

DESCRIPTION

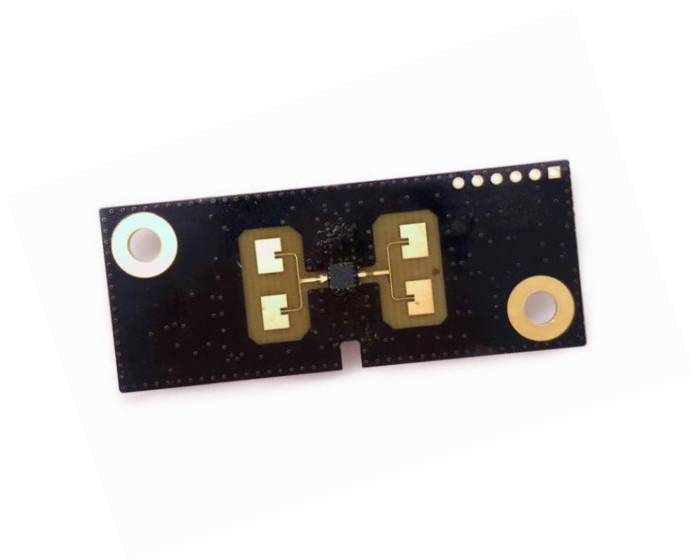
RKB1146 is a 1T1R doppler radar operating in 24 GHz ISM band. The VO pin outputs either a 0V or 3.3 V voltage when a nearby approaching target is presented or not. RKB1146 is suitable for both IoT and industrial applications.

FEATURE

- Operating frequency range: 24.09 ~ 24.15 GHz
- TX EIRP: 92.2dBuV/m
- Phase noise: -96 dBc/Hz @ 1 MHz offset
- RX noise figure: 10 dB DSB
- Current at 5 V power supply: 60 mA
- On-board MCU included
- Dimension: 20 mm x 50 mm

APPLICATION

- Industrial application
- IoT application



SPECIFICATION (at 25° C room temperature)

Parameter	Min	Typ.	Max	Units	Note
Power Supply					
Voltage	3.5	5	5.5	V	
Current		60		mA	
TX					
Frequency range	24		24.25	GHz	
EIRP		8		dBm	@24.125 GHz
Phase noise		-96		dBc/Hz	@1MHz offset
RX					
Noise figure		10		dB	DSB
Antenna					
TX gain		4		dBi	
TX 3 dB antenna pattern		±57		deg	Azimuth
		±24		deg	Elevation
RX gain		4		dBi	
RX 3 dB antenna pattern		±57		deg	Azimuth
		±24		deg	Elevation
Start-up Time					
Start-up time after power on		1		s	
Detection Distance					
Detection distance	Without radome: 0.1-5m adjustable				
Accuracy Rate					
Accuracy rate	99.9%				

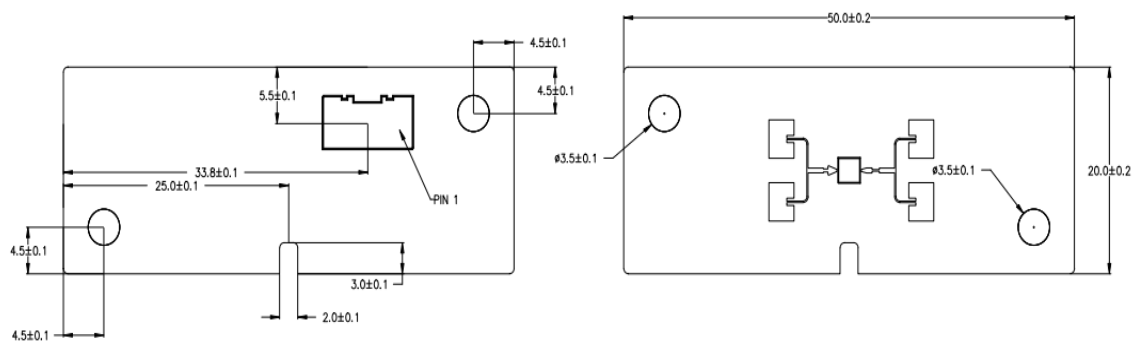
PIN MAP

Connector: BM03B-PASS-TFT(LF)(SN) from JST.

Pin No.	Mnemonic	Description
1	GND	Ground
2	VO	Detection output
3	VCC	DC supply



DIMENSION (mm, Thickness:1.6±0.15mm)



COMMUNOCATION PROTOCOL

UART PROTOCOL

- Baud Rate: 115200
- Data Bits: 8
- Stop Bits: 1
- Parity: none

UART COMMAND

- set TH=***: to set the detection sensitivity, the default value is 375. The larger the value of the sensitivity, the shorter the detection distance is.
- set SN=***: to set the anti-vibration factor, the default value is 5. The larger the value of this factor, the better the anti-vibration effect is, and the longer time is required for a motion to be detected, in other words, a fast motion may be neglected.
- set DL=***: to set the duration time after an approaching target is detected, the default value is 1000 which represents 1 second in time.

ATTENTION

Water or metallic objects on top of the radar will cause malfunction.

REGULATORY INFORMATION

FCC 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.

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

The modular can be installed or integrated in mobile or fix devices only. This modular cannot be installed in any portable device.

FCC Radiation Exposure Statement

This modular complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This modular must be installed and operated with a minimum distance of 20 cm between the radiator and user body.

If the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: "Contains Transmitter Module
FCC ID:2AWKC-71800 Or Contains FCC ID: 2AWKC-71800"

When the module is installed inside another device, the user manual of the host must contain below warning statements;

1. 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.

(2) This device must accept any interference received, including interference that may cause undesired operation.

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

The devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.

Any company of the host device which install this modular with limit modular approval should perform the test of radiated emission and spurious emission according to FCC part 15C:15.245, 15.247 and 15.249 requirement, Only if the test result comply with FCC part 15C : 15.245, 15.247 and 15.249 requirement, then the host can be sold legally.

Installation requirements:

FCC ID:2AWKC-71800247 Limited module is only used in the interior of the wine cabinet and refrigerator, and must comply with FCC regulations. It cannot be used for other mobile products.

IC Warning

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

- (1) This device may not cause interference; and
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

If the ISED number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: "Contains Transmitter Module IC:26186-71800247 Or Contains IC:26186-71800247"

When the module is installed inside another device, the user manual of the host must contain below warning statements;

1. This device complies with RSS Rules. Operation is subject to the following two conditions:

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

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

The devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.

Any company of the host device which install this modular with limit modular approval should perform the test of radiated emission and spurious emission according to RSS-210 requirement, Only if the test result comply with RSS-210 requirement, then the host can be sold legally.

Installation requirements:

IC: 26186-71800247 Limited module is only used in the interior of the wine cabinet and refrigerator, and must comply with ISED regulations. It cannot be used for other mobile products.

Cet appareil est conforme aux CNR exemptes de licence d'Industrie Canada . Son fonctionnement est soumis aux deux conditions suivantes :

- (1) Ce dispositif ne peut causer d'interférences ; et
- (2) Ce dispositif doit accepter toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement de l'appareil.

Si le numéro harmonisé n'est pas visible lorsque le module est installé à l'intérieur d'un autre dispositif, Ce label extérieur peut être utilisé comme suit: Module émetteur contenant: IC:26186-71800247 and ou contenant: IC:26186-71800247

Lorsque le module est installé à l'intérieur d'un autre dispositif, le manuel de l'utilisateur du host doit contenir la mention suivante:

Cette opération est soumise à deux conditions:

- (1) ce dispositif ne peut pas provoquer des nuisances.
- (2) cet appareil doit recevoir toute intensité, y compris celle qui peut provoquer une opération non désirée.

Les modifications ou modifications qui ne sont pas expressément approuvées par la partie responsable de la conformité peuvent être approuvées par l'autorité de l'utilisateur chargée du fonctionnement du matériel.

L'appareil doit être installé et utilisé dans un format strict avec les instructions du fabricant décrites dans la documentation d'utilisation qui accompagne le produit.

Toute entreprise du dispositif hôte qui a installé ce module avec des restrictions d'agrément du département devrait effectuer l'essai d'émission radiée et d'émission spurieuse conformément aux exigences RSS-210, Seulement si le test est conforme aux exigences RSS-210, alors le serveur peut être vendu légalement.