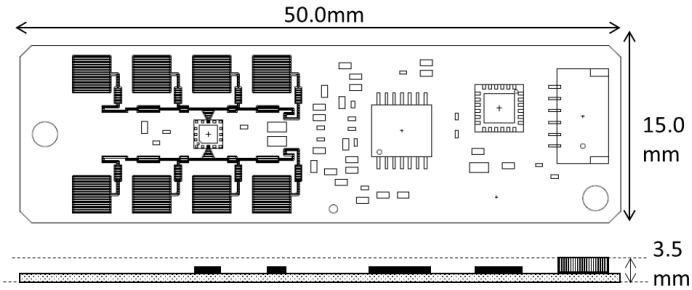
This Datasheet is preliminary

DC6S4*N31**

Microwave Motion Sensor UART Module



Tolerance ±0.5mm

Features

This product transmits and receives a microwave from antennas and digitally outputs a motion signal of a person by the Doppler effect.

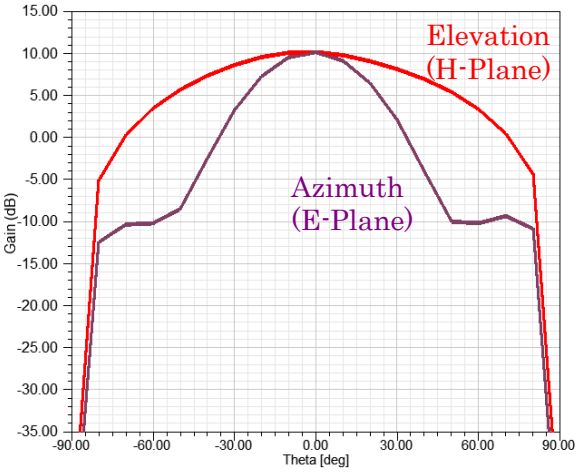
- The ultra small device :
  15mmx 50mmx 3.5mm, module size.
- Operating frequency of 24GHz-ISM-Band.
- Detection of direction and velocity of moving objects.
- Supply voltage is 3.3V
- Integrated RF circuit, analog signal processing and MCU.
  As a movement of a person, it will detect from slow motion to speed as fast as walking.
- RoHS Compliant

Application

- Industrial and Security Applications.
  Movement, direction and velocity.
- Other motion sensor

Note: Interface pin number has not been fixed yet.

《Antenna Pattern》



●Absolute Maximum Ratings（Ta=25ºC）

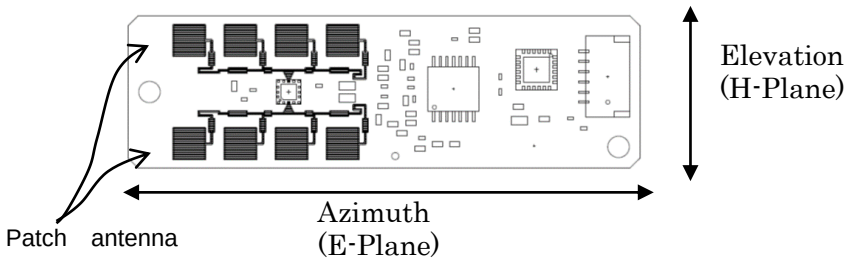
Parameter	Unit	Min.	Max.
DC Supply Voltage (Vcc)	V	3.2	3.4
DC Supply Current (Icc)	mA	-	60
Storage Temperature	ºC	-25	+65
Operating Temperature	ºC	-20	+60

●Specifications

Ta=25ºC,　VCC=3.3V

Parameter	Unit	Min.	Typ.	Max.	Note
Output Frequency	GHz	24.05	24.10	24.25	
Output Power (EIRP)	dBm			20	
10dB beam width (Azimuth)	Deg.		70		
10dB beam width (Elevation)	Deg.		140		
IF-Bandwidth	Hz			200	
DC Supply voltage (Vcc)	V	3.2	3.3	3.4	Vcc
Current consumption	mA		49	62	

＊Specifications are subject to change without notice.
＊Antenna pattern definition



●Output Interface

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Digital output has UART mode and Comparator mode.
In UART mode, High / Low outputs are output from TX according to the threshold setting values from RX. In the comparator mode, it outputs High / Low with respect to the analog threshold setting value.
*Please refer to “Microwave Motion Sensor application note” .

《UART Communication*》

Baud rate	115,200 bps
Data rate length	8bit
Parity	None
Stop bit	1bit
Frow control	None

*Please refer to “Microwave Motion Sensor UART Interface Manual” .

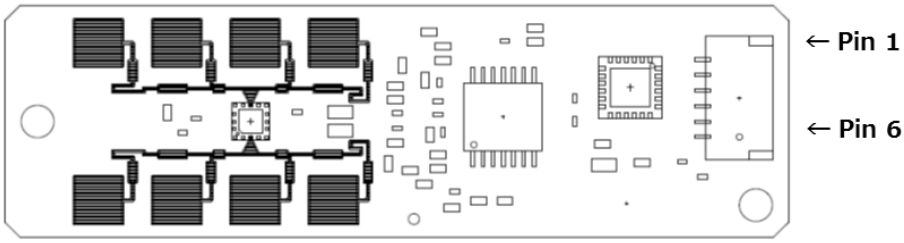
● **Connector Information and Pin assignment**

《Electrical connection》

To facilitate handling, this MWS has a 6 pin connector. Please have CABLE ready.

Connector is "11002W90-6P-S-5A-HF" made by JCTC. For housing use "11002H00-6P-HF" made by JCTC is recommended.

http://jctc.com.cn/

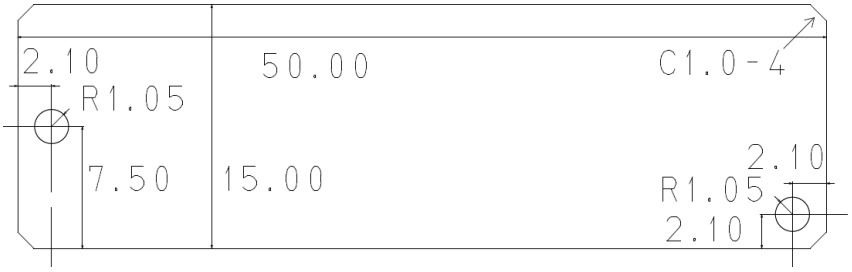


Pin	Description
1	Comp_Th
2	GND
3	UART_TX (data out)
4	UART_RX
5	Comp_Out (Low/High)
6	Vcc(3.3V)

About connection method with customer's board

《Physical Connection》

Since two screw holes are set, on the customer's case or board.



《Installing the MWS module in the customer's BODY》

Since the hole of Φ 2.1mm is opened in the module, please use screw of M 2. Please consider the following two points when installing.

(1) Resin screws are recommended. Although metal screws can also be used, please be aware that it may be affected by radio wave radiation pattern.

Example of resin screw: Hiroshige instrument

http://hirosugi.co.jp/products/RY/RY-0000.html

(2) There is wiring on the back of the module. Therefore, when attaching a module to a metal object etc., please

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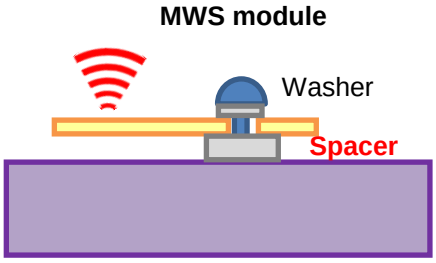
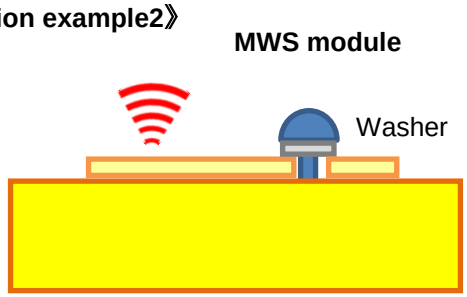
use a resin spacer.

《Installation example 1》



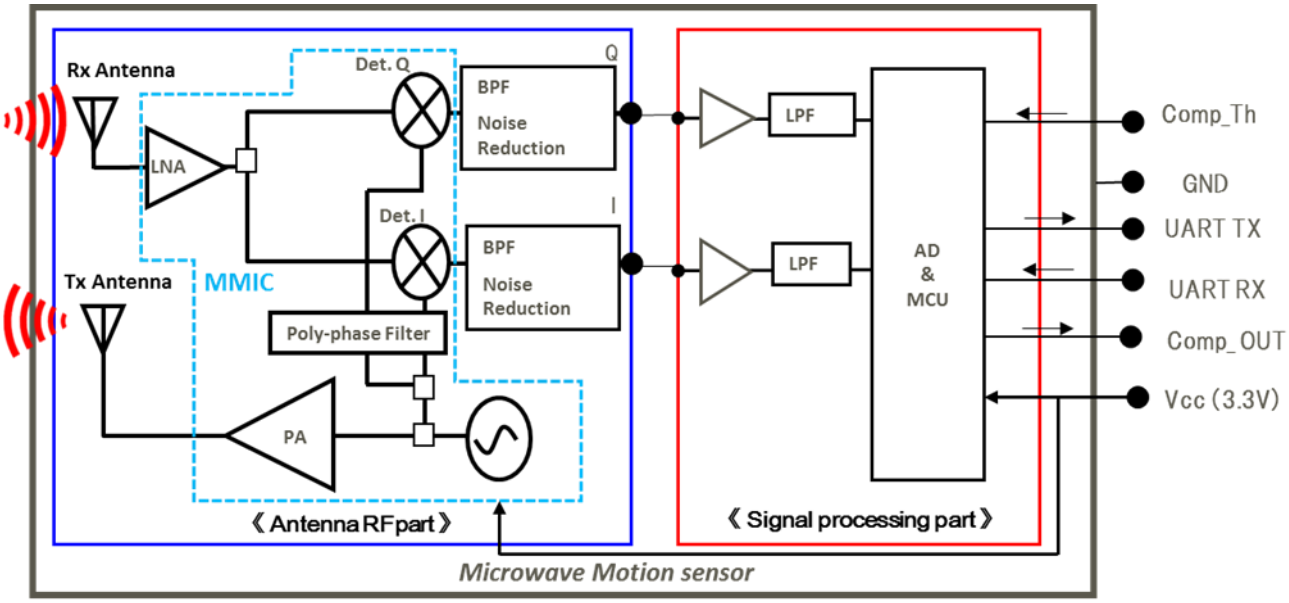
Attachment to customer's body (Metal) :
A spacer is required so that the back side of the MWS module does not touch the metal surface.

《Installation example2》



Attachment to customer's body (Resin/ Ceramic) :
Spacers are not required because they are insulators.

● **Block Diagram**



●Note :

[1] In designing the customer's casing :

(a) The resin thickness of the antenna case surface is 0.8 mm - 1.5 mm (MAX).

(b) The clearance of the space from the patch antenna surface to the case resin must be within the range of 6 mm ± 1 mm.

(c) As the material of the resin (plastic) in this case, we recommend polypropylene, polycarbonate, ABS, etc. with a small relative dielectric constant (5 or less)

[2] About mounting on the main board :

Contact with the metal surface should be avoided.