Tx	I	COM Out
5	Rx	0	COM Input

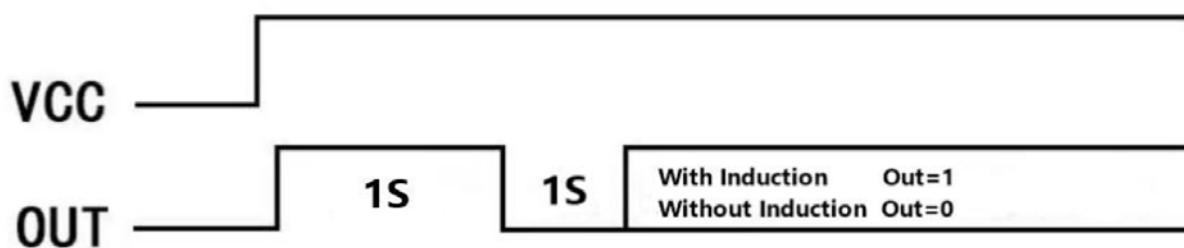
6. Product size

단위 : mm



7. Operational Guidelines

7-1. Module OUT RAM Timing



7-2. Detection Range

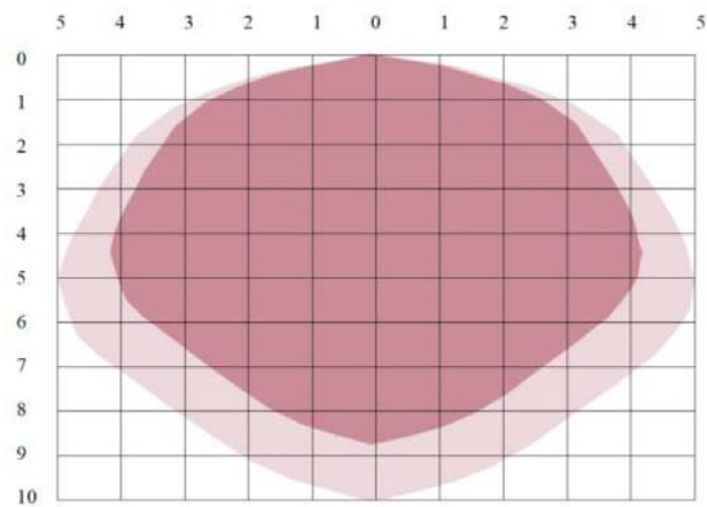
The sensitivity of the radar sensor can be set by the MCU.

The sensing distance can be adjusted.

As shown in the picture below, the deep red area is a highly sensitive area that can fully detect moving objects

The light red area is the low area where moving objects can be detected.

Depending on the actual product structure and mounting environment, the detection distance and angle are affected.



8. Precautions

- The radar antenna is not designed by placing it in the direction of metal or concrete.
- The front of the antenna must be free of components such as metal or shield to prevent signal shielding.
- The radar module must have a power supply greater than 50 mA otherwise the sensor will operate abnormally.
- Do not install near the AC power line. Obstructs radar signals.
- Avoid installing protective equipment on the front of the antenna as much as possible and require a minimum clearance of 5 mm.
- When installing multiple modules, place the antennas of the modules parallel to each other and maintain a clearance of at least 1 meter.

9. INTEGRATION INSTRUCTIONS per FCC KDB 996369 D03, Section 2.0

2.2 List of applicable FCC rules

The module has been certified for use under FCC Part 15.249 only

2.8 Label and compliance information

FCC ID: 2A8VH-GKM-MD5G

If the module's FCC ID is not visible when installed in the host system then the host system shall be labeled with "Contains FCC ID: 2A8VH-GKM-MD5G".

The host devices user manual shall contain, in addition to the compliance information required for the host system for e.g. Part 15 subpart B, the following statements:

This device complies with part 15 of the FCC rules.

Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

2.9 Information on test modes and additional testing requirements

To verify that your installation of the module into your host device has not compromised compliance with FCC rules we recommend performing spot checks with the module operational to check that emissions remain below the FCC 15.249 limits.

Refer to FCC KDB 996369 D04.

2.10 Additional testing, Part 15 Subpart B disclaimer

The modular transmitter is only FCC authorized for FCC Part 15 Subpart C 15.249 and that the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification.

This includes Part 15 subpart B requirements for unintentional radiators.

Host manufacturers are responsible for the approvals of the host system with this module installed for Part 15 B when applicable following the appropriate procedures for SDoC or certification.

10. FCC Compliance Statement

This device complies with part 15 of the FCC rules.

Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

11. FCC Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

12. FCC Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

13. Contact US

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