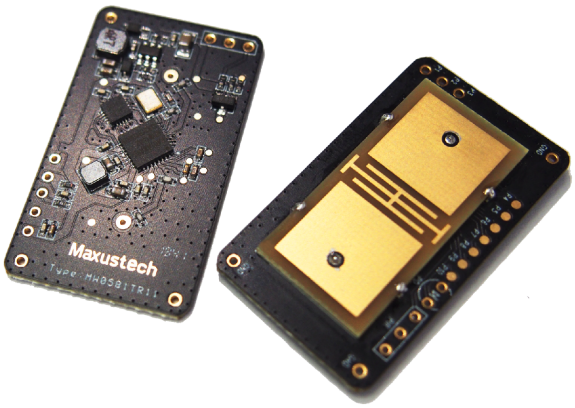
MW0581TR11



Overview

The MW0581TR11 is a highly integrated single chip 5.8GHz microwave motion sensor developed by Maxustech. The MW0581TR11 simplifies the implementation of non-contact detection applications and is an ideal solution for smart lighting, surveillance, automation and any self-monitored radar system.

The module achieves broad sensing coverage given the well-designed 1Tx, 1Rx transceiver antenna and robust performance in anti-interference with built-in PLL. Simple programming model changes can enable a wide variety of sensor implementation (Short, Mid, Long) with the possibility of dynamic reconfiguration for implementing a multimode sensor. SDK is available for developers to adjust the sensing settings as well as to capture the raw radar data in terms of further development.

Features

- **Strong Anti-interference**

Robust performance under radio interference with the built-in PLL and frequency hopping algorithm, supporting large scale deployment.

- **Well-designed Antenna**

Well-designed 1Tx, 1Rx antenna pair enables small form factor and maintains a broad sensing angle with Elevation of 104° and Azimuth of 153°

- **SDK Available**

Raw data can be captured by cross-platform SDK with serial communication. Sensing settings such as distance, sensitivity are adjustable by SDK.

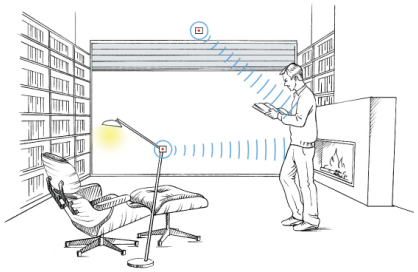
- **Wide Range of Input Voltage**

Support 5~24V voltage input, suitable for various applications

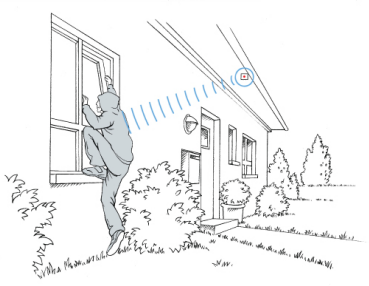
- **Comply with certification**

Comply with FCC/CE/RS certification test standards.

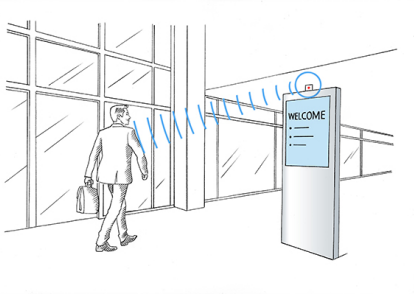
Applications



Home Automation



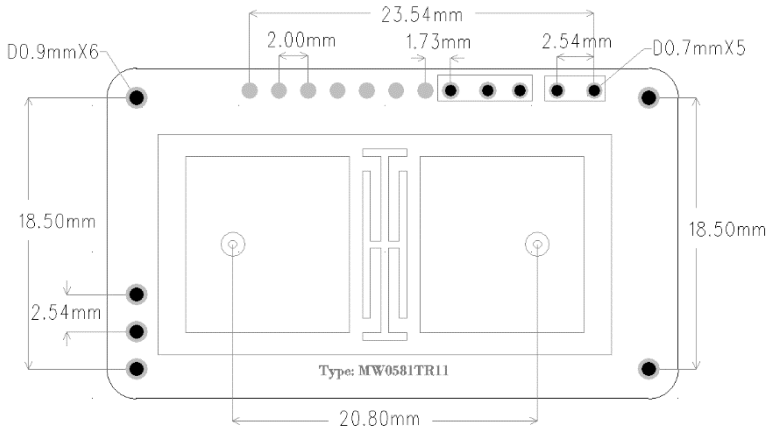
Intrusion Alarm



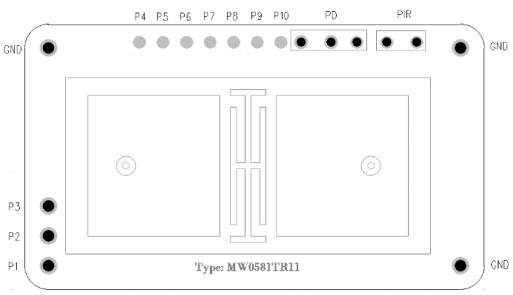
Movement Detection

Outline Diagram

Length: 39mm **Width:** 22.5mm **Thickness:** 1mm



Interfaces

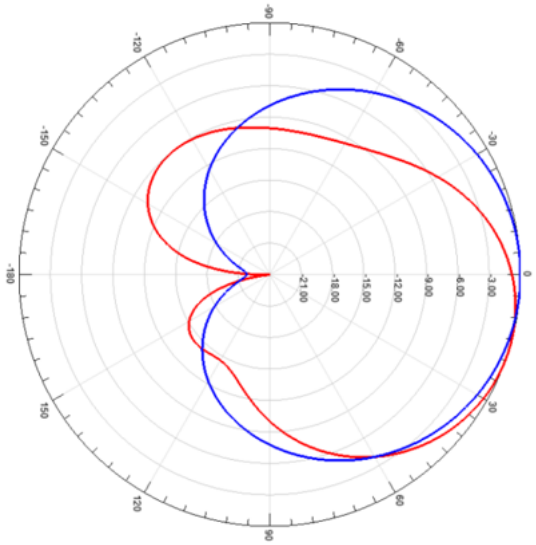


InterfaceDefinition		
Interface Number	**Interface Name**	**Interface Definition**
P1	VOUT	Output high-low-level pulses: High level when detected, with the same output voltage as Vin.
P2	GND	Ground lead
P3	VIN_5_24	Power supply ranging from 5V~24V DC.
P4	MCU_RXD	Serial port RX
P5	MCU_TXD	Serial port TX
P6	GND	Ground lead
P7	ICE_DAT	Software flashing
P8	\RESET	Reset of software flashing
P9	ICE_CLK	Clock of software flashing
P10	3V3	3.3V power supply of software flashing
PD	PD	Interface of Photoresistance
PIR	PIR	Interface of Infrared Sensor

Specification

Parameters	Symbol	Value			Units	Notes
		Min	Typ.	Max		
Supply Voltage	Vin	3.3	5	24	V	Correspond to No.P3
Current Consumption	I	-	40	70	mA	Vin=5V
Radiated Power	Pout	-30	-	7	dBm	Adjustable by software
Frequency Setting	ƒout	5.725	-	5.875	GHz	Adjustable by software
Receive Sensitivity	Psen	-	-60	-	dBm	ƒ(IF)=20Hz, B=1KHz, S/N=6dB
Stray Power	Psupr	-	-	60	dBm	Comply with FCC/CE/RS certificate
Antenna E-plane Angle	WE	-	104	-	°	Antenna Beam Width(6dB)
Antenna H-plane Angle	WH	-	153	-	°	Antenna Beam Width(6dB)
Antenna Gain	Gain	-	2	-	dBi	
Output Control	Vout	-	Vin	-	V	Correspond to No.P1
Speed Measurement	Vdet	0.1	-	3	m/s	
UART Rate	19200				bps	
Detection Range	L	0	-	10	m	Adjustable by software
Operating Temperature	TA	-20	-	85	℃	
Storage Temperature	TSTG	-20	-	85	℃	

Antenna Beam Pattern



Antenna Beam Pattern at 6dB:

- **Elevation:** 104°
- **Azimuth:** 153°

Notes

- **Installation Guide**

  The module antenna should be oriented towards the target sensing area for working probably;
  Interference such as lamp beads may cause malfunction of the module. Maxustech recommends that the module surface should avoid light emitting circuits during installation;

- **Electrostatic Discharge Caution**

This integrated circuit can be damaged by ESD. Maxustech recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage. ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

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smart wireless sensing