X4M07 Datasheet

X4 radar sensor module

XeThru Datasheet **by Novelda AS**

Rev.A - Preliminary - September 10. 2018

Summary

X4M07 is a radar sensor that is an assembly of the X4SIP02 and the X4A04 antenna.
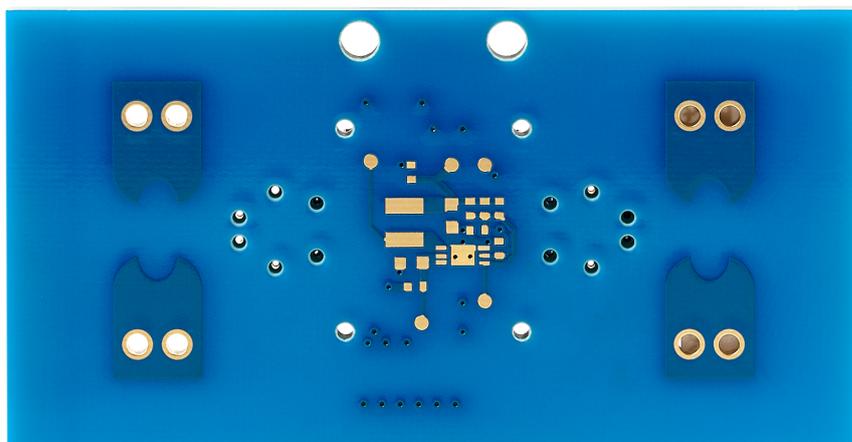
Table of Contents

1 List of Features

- Radar sensor module with antennas for X4 UWB radar SoC
- Designed for KCC/MIC compliant TX center frequency
- Assembly of X4SIP02 and X4A04
- SPI or QSPI interface to host
- Certifications
    - KCC for Korea
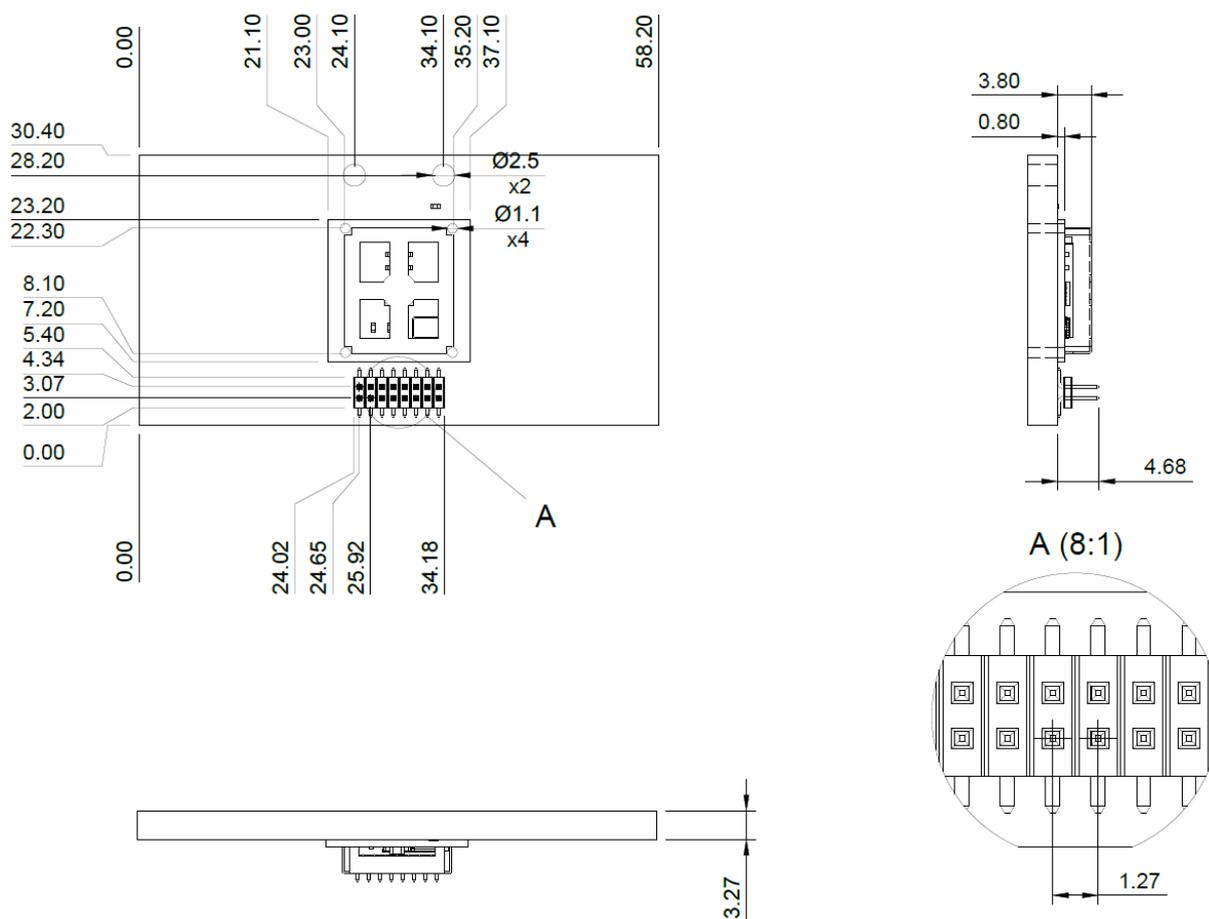   - MIC for Japan (pending)

X4M07 top view

X4M07 bottom view

2 Order Information

Order Code	Item Description	MOQ	MPQ	Packaging
X4M07	X4M07 Radar Sensor	1	1	1 unit in anti-static bag
X4M07-TR100	X4M07 Radar Sensor	100	100	100 units in anti-static tray

MOQ: Minimum Order Quantity

MPQ: Minimum Package Quantity

3 Physical Dimensions

X4M07 rev.2 physical dimensions

4 Antenna

X4M07 has two differential antennas optimized for the X4 UWB radar SoC, one for transmit and one for receive. The antennas are directional patch antennas with integrated WiFi filter (filtenna) optimized for frequencies between 7.25 and 10.2 GHz with a typical opening angle of 65° azimuth and elevation.

Illustration of 0° azimuth and 0° elevation

Antenna gain (dB). Max gain is 6.75 dB

5 Connectors

5.1 16-pin XeThru Radar Connector

The 16-pin header is intended for connection to a processing unit.

Pin descriptions

Pin	Name	Pin	Name
1	VDD3V	2	GND
3	QSPI_SCLK/SPI_SCLK	4	GND
5	QSPI_IO0/SPI_MOSI	6	GND
7	QSPI_IO1/SPI_MISO	8	GND
9	QSPI_IO2	10	GND
11	QSPI_IO3	12	GND
13	QSPI_nSS/SPI_nSS	14	X4_ENABLE
15	X4_GPIO1	16	X4_GPIO2

6 Hardware Revisions
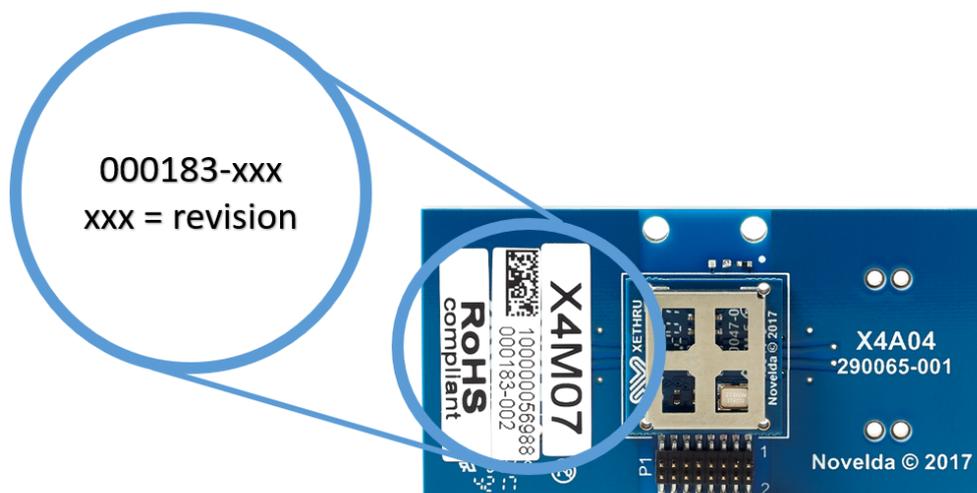
How to identify HW revision of X4M07

For detailed descriptions of X4SIP02 and X4A04 hardware, for details see their respective datasheets

6.1 X4M07 Revision 1

Uses the following boards:

- X4SIP02 Revision 3
- X4A04 Revision 1

6.2 X4M07 Revision 2

Uses the following boards:

- X4SIP02 Revision 4 - Added shield box to comply with FCC modular approval
- X4A04 Revision 1

6.3 Schematics, Bill of Material and PCB Layout

Schematics, bill of material and PCB layout files for X4M07, X4SIP02 and X4A04 can be downloaded from www.xethru.com.

7 Regulatory Approval

X4M07 is designed to meet UWB RF specifications of KCC (Korea) and MIC (Japan).

Some regulatory specifications also specify how the sensor is used. Users of X4M07 must check regulatory requirements for their own use case and determine whether the regulatory approvals obtained from Novelda are sufficient for their product.

7.1 KCC Approval

X4M07 has KCC approval. KCC certification number is R-CRM-N1A-X4M07.

Mean output power and frequency of the X4M07 depends on the Pulse Repetition Frequency (PRF), tx_power and Transmitter (TX) center frequency settings in the X4 radar chip. PRF must be set to 15.1875 MHz, tx_power must be set to High (3), and the TX center frequency must be set to 8.748 GHz by the host system to be in compliance with KCC regulations. For further description of the X4 radar chip, please refer to the X4 datasheet.

B679-3EEC-473D-4D64

방송통신기자재등의 적합인증서
Certificate of Broadcasting and Communication Equipments

상호 또는 성명 *Trade Name or Applicant*	NOVELDA AS
기자재명칭(명칭) *Equipment Name*	UWB 및 용도미지정기기(UWB 기술을 사용하는 기기)
기본모델명 *Basic Model Number*	X4M07
파생모델명 *Series Model Number*	
인증번호 *Certification No.*	R-CRM-N1A-X4M07
제조자/제조국가 *Manufacturer/ Country of Origin*	NOVELDA AS / 노르웨이
인증연월일 *Date of Certification*	2018-01-17
기타 *Others*	

위 기자재는 「전파법」 제58조의2 제2항에 따라 인증되었음을 증명합니다.

It is verified that foregoing equipment has been certified under the Clause 2, Article 58-2 of Radio Waves Act.

2018년(Year) 01월(Month) 17일(Day)

국립전파연구원장

Director General of National Radio Research Agency

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X4M07 KCC approval document

7.2 MIC Approval

MIC approval of X4M07 is pending.

Mean output power of X4M07 depends on the Pulse Repetition Frequency (PRF), tx_power and Transmitter (TX) center frequency settings in the X4 radar chip. PRF must be set to 15.1875 MHz, tx_power must be set to High (3), and the TX center frequency must be set to 8.748 GHz by the host system to be in compliance with MIC regulations. For further description of the X4 radar chip, please refer to the X4 datasheet.

8 Support and Resources

Development support, resources, links to development partners and resellers can be found on Novelda's web site www.xethru.com.

9 Disclaimer

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